



DREXEL UNIVERSITY
College of
Arts and Sciences

CATALOG

2022-2023

UNDERGRADUATE



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The College of Arts and Sciences

About the College

Drexel's College of Arts and Sciences (CoAS) stands unafraid in the face of change. We recognize that our ever-evolving, fast-paced culture requires a new approach to education — one that embraces both the *breadth* of knowledge acquired through the liberal arts and the *depth* of knowledge made possible through experiential learning.

Innovation requires more than an ambitious personality. It requires versatility — we must not only be experts in our fields, but also agile enough to engage in the cross-disciplinary work needed to address modern problems resourcefully. That's why our co-op program inserts students within a professional culture, introducing them to the expectations of the job while offering hands-on, practical application of coursework. It's why students in Drexel's community-based learning courses don't just read about complex, global issues; they study alongside the people affected by them — in prisons, hospitals, hospice centers and more. And it's why, starting as early as freshmen year, students team with faculty members as peers, conducting research that affects the world *now*.

Here in Drexel's CoAS, we are committed to implementing in-the-moment change, not for personal glory, but because it's what the world needs.

Vision

Our vision is to be locally, regionally, nationally and globally recognized for impactful research, scholarship, creative inquiry and civic engagement. We are a leader in experiential learning through our Co-op program, community-based learning courses, and undergraduate and graduate research opportunities.

Mission

By pursuing excellence in research and scholarship, we educate our students to become ethical professionals and citizens with knowledge of and appreciation for the fundamental interactions among the humanities, social sciences, and the sciences in a fast-changing, challenging, and diverse world.

CoAS aims to identify and address the grand challenges of our world through our research, teaching and community outreach. The College's dedicated, engaged faculty and staff train and educate new leaders to provide vision and direction in an ever-changing world. Through our emphasis on experiential learning, community engagement and hands-on research experiences, students learn to identify and solve societal challenges. Educated in modes of inquiry ranging from historical to scientific, from theoretical to data-driven, students are prepared to participate in local, regional and global communities in thoughtful, meaningful ways.

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 - Justice Studies Concentration (<http://catalog.drexel.edu/undergraduate/collegeofartsandsciences/criminologyandjusticestudies/justicestudiesconc/>)
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 - Philosophy and Law Concentration (<https://catalog.drexel.edu/undergraduate/collegeofartsandsciences/philosophy/>)
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Core Curriculum

Starting in 2021, the College of Arts and Sciences began developing a Core Curriculum as part of the larger aim to create a more nimble, flexible curriculum that will create a unified intellectual experience in the College and allow undergraduate students to double/dual major and/or to explore additional fields in addition to their major. 21st-century CoAS students and their future employers want a liberal arts core and the ability to double major, or at least gain expertise in multiple areas of inquiry.

Note that Core courses may also apply toward major requirements. Also, a given course may apply to multiple categories. If a course counts more than once, additional advising may be necessary as students must still meet the minimum number of total credits for their major.

Cultivating Global Competence

Learning Outcomes:

Develop global citizenship competencies to tackle the broader issues of our time from climate change to inequality and racism, and productively engage with diverse communities at the international and local levels.

- Analyze pressing global issues and complex transnational systems and their impact at both the global and local levels.
- Explore diversity, equity, and inclusion around the world, including language, culture, and identity.

- Engage with foreign cultures abroad and/or with transnational, migrant, and refugee communities domestically.

Notes:

CoAS has created a master list of courses that fit within this category—updated January 2021. This list includes such courses as:

- All Global Studies and Modern Languages courses.
- Any course in any discipline that has a substantial (50% or more) focus on global/international issues, including migrant or refugee communities in the U.S.
- Language courses (no minimum proficiency required for the Core Skills, but for example BAs have and may choose

Courses which satisfy Cultivating Global Competence include:

| | | |
|----------------|--|-----|
| ARBC (100-499) | | |
| BIO 114 | Climate Change and Human Health | 3.0 |
| CHIN (100-499) | | |
| CJS 320 | Comparative Justice Systems | 3.0 |
| COM 342 | English Worldwide | 3.0 |
| COM 345 | Intercultural Communication | 3.0 |
| COM 360 | Strategic International Communication | 3.0 |
| COM 362 | International Negotiations | 3.0 |
| ENVS 275 | Global Climate Change | 3.0 |
| HIST 118 | History of Modern Biology | 4.0 |
| HIST 153 | Culture, Ethnicity, Religion: An Introduction to Jewish Studies | 3.0 |
| HIST 155 | The Historical Jesus | 4.0 |
| HIST 161 | Themes in World Civilization I | 4.0 |
| HIST 162 | Themes in World Civilization II | 4.0 |
| HIST 163 | Themes in World Civilization III | 4.0 |
| HIST 215 | American Slavery | 4.0 |
| HIST 235 | The Great War, 1914-1918 | 4.0 |
| HIST 236 | World War II | 4.0 |
| HIST 239 | The Pacific War | 4.0 |
| HIST 248 | History of the Holocaust | 4.0 |
| HIST 249 | Modern Jewish History | 4.0 |
| HIST 251 | Fascism | 4.0 |
| HIST 253 | Jewish Life and Culture in the Middle Ages | 4.0 |
| HIST 254 | Russian History Before 1900 | 4.0 |
| HIST 255 | Twentieth Century Russia & the USSR | 4.0 |
| HIST 257 | The Reformation Age | 4.0 |
| HIST 260 | Coexistence and Conflict: Jews, Christians, and Muslims in the Early Mediterranean | 4.0 |
| HIST 261 | Making of Modern South Asia | 4.0 |
| HIST 278 | Medicine Before Germs | 4.0 |
| HIST 287 | History of Science: Ancient to Medieval | 4.0 |
| HIST 288 | History of Science: Medieval to Enlightenment | 4.0 |
| HIST 289 | History of Science: Enlightenment to Modernity | 4.0 |
| HIST 290 | Technology and the World Community | 4.0 |
| HIST 291 | Global History of Engineering | 4.0 |
| HIST 293 | Global Legal History | 4.0 |
| HIST 303 | The Study of Global History | 4.0 |
| HIST 315 | History of Capitalism | 4.0 |
| HIST 321 | Themes in Global Environmental History | 4.0 |
| HIST 322 | Empire and Environment | 4.0 |
| HIST 323 | The History of Climate Change | 4.0 |
| HIST 338 [WI] | The Vietnam War | 4.0 |
| HIST 355 | Venice and the Mediterranean from the Middle Ages to Napoleon | 4.0 |
| HIST 358 | Witches, Demons, and Witch-hunters in European History | 4.0 |
| HIST 365 | Science and State Power: Colonialism | 4.0 |
| HIST 366 | The Black Atlantic: Slave Societies of the Americas | 4.0 |

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| HIST 385 | Transnational History of Science, Technology and Environment | 4.0 |
| PHIL 291 | Judaism and Christianity: Two Religions or One? | 3.0 |
| PHIL 335 | Global Ethical Issues | 3.0 |
| LING 102 | Language and Society | 3.0 |
| SOC 210 | Race, Ethnicity and Social Inequality | 4.0 |
| SOC 313 | Sociology of Global Health | 4.0 |
| SOC 330 | Development and Underdevelopment in the Global South | 4.0 |

Perspectives in Diversity

Learning Outcomes:

Understand the diverse world that we live in and to value diverse cultures and perspectives. These courses enable students to develop their awareness of diversity, equity, and social justice issues both domestically and globally.

Students are required to take at least one course (3-4 credits) of Perspectives in Diversity. These courses can be found across several categories and can also be applied to that category: Engaging the Natural World, Analyzing Cultures & Histories, Understanding Society & Human Behavior, and Cultivating Global Competence.

Courses which satisfy Perspective in Diversity include:

| | | |
|---------------|---|-----|
| AFAS 101 | Introduction to Africana Studies | 3.0 |
| AFAS 201 | Cross Currents in Africana Studies | 3.0 |
| AFAS 260 | Race, Politics and Religion | 3.0 |
| AFAS 301 | Politics of Hip Hop | 3.0 |
| AFAS 385 | Rum, Rice and Revolution: Caribbean History | 3.0 |
| ANTH 101 | Introduction to Cultural Diversity | 3.0 |
| ANTH 117 | Introduction to World Religions | 3.0 |
| ANTH 205 | Imagining Africa | 3.0 |
| ANTH 212 [WI] | Topics in World Ethnography | 3.0 |
| ANTH 250 | Anthropology of Immigration | 3.0 |
| ANTH 270 | Comparative Religious Ethics | 3.0 |
| ANTH 330 | Media Anthropology | 3.0 |
| BIO 200 | Connections in Biology | 3.0 |
| BIO 204 | The Privilege of Aging | 3.0 |
| BIO 305 | Mobilizing the Scientific Method | 3.0 |
| BIO 444 | Human Genetics | 3.0 |
| CJS 210 | Race, Crime, and Justice | 3.0 |
| CJS 220 | Crime and the City | 3.0 |
| CJS 261 | Prison, Society and You | 3.0 |
| CJS 262 | Places of Justice | 3.0 |
| CJS 280 | Communities and Crime | 3.0 |
| CJS 320 | Comparative Justice Systems | 3.0 |
| CJS 362 | Gender, Crime, and Justice | 3.0 |
| CJS 372 | Death Penalty - An American Dilemma | 3.0 |
| COM 101 | Human Communication | 3.0 |
| COM 200 | Current Events in Media and Communication | 3.0 |
| COM 210 | Theory and Models of Communication | 3.0 |
| COM 246 | Media and Identity | 3.0 |
| COM 250 | Diversity in Media | 3.0 |
| COM 342 | English Worldwide | 3.0 |
| COM 345 | Intercultural Communication | 3.0 |
| COM 355 | Ethnography of Communication | 3.0 |
| COM 360 | Strategic International Communication | 3.0 |
| COM 362 | International Negotiations | 3.0 |
| ENGL 203 [WI] | Survey of World Literature | 3.0 |
| ENGL 204 | Post-Colonial Literature | 3.0 |
| ENGL 207 [WI] | African American Literature | 3.0 |

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| ENGL 220 | LGBT Literature and Culture | 3.0 |
| ENGL 307 | Literature of Genocide | 3.0 |
| ENGL 345 | American Ethnic Literature | 3.0 |
| ENGL 350 | Jewish Literature and Civilization | 3.0 |
| ENGL 355 [WI] | Women and Literature | 3.0 |
| ENGL 365 | Topics in African American Literature | 3.0 |
| ENGL 492 | Seminar in World Literature | 3.0 |
| GST 101 | Becoming Global: Language and Cultural Context | 4.0 |
| GST 102 | Understanding Global: Markets and Governance | 4.0 |
| GST 231 | Introduction to Identities and Communities | 4.0 |
| GST 241 | Introduction to Power and Resistance | 4.0 |
| GST 261 | Introduction to Global Health and Sustainability | 4.0 |
| GST 321 | Advanced Studies in Global Capital and Development | 4.0 |
| GST 331 | Advanced Studies in Identities and Communities | 4.0 |
| GST 341 | Advanced Studies in Power and Resistance | 4.0 |
| GST 351 | Advanced Studies in Global Media, Arts, and Cultures | 4.0 |
| GST 361 | Advanced Studies in Global Health and Sustainability | 4.0 |
| GST 400 | Senior Project in Global Studies | 4.0 |
| HIST 153 | Culture, Ethnicity, Religion: An Introduction to Jewish Studies | 3.0 |
| HIST 161 | Themes in World Civilization I | 4.0 |
| HIST 162 | Themes in World Civilization II | 4.0 |
| HIST 163 | Themes in World Civilization III | 4.0 |
| HIST 181 | Religion, Science, and Medicine in History | 4.0 |
| HIST 206 | Race and Islam in Africa and the Middle East | 4.0 |
| HIST 208 | Women in American History | 4.0 |
| HIST 212 | Themes in African-American History | 4.0 |
| HIST 214 | United States Civil Rights Movement | 4.0 |
| HIST 215 | American Slavery | 4.0 |
| HIST 216 | Freedom in America | 4.0 |
| HIST 218 | Race and Film in United States History | 4.0 |
| HIST 222 | History of Work & Workers in America | 4.0 |
| HIST 248 | History of the Holocaust | 4.0 |
| HIST 249 | Modern Jewish History | 4.0 |
| HIST 253 | Jewish Life and Culture in the Middle Ages | 4.0 |
| HIST 255 | Twentieth Century Russia & the USSR | 4.0 |
| HIST 260 | Coexistence and Conflict: Jews, Christians, and Muslims in the Early Mediterranean | 4.0 |
| HIST 261 | Making of Modern South Asia | 4.0 |
| HIST 264 | East Asia in Modern Times | 4.0 |
| HIST 267 | Twentieth Century World I | 4.0 |
| HIST 279 | History of Modern Medicine | 4.0 |
| HIST 283 | Technology and Identity | 4.0 |
| HIST 291 | Global History of Engineering | 4.0 |
| HIST 293 | Global Legal History | 4.0 |
| HIST 322 | Empire and Environment | 4.0 |
| HIST 334 | American Empire in the Nineteenth Century | 4.0 |
| HIST 340 | History of Bodies in Science, Technology, and Medicine | 4.0 |
| HIST 341 | Disabilities in History | 4.0 |
| HIST 342 | Madness, Mental Health and Psychiatry in the Modern West | 4.0 |
| HIST 366 | The Black Atlantic: Slave Societies of the Americas | 4.0 |
| JWST (100-499) | | |
| LING 101 | Introduction to Linguistics | 0.0-3.0 |
| LING 102 | Language and Society | 3.0 |
| PHIL 102 | Introduction to Eastern Philosophy | 3.0 |
| PHIL 212 | Ancient Philosophy | 3.0 |
| PHIL 291 | Judaism and Christianity: Two Religions or One? | 3.0 |
| PHIL 330 | Criminal Justice Ethics | 3.0 |
| PHIL 335 | Global Ethical Issues | 3.0 |
| PHIL 391 | Philosophy of Religion | 3.0 |
| PHIL 421 [WI] | Seminar in Ancient Philosophy | 3.0 |
| PSCI 100 | Introduction to Political Science | 4.0 |
| PSCI 140 | Comparative Politics I | 4.0 |
| PSCI 150 | International Politics | 4.0 |
| PSCI 260 [WI] | Power in Protest: Social Movements in Comparative Perspective | 4.0 |
| PSCI 351 | The United Nations in World Politics | 4.0 |
| PSCI 352 | Ethics and International Relations | 4.0 |
| PSCI 375 | Politics of Immigration | 4.0 |
| PSY 150 | Introduction to Social Psychology | 3.0 |
| PSY 222 | Psychological Problems of Modern Youth | 3.0 |
| PSY 225 | Child Psychopathology | 3.0 |
| PSY 244 | Culture and Personality | 3.0 |
| PSY 270 | Psychology of Hate | 3.0 |
| PSY 356 | Women's Health Psychology | 3.0 |
| PSY 368 | Psychology - Inequity & Injustice | 3.0 |
| SOC 101 | Introduction to Sociology | 3.0 |
| SOC 115 | Social Problems | 4.0 |
| SOC 207 | Medicine and Society | 4.0 |
| SOC 210 | Race, Ethnicity and Social Inequality | 4.0 |
| SOC 215 | Sociology of Work | 4.0 |
| SOC 220 | Wealth and Power | 4.0 |
| SOC 222 | Sex and Society | 4.0 |
| SOC 230 | Gender and Society | 4.0 |
| SOC 235 | Sociology of Health and Illness | 4.0 |
| SOC 240 | Urban Sociology | 4.0 |
| SOC 244 | Sociology of the Environment | 4.0 |
| SOC 261 | Sex and The City | 4.0 |
| SOC 271 | Sociology of Aging | 4.0 |
| SOC 276 | Global Climate Change | 3.0 |
| SOC 313 | Sociology of Global Health | 4.0 |
| SOC 318 | Social Networks and Health | 4.0 |
| SOC 320 | Sociology of Deviance | 4.0 |
| SOC 330 | Development and Underdevelopment in the Global South | 4.0 |
| SOC 340 | Globalization | 4.0 |
| SOC 346 | Environmental Justice | 4.0 |
| SOC 406 | Housing and Homelessness | 4.0 |
| WGST (100-499) | | |
| WRIT 315 | Writing for Social Change | 3.0 |

Developing Quantitative Reasoning

Learning Outcomes:

These courses provide mathematical foundations and analytical skills. In these courses, students will:

- Apply formal reasoning to particular problems and subject matter within the areas covered by this category.
- Develop mathematical foundations and analytical skills.

Note:

- Disciplinary methods classes, while important to that discipline, cannot be used to fulfill this category.

Courses which satisfy Developing Quantitative Reasoning include:

| | | |
|--------------------|-------------------|-----|
| Any MATH (100-499) | | |
| PHIL 111 | Symbolic Logic I | 3.0 |
| PHIL 121 | Symbolic Logic II | 3.0 |

Engaging the Natural World

Learning Outcomes:

- Explore and understand key concepts and processes in the life and earth sciences, learning the most current scientific approaches to and understandings of natural phenomena on our planet.
- Interpret and critically apply scientific, technological, and environmental knowledge.
- Learn and be able to apply the scientific method to explore natural phenomena, including observation, hypothesis development, measurement and data collection, evaluation of evidence, and employment of mathematical and computational analysis.

| | | |
|-----------------------------|---|-----|
| BIO 100 | Applied Cells, Genetics & Physiology | 3.0 |
| BIO 101 | Applied Biological Diversity, Ecology & Evolution | 3.0 |
| BIO 107 | Cells, Genetics & Physiology | 3.0 |
| BIO 109 | Biological Diversity, Ecology & Evolution | 3.0 |
| BIO 114 | Climate Change and Human Health | 3.0 |
| BIO 116 | How Your Body Works-Or Not | 3.0 |
| BIO 118 | Basics of Cancer | 3.0 |
| BIO 131 | Cells and Biomolecules | 4.0 |
| BIO 132 | Genetics and Evolution | 4.0 |
| BIO 133 | Physiology and Ecology | 4.0 |
| BIO 214 | Principles of Cell Biology | 4.0 |
| BIO 218 | Principles of Molecular Biology | 4.0 |
| BIO 220 | Essential Microbiology | 3.0 |
| BIO 221 | Microbiology | 3.0 |
| BIO 228 | Evolutionary Biology & Human Health | 3.0 |
| BIO 232 | Discovering Antibiotics | 3.0 |
| BIO 244 | Genetics I | 3.0 |
| BIO 284 | Biology of Stress | 3.0 |
| BIO 285 | Forensic Biology | 3.0 |
| BIO 348 | Neuroscience: From Cells to Circuits | 3.0 |
| BIO 349 | Behavioral Neuroscience | 3.0 |
| CHEM 101 | General Chemistry I | 3.5 |
| CHEM 102 | General Chemistry II | 4.5 |
| CHEM 103 | General Chemistry III | 4.5 |
| CHEM 108 | Health Chemistry I | 3.0 |
| CHEM 111 | General Chemistry I | 4.0 |
| CHEM 112 | General Chemistry II | 4.0 |
| CHEM 113 | General Chemistry I Laboratory | 1.5 |
| CHEM 121 | Majors Chemistry I | 5.0 |
| CHEM 122 | Majors Chemistry II | 5.0 |
| CHEM 151 | Applied Chemistry | 3.0 |
| CHEM 201 | Why Things Work: Everyday Chemistry | 3.0 |
| ENSS 120 | Introduction to Environmental Studies | 3.0 |
| ENSS 283 | Introduction to Environmental Policy | 3.0 |
| ENSS 346 | Environmental Justice | 4.0 |
| ENVS 169 | Environmental Science | 3.0 |
| ENVS 230 | General Ecology | 3.0 |
| ENVS 275 | Global Climate Change | 3.0 |
| ENVS 260 | Environmental Science and Society | 3.0 |
| GEO 101 | Physical Geology | 4.0 |
| GEO 102 | History of the Earth | 4.0 |
| GEO 111 | Natural Disasters | 3.0 |
| GEO 201 [WI] | Earth Systems Processes | 3.0 |
| GEO 207 | Introduction to Oceanography | 3.0 |
| PHYS: Any courses (100-499) | | |
| PSCI 336 | Political Economy of Climate Change | 3.0 |

Analyzing Cultures

Learning Outcomes:

- Introduce students to practices and achievements in the expression and organization of human thought in philosophical, literary, historical, and religious traditions from around the world and throughout human history.
- Appreciate the breadth, diversity, and creativity of human experience and thought, both collective and individual.
- Learn fundamental skills and methods of sustained critical inquiry in relation to human history, thought, and creative expression.
- Develop skills in the expression and integration of ethical reasoning, values, and the moral imagination for the purpose of creating meaning from human experience.

| | | |
|--|--|-----|
| BIO 264 | Ethnobotany | 3.0 |
| ENGL (All 100-499 ENGL course EXCEPT ENGL 101, ENGL 102, ENGL 103, ENGL 105, ENGL 111, ENGL 112, ENGL 113) | | |
| GST 100 | Introduction to Cultural Diversity | 3.0 |
| GST 101 | Becoming Global: Language and Cultural Context | 4.0 |
| GST 221 | Introduction to Global Capital and Development | 4.0 |
| GST 231 | Introduction to Identities and Communities | 4.0 |
| GST 241 | Introduction to Power and Resistance | 4.0 |
| GST 251 | Introduction to Global Media, Arts, and Cultures | 4.0 |
| GST 261 | Introduction to Global Health and Sustainability | 4.0 |
| HIST (All 100-499 HIST courses EXCEPT HIST 296 and HIST 396) | | |
| JWST (100-499) | | |
| PHIL (All 100-499 PHIL courses EXCEPT PHIL 105, PHIL 111, and PHIL 121) | | |
| PPE (100-499) | | |
| WGST (100-499) | | |

Understanding Society & Human Behavior

Learning Outcomes

Courses that examine social, political, psychological, or environmental theories, concepts, or systems:

- Examine ways our societies have developed from political, social, environmental, or psychological perspectives.
- Understand foundational theories and ways of thinking about human societies and social relationships.
- Expose students to scientific methods as applied to social phenomena.

| | | |
|----------------|--|-----|
| ANTH (100-299) | | |
| BIO 349 | Behavioral Neuroscience | 3.0 |
| CJS 101 | Introduction to Criminal Justice | 3.0 |
| CJS 180 | Serial Killers | 3.0 |
| CJS 200 | Criminology | 3.0 |
| CJS 220 | Crime and the City | 3.0 |
| CJS 261 | Prison, Society and You | 3.0 |
| CJS 262 | Places of Justice | 3.0 |
| CJS 280 | Communities and Crime | 3.0 |
| COM 101 | Human Communication | 3.0 |
| COM 111 | Principles of Communication | 3.0 |
| COM 150 | Mass Media and Society | 3.0 |
| COM 200 | Current Events in Media and Communication | 3.0 |
| COM 210 | Theory and Models of Communication | 3.0 |
| COM 220 | Qualitative Research Methods | 3.0 |
| COM 221 | Quantitative Research Methods in Communication | 3.0 |
| COM 222 | Interpersonal Communication | 3.0 |
| COM 240 | New Technologies In Communication | 3.0 |
| COM 246 | Media and Identity | 3.0 |
| COM 248 | Reputation Management in Public Relations | 3.0 |

| | | |
|----------------|--|---------|
| COM 250 | Diversity in Media | 3.0 |
| COM 290 | Sports and the Mass Media | 3.0 |
| COM 318 | Film, Celebrity and the Environmental Movement | 3.0 |
| COM 355 | Ethnography of Communication | 3.0 |
| COM 384 | Free Speech & Censorship | 3.0 |
| COM 385 | Media Effects | 3.0 |
| GST 100 | Introduction to Cultural Diversity | 3.0 |
| GST 102 | Understanding Global: Markets and Governance | 4.0 |
| GST 221 | Introduction to Global Capital and Development | 4.0 |
| GST 231 | Introduction to Identities and Communities | 4.0 |
| GST 241 | Introduction to Power and Resistance | 4.0 |
| GST 251 | Introduction to Global Media, Arts, and Cultures | 4.0 |
| GST 261 | Introduction to Global Health and Sustainability | 4.0 |
| HIST (100-499) | | |
| LING 101 | Introduction to Linguistics | 0.0-3.0 |
| LING 102 | Language and Society | 3.0 |
| PHIL 101 | Introduction to Western Philosophy | 3.0 |
| PHIL 102 | Introduction to Eastern Philosophy | 3.0 |
| PHIL 210 | Philosophy of Sport | 3.0 |
| PHIL 241 | Social & Political Philosophy | 3.0 |
| PHIL 251 | Ethics | 3.0 |
| PHIL 255 | Philosophy of Sex & Love | 3.0 |
| PHIL 335 | Global Ethical Issues | 3.0 |
| PPE 101 | Introduction to Philosophy, Politics and Economics | 3.0 |
| PSCI 100 | Introduction to Political Science | 4.0 |
| PSCI 110 | American Government | 4.0 |
| PSCI 120 | History of Political Thought | 4.0 |
| PSCI 140 | Comparative Politics I | 4.0 |
| PSCI 150 | International Politics | 4.0 |
| PSCI 210 | American Political Development | 4.0 |
| PSCI 229 | Theories of Justice | 4.0 |
| PSCI 240 | Comparative Politics II | 4.0 |
| PSCI 250 | American Foreign Policy | 4.0 |
| PSCI 252 | Global Governance | 4.0 |
| PSCI 289 | Technology and Politics | 4.0 |
| PSY 101 | General Psychology I | 3.0 |
| PSY 120 | Developmental Psychology | 3.0 |
| PSY 140 | Approaches to Personality | 3.0 |
| PSY 150 | Introduction to Social Psychology | 3.0 |
| PSY 270 | Psychology of Hate | 3.0 |
| SOC 101 | Introduction to Sociology | 3.0 |
| SOC 115 | Social Problems | 4.0 |
| SOC 221 | Sociology of the Family | 4.0 |
| SOC 230 | Gender and Society | 4.0 |
| SOC 235 | Sociology of Health and Illness | 4.0 |
| SOC 240 | Urban Sociology | 4.0 |

Special Programs

Pre-professional Programs

Students wishing to prepare for admission to professional schools of medicine, veterinary medicine, dentistry, or public health may obtain pre-professional counseling and application assistance at the Steinbright Career Development Center. (<https://drexel.edu/scdc/>) For health profession application assistance, students may call 215.895.2437. For law school admission assistance, students may call 215.895.1632.

Accelerated Programs

The College of Arts and Sciences offers several accelerated degree programs that enable academically qualified students to earn both a bachelor's and an advanced degree concurrently, graduating sooner than

they would in traditional programs. Depending on the academic program, eligible students can be admitted to an accelerated degree program in one of two ways: as an incoming freshman or after completing a minimum of 90.0 credits but no more than 120.0 credits. Note: In addition to the options listed below, students can apply to combine degree programs into an accelerated BS/MS program. Talk to your academic advisor to learn more.

More details about Accelerated Programs can be found on the Undergraduate Admissions (<http://drexel.edu/coas/admissions/overview/>) website.

BA/BS+MD Early Assurance Program

Drexel offers a BA/BS+MD program, a 4 + 4 combined program that allows outstanding high school students to gain acceptance into their undergraduate program and provisional early acceptance into medical school.

The program is open only to the following majors:

- Biological Sciences (p. 12)
- Chemistry (BA only) (p. 29)
- Biomedical Engineering (<http://catalog.drexel.edu/undergraduate/schoolofbioengscienceandhealthsystems/biomedicalengineering/>) (four year program only)

Students in this program cannot double major. However, students are encouraged to minor in one or more areas. In addition, students are not eligible to participate in combined Bachelors/Masters programs.

Admission Requirement

For consideration to the BA/BS+MD Early Assurance Program, applicants must:

- Submit the Common Application or the Coalition Application and all required documents prior to November 1
- Be a U.S. citizen or permanent resident applying for first-year admission
- Be on track to graduate from an American high school
- Have a minimum 3.5 GPA on a 4.0 weighted scale (subject to change)
- Have a combined SAT score of at least 1420 on the SAT (for Evidence-based Reading and Writing and Math sections) or a minimum ACT composite score of 31; submission of an SAT Subject Test is strongly recommended, preferably in the sciences, but all Subject Tests will be reviewed.
- Be on track to graduate, having satisfactorily completed four years of laboratory science with one year each of biology, chemistry, and physics

As a point of reference, first-year students admitted to the BA/BS+MD program had an average GPA of 4.42 and an average combined SAT (Evidence-based Reading and Writing and Math) of 1542 or ACT 35 composite.

A select number of students will be invited to attend an interview with the medical school admissions committee at the Drexel University College of Medicine.

Undergraduate Program Requirements

Upon acceptance into the BA/BS +MD Program, students will be provided with a contract of requirements for the completion of the undergraduate portion of the program. The current general requirements of the program are:

- Maintain minimum cumulative GPA of 3.6 in all coursework and a minimum GPA of 3.6 in BCPM classes (all biological sciences, chemistry, physics, and math), without repeating a course and with no grade less than a C. The GPA requirements must be met by the end of their third undergraduate year and at the end of their fourth year
- Complete a minimum of 100 hours of service that is documented and approved by the advisor.
- Complete a spring/summer six-month co-op in research, clinical, or health informatics, health law, or bioengineering. A co-op of 20 or 40 hours a week is possible.
- Complete 12.0 quarters of study, including fall, winter, and spring quarter of their 4th year as a matriculated Drexel student. In order to maintain their full-time status, BA/BS+MD program students must be registered for at least 14.0 credits per quarter for the 12.0 quarters of Drexel University undergraduate studies.
- BSMD programs follow a full 4 year co-op plan with the following schedule of classes and co-op terms. Students must follow this layout of full-time terms in class and co-op. (see below).

| First Year | | | | |
|------------------------|----------------|-----------------|----------------------------|---------|
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| Courses | Courses | Courses | Vacation Term | |
| | 0 | 0 | 0 | 0 |
| Second Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| Courses | Courses | Courses | Courses | |
| | 0 | 0 | 0 | 0 |
| Third Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| Courses | Courses | COOP EXPERIENCE | COOP EXPERIENCE | |
| | 0 | 0 | 0 | 0 |
| Fourth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| Courses | Courses | Courses | Undergrad Degree Completed | |
| | 0 | 0 | 0 | 0 |
| Total Credits 0 | | | | |

- The MCAT is required prior to matriculation into the College of Medicine. Students must receive a minimum MCAT score of 511, including:
 - 128 or better in chemical and physical foundations of biological systems
 - 127 or better in critical analysis and reasoning skills
 - 128 or better in biological and biochemical foundations of living systems
 - 128 or better in psychological, social, and biological foundations of behavior
- Alternatively, students can receive a minimum total score of 513 with no subsection less than 127.
- The College of Medicine reserves the right to revise the above requirements. As noted above, acceptance into the College of Medicine is provisional.

DragonsTeach

DragonsTeach is a collaboration between the College of Engineering, the College of Arts and Sciences, and the School of Education designed to allow students in science, technology, engineering, and math (STEM) degree programs to explore a career in education. Through a unique combination of skills development and classroom experiences, DragonsTeach students can earn a minor in STEM Education and eligibility for teaching credentials while completing their major degree program and co-ops. Learn more on the DragonsTeach website (<http://drexel.edu/dragonsteach/>).

Eligible Majors:

- BS in Biological Sciences (p. 12)
- BS or BA in Chemistry (<http://catalog.drexel.edu/undergraduate/collegeofartsandsciences/undergraduate/collegeofartsandsciences/chemistry/>)
- BS in Environmental Science (p. 60)
- BS or BA in Mathematics (p. 107)
- BS in Physics (p. 134)

Secondary and Elementary Teacher Certification

The School of Education offers innovative curricula that combines academic majors with appropriate coursework to satisfy state requirements for certification in elementary education. Students interested in the teacher education programs should contact the School of Education (<http://drexel.edu/soe/>).

The Drexel Writing Center

The Drexel Writing Center (DWC) is dedicated to helping students, faculty, and staff, at all levels of experience and across all disciplines, in their development as writers.

- The DWC works with writers at all stages in the writing process, from brainstorming ideas to polishing final drafts.
- The DWC focus is on individual, one-on-one sessions that feature a conversational, collaborative relationship between the reader and the writer they work with.
- Interaction with the DWC will help writers develop not just writing but critical thinking and reading skills.
- While DWC readers do not perform copy-editing services, they will help students learn strategies for proofreading and editing their documents.

The DWC is located at 100-103 Korman Center and can be reached at 215.895.6633. Further information can be found at the Drexel Writing Center (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) website.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

English Language Center

As part of the College of Arts and Sciences, Drexel's English Language Center (<http://www.drexel.edu/elc/>) offers an accredited intensive English program throughout the year. In addition to classes in academic skills such as essay writing and oral presentations, the Center offers the Language of STEM (Science, Technology, Engineering, and Math), Language of Media and Design, Global Business English program (GLOBE), English for academic purposes, TOEFL and IELTS preparation, ESL Teaching enhancement programs, and other subjects.

Through the International Gateway program, the English Language Center offers academic language preparation for students who have an admissible high school academic background but need further English language proficiency. This pathway program combines academic English language courses, credit courses taught by CoAS faculty, and acculturation activities. Students admitted into the University Preparation program (UPREP) begin their studies at Drexel in the English Language Center in a short, pre-term program designed to prepare international students for the academic work and culture of the American university.

Accepted undergraduate students have access to free language tutoring and other academic skills workshops throughout the academic year.

For more information, see the ELC website or contact the Center at:

English Language Center
229 N. 33rd Street
Philadelphia, PA 19104

Phone: 215-895-2022
Fax: 215-895-6775
E-mail: elc@drexel.edu

The Drexel Co-op

No summers of coffee runs or mindless filing here! Drexel students embark on six-month periods of full-time employment in practical, discipline-specific positions consistent with their interests and abilities. Depending on their chosen program, students have the opportunity to participate in up to three different co-op positions—that's 18 months of real work experience—during their time at Drexel, allowing them to explore their career options, strengthen their resumes, and build a professional network in the process. While co-op opportunities can be both paid and unpaid, students who participate in the co-op program typically receive higher starting salaries post-graduation than graduates of other schools.

The number of co-op experiences required for graduation is determined by the student's chosen course of study. The following options exist for most majors:

- **Three Co-op Option** (Five Years)
- **One Co-op Option** (Four Years)
- **No Co-op Option** (Four Years) *Though this program is available, we strongly encourage students to take advantage of the co-op program, a key benefit of a Drexel education.*

Learn more on the Steinbright Career Development Center (<http://drexel.edu/scdc/>) website.

Global Opportunities

Global Opportunities Abound

Philadelphia may be the heart of Drexel's campus, but the world is our muse. There are numerous opportunities for Drexel Dragons to go abroad.

Study Abroad

Study abroad allows students a unique academic experience to learn about subjects from an international perspective, often with local students and professors. From Costa Rica to Barcelona, Milan to Turkey, and Brazil to Israel, our students have studied all over the world.

Research Abroad

Research extends far beyond the walls of any laboratory. Our students have studied sea turtles in Costa Rica, infectious diseases in Uganda, and data from the Double Chooz experiment in France. Many of our faculty members are also involved in international research collaborations and our students have the opportunity to make an impact alongside them.

Co-Op Abroad

Co-op abroad provides students with a unique professional perspective and exposure to an international work environment. Our students have worked at Coca Cola in India, the UN Development Programme in Africa, the Italian Parliament in Rome, and the Heraklion Community Mental Health Center in Greece—just to name a few.

An international co-op gives students a distinct advantage in the global economy, making them more attractive to prospective employers. Candidates with international experience also have the ability to earn higher starting salaries upon graduation.

Visit the Steinbright Career Development Center (<http://drexel.edu/scdc/>) website to learn more.

Travel Courses

The College of Arts and Sciences' travel-integrated courses allow students to travel domestically or internationally for one or two weeks at the end of a course to extend their studies beyond the classroom. Recent classes have traveled to France to learn about WWI and Brazil to study commodities exchange. Talk to your academic advisor to learn more.

Alternative Spring Break

The Alternative Spring Break (ASB) program places teams of Drexel students in communities to engage in community service and experiential learning during spring break. Students may choose to work domestically

or internationally in activities that benefit the environment, the community, and those in need.

Community-Based Learning

In the College of Arts and Sciences' unique Community-Based-Learning (CBL) courses, students don't just study the issues affecting the world, they study alongside the people affected, from prison inmates to hospice patients. CBL courses are offered in three formats:

- Side by side
- Community hybrid
- Service learning

Side-by-side courses create a co-learning environment in which Drexel students and the community members take classes together.

Community hybrid courses are composed entirely of Drexel students and time is split between the classroom and the community.

Service-learning courses require service in the community in addition to students' credit hours in the classroom.

For a current list of available courses, visit the Lindy Center for Civic Engagement (<http://drexel.edu/lindycenter/>).

Biological Sciences

Major: Biological Sciences

Degree Awarded: Bachelor of Science (BS)

Calendar Type: Quarter

Minimum Required Credits: 183.5

Co-op Options: Three Co-op (Five years); One Co-op (Four years); No Co-op (Four years)

Classification of Instructional Programs (CIP) code: 26.0101

Standard Occupational Classification (SOC) code: 19-1029

About the Program

The biological sciences major resides in the Department of Biology (<http://drexel.edu/coas/academics/departments-centers/biology/>). Students earn a bachelor's degree in the biological sciences and are prepared for technical careers in research or commercial laboratories, or for professional schools or graduate study.

The biological sciences encompass many areas of study. Biologists study the structure and functions of living organisms from the individual cell to the full organism, and collectively to the community level. Discoveries in the biological sciences influence many aspects of our daily lives and have become the foundation of many new developments in biotechnology and medicine. In the past two decades, advances in molecular biology, cell biology and genetics have been rapid, opening many new, exciting career opportunities in biotechnology, genetic engineering and the development of new diagnostics and therapeutics. Biologists can pursue a variety of options including careers in medicine, dentistry, veterinary medicine or other health-related areas; in research or commercial laboratories at pharmaceutical companies, medical research laboratories, biotechnology companies or in government agencies; and in teaching. In fact, more than 100 different occupations have been listed for biologists. Graduates in the biological sciences are in demand and enjoy a high placement rate with competitive salaries.

The curricular choices are designed to provide a sound basis for careers in the private sector, government and research laboratories, and for advanced study in graduate and professional programs in medicine, other health related areas, or in teaching.

The course requirements identifies required support courses in chemistry, physics, mathematics, humanities, and social sciences. With proper selection of electives, students can meet teacher certification requirements or complete a minor in another field. Students are encouraged to consult frequently with their academic advisor for curriculum planning.

In addition to the core requirements, students select one of five concentrations in a field of interest:

- Cell/Molecular Biology/Genetics/Biochemistry
- Organismal Biology/Physiology
- Ecology/Evolution/Genomics
- Pathobiology
- General Biology

Program Options

Co-op employment is an option for biological science students. The major offers three distinct plans:

Five-year option with co-op experience

This option allows for the greatest amount of employment experience, with three distinct six-month periods of employment included with studies. After the start of the sophomore year, students study or work through all terms, including summer.

Four-year option with co-op experience

The degree includes just one six-month period of employment. After the start of sophomore year, students study or work through all terms, including summer.

Four-year option without co-op experience

The degree can be completed in four years without co-op/internship employment. Students are not required to pursue studies during any of the summer terms.

Degree Requirements

The Biological Sciences curriculum is designed to provide students with both depth and flexibility within the field of biology. In addition to the core requirements, students select one of five concentrations in a field of interest.

- Cell/Molecular Biology/Genetics/Biochemistry
- Organismal Biology/Physiology
- Ecology/Evolution/Genomics
- Pathobiology
- General Biology

Concentration requirements and elective options are outlined below. Within each concentration, students are able to further specialize in a focus area by selecting electives in their area of interest.

Requirements

Humanities and Social Sciences

| | | |
|--|---|-----|
| CIVC 101 | Introduction to Civic Engagement | 1.0 |
| COM 230 | Techniques of Speaking | 3.0 |
| COM 310 [WJ] or COM 320 | Technical Communication Science Writing | 3.0 |
| COOP 101 | Career Management and Professional Development * | 1.0 |
| ENGL 101 or ENGL 111 | Composition and Rhetoric I: Inquiry and Exploratory Research English Composition I | 3.0 |
| ENGL 102 or ENGL 112 | Composition and Rhetoric II: Advanced Research and Evidence-Based Writing English Composition II | 3.0 |
| ENGL 103 or ENGL 113 | Composition and Rhetoric III: Themes and Genres English Composition III | 3.0 |
| PHIL 251 or PHIL 321 | Ethics Biomedical Ethics | 3.0 |
| UNIV S101 | The Drexel Experience | 1.0 |
| UNIV S201 | Looking Forward: Academics and Careers | 1.0 |
| Humanities and Social Science Electives ** | | 9.0 |
| Science, Technology, Health and Human Affairs Elective *** | | 3.0 |

Mathematics and Statistics

| | | |
|--|--|------|
| Select one of the following sequences: | | 12.0 |
| Intro to Analysis | | |
| MATH 101 & MATH 102 & MATH 239 | Introduction to Analysis I and Introduction to Analysis II and Mathematics for the Life Sciences | |
| Calculus | | |
| MATH 121 & MATH 122 & MATH 123 | Calculus I and Calculus II and Calculus III | |
| MATH 410 | Scientific Data Analysis I | 3.0 |
| MATH 411 | Scientific Data Analysis II | 3.0 |

Physical Sciences

| | | |
|------------------------|---------------------------------------|---------|
| BIO 311 or CHEM 243 | Biochemistry Organic Chemistry III | 3.0-4.0 |
| CHEM 101 | General Chemistry I | 3.5 |
| CHEM 102 | General Chemistry II | 4.5 |
| CHEM 103 | General Chemistry III | 4.5 |
| CHEM 241 | Organic Chemistry I | 4.0 |
| CHEM 242 | Organic Chemistry II | 4.0 |
| PHYS 152 | Introductory Physics I | 4.0 |
| PHYS 153 | Introductory Physics II | 4.0 |
| PHYS 154 | Introductory Physics III | 4.0 |

Core Biology Courses

| | | |
|------------------------------|---|--------------------|
| BIO 131 | Cells and Biomolecules | 4.0 |
| BIO 134 | Cells and Biomolecules Lab | 1.0-2.0 |
| or BIO 142 | SEA-PHAGES I | |
| BIO 132 | Genetics and Evolution | 4.0 |
| BIO 135 | Genetics and Evolution Lab | 1.0-2.0 |
| or BIO 143 | SEA-PHAGES II | |
| BIO 133 | Physiology and Ecology | 4.0 |
| BIO 136 | Anatomy and Ecology Lab | 1.0-2.0 |
| or BIO 144 | SEA-PHAGES III | |
| BIO 207 | Applications in Biology I | 1.0 |
| BIO 208 | Applications in Biology II | 1.0 |
| BIO 209 | Cell, Molecular & Developmental Biology I | 4.0 |
| BIO 211 | Cell, Molecular & Developmental Biology II | 4.0 |
| BIO 219 [WI] | Techniques in Molecular Biology | 3.0 |
| BIO 224 | Form, Function & Evolution of Vertebrates | 4.0 |
| BIO 225 | Vertebrate Biology and Evolution Laboratory | 2.0 |
| BIO 471 | Seminar in Biological Sciences | 2.0 |
| BIO 472 | Seminar in Biological Sciences | 2.0 |
| BIO 473 [WI] | Seminar in Biological Sciences | 2.0 |
| ENVS 212 | Evolution | 4.0 |
| Concentration Courses | | 28.0-30.0 |
| Free electives | | 24.0 |
| Total Credits | | 183.5-189.5 |

- * Students not participating in co-op will take one additional credit of Free Elective instead of COOP 101. Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major. COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.
- ** Any course in ANTH, AFAS, ARBC, CHIN, CJS, COM, FREN, GER, GREC, HBRW, HIST, HUM, ITAL, JAPN, JWST, KOR, LING, PHIL, PSCI, PSY, SOC, SPAN, and WGST at the 100-499 level, except COM 310 [WI].
- *** Courses options include ANTH 110, BIO 212, CJS 378, ENGL 300 [WI], ENGL 302, ENGL 370, ENVS 260, HIST 285, HIST 290, HIST 292, HSAD 210, HSAD 328, HSAD 353, HSCI 125, HSCI 315, NFS 446, PBHL 301, PBHL 320, PBHL 333, PHIL 341, PHIL 351, PHIL 361, PSCI 371, SCTS 101, SOC 222, and SOC 235.

Concentrations

Students select one of six concentrations and fulfill the requirements as outlined below.

1. The Cell/Molecular/Genetics/Biochemistry (CMGB) Concentration

This concentration provides exposure to several vital disciplines within Biology, and will prepare students for a diversity of careers in research, medicine, and industry. Students interested in tailoring their studies more specifically may follow the suggested "focus areas" when selecting their two CMGB Concentration electives.

Cell/Molecular/Genetics/Biochemistry (CMGB) Concentration Requirements

| | | |
|------------|--|-----|
| BIO 244 | Genetics I | 3.0 |
| or BIO 444 | Human Genetics | |
| BIO 314 | Pharmacology | 3.0 |
| or BIO 404 | Structure and Function of Biomolecules | |
| or BIO 416 | Biochemistry of Major Diseases | |
| BIO 318 | Biology of Cancer | 3.0 |
| or BIO 430 | Cell Biology of Disease | |
| BIO 410 | Advanced Molecular Biology | 3.0 |

Cell/Molecular/Genetics/Biochemistry (CMGB) Concentration Electives (See Lists Below)

| | |
|--|-----|
| Two Cell/Molecular/Genetics/Biochemistry (CMGB) Electives (see list below) | 6.0 |
| Organismal/Physiology Elective (see list below) | 3.0 |
| Ecology/Evolution/Genomics Elective (see list below) | 3.0 |

Concentration Laboratory Courses

| | |
|---|-------------|
| Two Laboratory Electives (see list below) | 4.0 |
| Total Credits | 28.0 |

Students interested in pursuing a focus area in Neurobiology, Pharmaceuticals, Cell Biology, Biochemistry, Molecular Biology or Genetics should contact the academic advisor in the Biology Department for specific focus recommendations.

Cell/Molecular/Genetics/Biochemistry (CMGB) Electives

| | | |
|----------|---|-----|
| BIO 244 | Genetics I | 3.0 |
| BIO 285 | Forensic Biology | 3.0 |
| BIO 311 | Biochemistry | 4.0 |
| BIO 314 | Pharmacology | 3.0 |
| BIO 318 | Biology of Cancer | 3.0 |
| BIO 346 | Stem Cell Research | 3.0 |
| BIO 348 | Neuroscience: From Cells to Circuits | 3.0 |
| BIO 404 | Structure and Function of Biomolecules | 4.0 |
| BIO 414 | Behavioral Genetics | 3.0 |
| BIO 415 | Proteins | 3.0 |
| BIO 416 | Biochemistry of Major Diseases | 3.0 |
| BIO 421 | Biomembranes | 3.0 |
| BIO 430 | Cell Biology of Disease | 3.0 |
| BIO 433 | Advanced Cell Biology | 3.0 |
| BIO 444 | Human Genetics | 3.0 |
| BIO 447 | Advanced Genetics and Molecular Biology | 3.0 |
| BIO 453 | Protein Dysfunction in Disease | 3.0 |
| BIO 462 | Biology of Neuron Function | 3.0 |
| BIO 463 | Molecular Mechanisms of Neurodegeneration | 3.0 |
| BIO 465 | Neurobiology of Disease | 3.0 |
| ENVS 326 | Molecular Ecology | 3.0 |

Organismal/Physiology Electives

| | | |
|----------|--|-----|
| BIO 201 | Human Physiology I | 4.0 |
| BIO 221 | Microbiology | 3.0 |
| BIO 256 | Vertebrate Morphology and Physiology | 3.0 |
| BIO 284 | Biology of Stress | 3.0 |
| BIO 286 | Forensic Toxicology | 3.0 |
| BIO 323 | Parasitology | 3.0 |
| BIO 349 | Behavioral Neuroscience | 3.0 |
| BIO 372 | Histology | 4.0 |
| BIO 373 | Developmental Biology | 3.0 |
| BIO 386 | Gross Anatomy I | 2.0 |
| BIO 412 | Biology of Aging | 3.0 |
| BIO 420 | Virology | 3.0 |
| BIO 426 | Immunology | 3.0 |
| BIO 461 | Neurobiology of Autism Disorders | 3.0 |
| ENVS 254 | Invertebrate Morphology and Physiology | 3.0 |
| ENVS 393 | Entomology | 3.0 |

Ecology/Evolution/Genomics Electives

| | | |
|----------|---|-----|
| BIO 228 | Evolutionary Biology & Human Health | 3.0 |
| BIO 331 | Bioinformatics I | 3.0 |
| BIO 413 | Genomics | 3.0 |
| BIO 436 | Population Genetics | 4.0 |
| ENVS 230 | General Ecology | 3.0 |
| ENVS 247 | Native Plants and Sustainability | 3.0 |
| ENVS 323 | Tropical Field Studies | 3.0 |
| ENVS 328 | Conservation Biology | 3.0 |
| ENVS 333 | Wetland Ecology | 3.0 |
| ENVS 343 | Equatorial Guinea: Field Methods | 3.0 |
| ENVS 352 | Ornithology | 3.0 |
| ENVS 354 | Ichthyology | 3.0 |
| ENVS 355 | Biogeography | 3.0 |
| ENVS 360 | Evolutionary Developmental Biology | 3.0 |
| ENVS 364 | Animal Behavior | 3.0 |
| ENVS 382 | Field Botany of the New Jersey Pine Barrens | 4.0 |
| ENVS 383 | Ecology of the New Jersey Pine Barrens | 4.0 |

| | | |
|-----------------------------|--|----------|
| ENVS 391 | Freshwater and Marine Algae | 3.0 |
| ENVS 470 | Advanced Topics in Evolution | 3.0 |
| Laboratory Electives | | |
| BIO 202 | Human Physiology Laboratory | 2.0 |
| BIO 213 | Drosophila Neural Research | 3.0 |
| BIO 215 | Techniques in Cell Biology | 3.0 |
| BIO 222 | Microbiology Laboratory | 2.0 |
| BIO 232 | Discovering Antibiotics | 3.0 |
| BIO 257 | Vertebrate Morphology & Physiology Lab | 2.0 |
| BIO 306 | Biochemistry Laboratory | 2.0 |
| BIO 329 | Dictyostelium Research | 3.0 |
| BIO 374 | Developmental Biology Lab | 2.0 |
| BIO 387 | Gross Anatomy I Laboratory | 2.0 |
| BIO 389 | Gross Anatomy II Lab | 2.0 |
| BIO 497 | Research | 0.5-12.0 |
| ENVS 255 | Invertebrate Morphology and Physiology Lab | 2.0 |
| ENVS 344 | Equatorial Guinea: Field Research | 6.0 |
| ENVS 353 | Field Ornithology Lab | 2.0 |
| ENVS 394 | Entomology Laboratory | 2.0 |

2. The Organismal Biology/Physiology Concentration

This concentration combines courses in organismal biology and physiology with an opportunity to focus on human physiology. The concentration is designed to appeal to students interested in health and medicine, but also accommodates students seeking a wider breadth of knowledge in organismal diversity. Students can focus their electives in human physiology or can choose courses that study non-human organisms.

Organismal Biology/Physiology Concentration Requirements

| | | |
|------------------------------|--|-----|
| BIO 201 | Human Physiology I | 4.0 |
| or ENVS 254 | Invertebrate Morphology and Physiology | |
| BIO 203 | Human Physiology II | 4.0 |
| or BIO 256 | Vertebrate Morphology and Physiology | |
| BIO 373 | Developmental Biology | 3.0 |
| Select one of the following: | | |
| BIO 412 | Biology of Aging | 3.0 |
| or BIO 284 | Biology of Stress | |
| or BIO 466 | Endocrinology | |
| or BIO 468 | Pathophysiology | |

Organismal Biology/Physiology Concentration Concentration Electives (See List Below)

| | |
|--|-----|
| Cell/Molecular/Genetics/Biochemistry (CMGB) Elective | 3.0 |
| Two Organismal/Physiology Electives | 6.0 |
| Ecology/Evolution/Genomics Elective | 3.0 |
| Concentration Laboratory Courses | |
| Two Laboratory Electives | 4.0 |

| | |
|----------------------|-------------|
| Total Credits | 30.0 |
|----------------------|-------------|

Students interesting in pursuing a focus area in Human Physiology or Organismal Biology should contact the academic advisor in the Biology Department for specific focus recommendations.

Cell/Molecular/Genetics/Biochemistry (CMGB) Electives

| | | |
|---------|--|-----|
| BIO 244 | Genetics I | 3.0 |
| BIO 285 | Forensic Biology | 3.0 |
| BIO 311 | Biochemistry | 4.0 |
| BIO 314 | Pharmacology | 3.0 |
| BIO 318 | Biology of Cancer | 3.0 |
| BIO 346 | Stem Cell Research | 3.0 |
| BIO 348 | Neuroscience: From Cells to Circuits | 3.0 |
| BIO 404 | Structure and Function of Biomolecules | 4.0 |
| BIO 410 | Advanced Molecular Biology | 3.0 |
| BIO 414 | Behavioral Genetics | 3.0 |
| BIO 416 | Biochemistry of Major Diseases | 3.0 |
| BIO 430 | Cell Biology of Disease | 3.0 |
| BIO 433 | Advanced Cell Biology | 3.0 |

| | | |
|----------|---|-----|
| BIO 444 | Human Genetics | 3.0 |
| BIO 453 | Protein Dysfunction in Disease | 3.0 |
| BIO 462 | Biology of Neuron Function | 3.0 |
| BIO 463 | Molecular Mechanisms of Neurodegeneration | 3.0 |
| ENVS 326 | Molecular Ecology | 3.0 |

Organismal/Physiology Electives

| | | |
|----------|--|-----|
| BIO 201 | Human Physiology I | 4.0 |
| BIO 203 | Human Physiology II | 4.0 |
| BIO 221 | Microbiology | 3.0 |
| BIO 256 | Vertebrate Morphology and Physiology | 3.0 |
| BIO 264 | Ethnobotany | 3.0 |
| BIO 284 | Biology of Stress | 3.0 |
| BIO 286 | Forensic Toxicology | 3.0 |
| BIO 320 | Microbial Pathogenesis | 3.0 |
| BIO 323 | Parasitology | 3.0 |
| BIO 349 | Behavioral Neuroscience | 3.0 |
| BIO 372 | Histology | 4.0 |
| BIO 386 | Gross Anatomy I | 2.0 |
| BIO 388 | Gross Anatomy II | 2.0 |
| BIO 412 | Biology of Aging | 3.0 |
| BIO 420 | Virology | 3.0 |
| BIO 426 | Immunology | 3.0 |
| BIO 435 | Immunobiology of Disease | 3.0 |
| BIO 461 | Neurobiology of Autism Disorders | 3.0 |
| BIO 466 | Endocrinology | 4.0 |
| BIO 468 | Pathophysiology | 4.0 |
| ENVS 254 | Invertebrate Morphology and Physiology | 3.0 |
| ENVS 393 | Entomology | 3.0 |

Ecology/Evolution/Genomics Electives

| | | |
|----------|---|-----|
| BIO 228 | Evolutionary Biology & Human Health | 3.0 |
| BIO 331 | Bioinformatics I | 3.0 |
| BIO 413 | Genomics | 3.0 |
| BIO 436 | Population Genetics | 4.0 |
| ENVS 230 | General Ecology | 3.0 |
| ENVS 247 | Native Plants and Sustainability | 3.0 |
| ENVS 323 | Tropical Field Studies | 3.0 |
| ENVS 328 | Conservation Biology | 3.0 |
| ENVS 333 | Wetland Ecology | 3.0 |
| ENVS 343 | Equatorial Guinea: Field Methods | 3.0 |
| ENVS 352 | Ornithology | 3.0 |
| ENVS 354 | Ichthyology | 3.0 |
| ENVS 355 | Biogeography | 3.0 |
| ENVS 360 | Evolutionary Developmental Biology | 3.0 |
| ENVS 364 | Animal Behavior | 3.0 |
| ENVS 382 | Field Botany of the New Jersey Pine Barrens | 4.0 |
| ENVS 383 | Ecology of the New Jersey Pine Barrens | 4.0 |
| ENVS 388 | Marine Field Methods | 4.0 |
| ENVS 391 | Freshwater and Marine Algae | 3.0 |
| ENVS 438 | Biodiversity | 3.0 |
| ENVS 470 | Advanced Topics in Evolution | 3.0 |

Laboratory Electives

| | | |
|---------|--|-----|
| BIO 202 | Human Physiology Laboratory | 2.0 |
| BIO 213 | Drosophila Neural Research | 3.0 |
| BIO 215 | Techniques in Cell Biology | 3.0 |
| BIO 222 | Microbiology Laboratory | 2.0 |
| BIO 232 | Discovering Antibiotics | 3.0 |
| BIO 257 | Vertebrate Morphology & Physiology Lab | 2.0 |
| BIO 306 | Biochemistry Laboratory | 2.0 |
| BIO 329 | Dictyostelium Research | 3.0 |
| BIO 333 | Bioinformatics Laboratory | 2.0 |

| | | |
|----------|--|-----|
| BIO 374 | Developmental Biology Lab | 2.0 |
| BIO 387 | Gross Anatomy I Laboratory | 2.0 |
| BIO 389 | Gross Anatomy II Lab | 2.0 |
| ENVS 255 | Invertebrate Morphology and Physiology Lab | 2.0 |
| ENVS 344 | Equatorial Guinea: Field Research | 6.0 |
| ENVS 353 | Field Ornithology Lab | 2.0 |
| ENVS 394 | Entomology Laboratory | 2.0 |

3. The Ecology/Evolution/Genomics Concentration

This concentration focuses on ecological and evolutionary aspects of biology for biology majors who also have specific interests in ecology, evolution or genomics. This concentration is designed to maintain a breadth of knowledge in biology, but also allows students to tailor their course work more specifically to reflect their specific area of interest.

Ecology/Evolution/Genomics Concentration Requirements

| | | |
|------------------------------|---|---------|
| BIO 228 | Evolutionary Biology & Human Health | 3.0 |
| or BIO 331 | Bioinformatics I | |
| BIO 436 | Population Genetics | 3.0-4.0 |
| or ENVS 230 | General Ecology | |
| ENVS 326 | Molecular Ecology | 3.0 |
| Select one of the following: | | 3.0-5.0 |
| BIO 221 | Microbiology | |
| BIO 256 | Vertebrate Morphology and Physiology | |
| BIO 323 | Parasitology | |
| BIO 413 | Genomics | |
| BIO 420 | Virology | |
| ENVS 254 | Invertebrate Morphology and Physiology | |
| ENVS 360 | Evolutionary Developmental Biology | |
| ENVS 382 | Field Botany of the New Jersey Pine Barrens | |
| ENVS 391 | Freshwater and Marine Algae | |
| ENVS 393 | Entomology | |
| ENVS 438 | Biodiversity | |

Ecology/Evolution/Genomics Concentration Electives

| | |
|--|-----|
| Select one Cell/Molecular/Genetics/Biochemistry (CMGB) Elective (see list below) | 3.0 |
| Select one Organismal/Physiology Elective (see list below) | 3.0 |
| Select two Ecology/Evolution/Genomics Electives (see list below) | 6.0 |

Concentration Laboratory Courses

| | |
|--|-----|
| Select two Laboratory Electives (see list below) | 4.0 |
|--|-----|

Total Credits

28.0-31.0

Students interested in pursuing a focus area in Ecology, Evolutionary Biology or Genomics should contact the academic advisor in the Biology Department for specific focus recommendations.

Cell/Molecular/Genetics/Biochemistry (CMGB) Electives

| | | |
|---------|--|-----|
| BIO 244 | Genetics I | 3.0 |
| BIO 285 | Forensic Biology | 3.0 |
| BIO 311 | Biochemistry | 4.0 |
| BIO 314 | Pharmacology | 3.0 |
| BIO 318 | Biology of Cancer | 3.0 |
| BIO 346 | Stem Cell Research | 3.0 |
| BIO 348 | Neuroscience: From Cells to Circuits | 3.0 |
| BIO 404 | Structure and Function of Biomolecules | 4.0 |
| BIO 410 | Advanced Molecular Biology | 3.0 |
| BIO 414 | Behavioral Genetics | 3.0 |
| BIO 415 | Proteins | 3.0 |
| BIO 416 | Biochemistry of Major Diseases | 3.0 |
| BIO 421 | Biomembranes | 3.0 |
| BIO 430 | Cell Biology of Disease | 3.0 |
| BIO 433 | Advanced Cell Biology | 3.0 |
| BIO 444 | Human Genetics | 3.0 |
| BIO 453 | Protein Dysfunction in Disease | 3.0 |

| | | |
|---------|---|-----|
| BIO 462 | Biology of Neuron Function | 3.0 |
| BIO 463 | Molecular Mechanisms of Neurodegeneration | 3.0 |

Organismal/Physiology Electives

| | | |
|----------|--|-----|
| BIO 201 | Human Physiology I | 4.0 |
| BIO 221 | Microbiology | 3.0 |
| BIO 256 | Vertebrate Morphology and Physiology | 3.0 |
| BIO 264 | Ethnobotany | 3.0 |
| BIO 284 | Biology of Stress | 3.0 |
| BIO 286 | Forensic Toxicology | 3.0 |
| BIO 323 | Parasitology | 3.0 |
| BIO 349 | Behavioral Neuroscience | 3.0 |
| BIO 372 | Histology | 4.0 |
| BIO 373 | Developmental Biology | 3.0 |
| BIO 386 | Gross Anatomy I | 2.0 |
| BIO 388 | Gross Anatomy II | 2.0 |
| BIO 412 | Biology of Aging | 3.0 |
| BIO 420 | Virology | 3.0 |
| BIO 426 | Immunology | 3.0 |
| BIO 461 | Neurobiology of Autism Disorders | 3.0 |
| ENVS 254 | Invertebrate Morphology and Physiology | 3.0 |
| ENVS 393 | Entomology | 3.0 |

Ecology/Evolution/Genomics Electives

| | | |
|----------|---|-----|
| BIO 228 | Evolutionary Biology & Human Health | 3.0 |
| BIO 331 | Bioinformatics I | 3.0 |
| BIO 332 | Bioinformatics II | 3.0 |
| BIO 413 | Genomics | 3.0 |
| BIO 436 | Population Genetics | 4.0 |
| ENVS 230 | General Ecology | 3.0 |
| ENVS 247 | Native Plants and Sustainability | 3.0 |
| ENVS 284 | Physiological and Population Ecology | 3.0 |
| ENVS 286 | Community and Ecosystem Ecology | 3.0 |
| ENVS 315 | Plant Animal Interactions | 3.0 |
| ENVS 322 | Tropical Ecology | 3.0 |
| ENVS 328 | Conservation Biology | 3.0 |
| ENVS 330 | Aquatic Ecology | 3.0 |
| ENVS 333 | Wetland Ecology | 3.0 |
| ENVS 343 | Equatorial Guinea: Field Methods | 3.0 |
| ENVS 352 | Ornithology | 3.0 |
| ENVS 354 | Ichthyology | 3.0 |
| ENVS 355 | Biogeography | 3.0 |
| ENVS 360 | Evolutionary Developmental Biology | 3.0 |
| ENVS 364 | Animal Behavior | 3.0 |
| ENVS 382 | Field Botany of the New Jersey Pine Barrens | 4.0 |
| ENVS 383 | Ecology of the New Jersey Pine Barrens | 4.0 |
| ENVS 390 | Marine Ecology | 3.0 |
| ENVS 391 | Freshwater and Marine Algae | 3.0 |
| ENVS 410 | Physiological Ecology | 3.0 |
| ENVS 412 | Biophysical Ecology | 3.0 |
| ENVS 438 | Biodiversity | 3.0 |
| ENVS 470 | Advanced Topics in Evolution | 3.0 |

Laboratory Electives

| | | |
|---------|--|-----|
| BIO 202 | Human Physiology Laboratory | 2.0 |
| BIO 213 | Drosophila Neural Research | 3.0 |
| BIO 215 | Techniques in Cell Biology | 3.0 |
| BIO 222 | Microbiology Laboratory | 2.0 |
| BIO 232 | Discovering Antibiotics | 3.0 |
| BIO 257 | Vertebrate Morphology & Physiology Lab | 2.0 |
| BIO 306 | Biochemistry Laboratory | 2.0 |
| BIO 329 | Dictyostelium Research | 3.0 |
| BIO 333 | Bioinformatics Laboratory | 2.0 |

| | | |
|----------|---|----------|
| BIO 374 | Developmental Biology Lab | 2.0 |
| BIO 387 | Gross Anatomy I Laboratory | 2.0 |
| BIO 389 | Gross Anatomy II Lab | 2.0 |
| BIO 497 | Research (by permission of the department) | 0.5-12.0 |
| ENVS 255 | Invertebrate Morphology and Physiology Lab | 2.0 |
| ENVS 327 | Molecular Ecology Laboratory | 2.0 |
| ENVS 344 | Equatorial Guinea: Field Research | 6.0 |
| ENVS 353 | Field Ornithology Lab | 2.0 |
| ENVS 382 | Field Botany of the New Jersey Pine Barrens | 4.0 |
| ENVS 383 | Ecology of the New Jersey Pine Barrens | 4.0 |
| ENVS 388 | Marine Field Methods | 4.0 |
| ENVS 394 | Entomology Laboratory | 2.0 |

4. The Pathobiology Concentration

The Pathobiology concentration focuses on pathogenesis, and provides a unique option for students that differs from the more traditional disciplines in cell/molecular/genetics/biochemistry. This concentration is designed to appeal to students with an interest in pursuing careers in areas of public and allied health.

Pathobiology Concentration Requirements

| | | |
|--|--------------------------|-----|
| BIO 221 | Microbiology | 3.0 |
| BIO 320 | Microbial Pathogenesis | 3.0 |
| BIO 323 | Parasitology | 3.0 |
| or BIO 420 | Virology | |
| or BIO 435 | Immunobiology of Disease | |
| BIO 426 | Immunology | 3.0 |
| Select one Cell/Molecular/Genetics/Biochemistry (CMGB) Elective (see list below) | | 3.0 |
| Select two Organismal/Physiology Electives (see list below) | | 6.0 |
| Select one Ecology/Evolution/Genomics Elective (see list below) | | 3.0 |
| Concentration Laboratory Courses | | |
| Two Laboratory electives (see list below) | | 4.0 |

Total Credits **28.0**

Cell/Molecular/Genetics/Biochemistry (CMGB) Electives

| | | |
|----------|---|-----|
| BIO 244 | Genetics I | 3.0 |
| BIO 285 | Forensic Biology | 3.0 |
| BIO 311 | Biochemistry | 4.0 |
| BIO 314 | Pharmacology | 3.0 |
| BIO 318 | Biology of Cancer | 3.0 |
| BIO 346 | Stem Cell Research | 3.0 |
| BIO 348 | Neuroscience: From Cells to Circuits | 3.0 |
| BIO 404 | Structure and Function of Biomolecules | 4.0 |
| BIO 410 | Advanced Molecular Biology | 3.0 |
| BIO 414 | Behavioral Genetics | 3.0 |
| BIO 415 | Proteins | 3.0 |
| BIO 416 | Biochemistry of Major Diseases | 3.0 |
| BIO 421 | Biomembranes | 3.0 |
| BIO 430 | Cell Biology of Disease | 3.0 |
| BIO 433 | Advanced Cell Biology | 3.0 |
| BIO 444 | Human Genetics | 3.0 |
| BIO 453 | Protein Dysfunction in Disease | 3.0 |
| BIO 462 | Biology of Neuron Function | 3.0 |
| BIO 463 | Molecular Mechanisms of Neurodegeneration | 3.0 |
| ENVS 326 | Molecular Ecology | 3.0 |

Organismal/Physiology Electives

| | | |
|---------|--------------------------------------|-----|
| BIO 201 | Human Physiology I | 4.0 |
| BIO 203 | Human Physiology II | 4.0 |
| BIO 221 | Microbiology | 3.0 |
| BIO 256 | Vertebrate Morphology and Physiology | 3.0 |
| BIO 284 | Biology of Stress | 3.0 |
| BIO 286 | Forensic Toxicology | 3.0 |
| BIO 323 | Parasitology | 3.0 |

| | | |
|----------|--|-----|
| BIO 349 | Behavioral Neuroscience | 3.0 |
| BIO 372 | Histology | 4.0 |
| BIO 373 | Developmental Biology | 3.0 |
| BIO 386 | Gross Anatomy I | 2.0 |
| BIO 388 | Gross Anatomy II | 2.0 |
| BIO 412 | Biology of Aging | 3.0 |
| BIO 420 | Virology | 3.0 |
| BIO 435 | Immunobiology of Disease | 3.0 |
| BIO 461 | Neurobiology of Autism Disorders | 3.0 |
| BIO 466 | Endocrinology | 4.0 |
| BIO 468 | Pathophysiology | 4.0 |
| ENVS 254 | Invertebrate Morphology and Physiology | 3.0 |

Ecology/Evolution/Genomics Electives

| | | |
|----------|---|-----|
| BIO 228 | Evolutionary Biology & Human Health | 3.0 |
| BIO 331 | Bioinformatics I | 3.0 |
| BIO 413 | Genomics | 3.0 |
| BIO 436 | Population Genetics | 4.0 |
| ENVS 230 | General Ecology | 3.0 |
| ENVS 247 | Native Plants and Sustainability | 3.0 |
| ENVS 323 | Tropical Field Studies | 3.0 |
| ENVS 328 | Conservation Biology | 3.0 |
| ENVS 333 | Wetland Ecology | 3.0 |
| ENVS 343 | Equatorial Guinea: Field Methods | 3.0 |
| ENVS 352 | Ornithology | 3.0 |
| ENVS 354 | Ichthyology | 3.0 |
| ENVS 355 | Biogeography | 3.0 |
| ENVS 360 | Evolutionary Developmental Biology | 3.0 |
| ENVS 364 | Animal Behavior | 3.0 |
| ENVS 382 | Field Botany of the New Jersey Pine Barrens | 4.0 |
| ENVS 383 | Ecology of the New Jersey Pine Barrens | 4.0 |
| ENVS 391 | Freshwater and Marine Algae | 3.0 |
| ENVS 438 | Biodiversity | 3.0 |
| ENVS 470 | Advanced Topics in Evolution | 3.0 |

Laboratory Electives

| | | |
|----------|--|----------|
| BIO 202 | Human Physiology Laboratory | 2.0 |
| BIO 213 | Drosophila Neural Research | 3.0 |
| BIO 215 | Techniques in Cell Biology | 3.0 |
| BIO 222 | Microbiology Laboratory | 2.0 |
| BIO 232 | Discovering Antibiotics | 3.0 |
| BIO 257 | Vertebrate Morphology & Physiology Lab | 2.0 |
| BIO 306 | Biochemistry Laboratory | 2.0 |
| BIO 329 | Dictyostelium Research | 3.0 |
| BIO 333 | Bioinformatics Laboratory | 2.0 |
| BIO 374 | Developmental Biology Lab | 2.0 |
| BIO 387 | Gross Anatomy I Laboratory | 2.0 |
| BIO 389 | Gross Anatomy II Lab | 2.0 |
| BIO 497 | Research (by permission of the department) | 0.5-12.0 |
| ENVS 255 | Invertebrate Morphology and Physiology Lab | 2.0 |
| ENVS 344 | Equatorial Guinea: Field Research | 6.0 |
| ENVS 353 | Field Ornithology Lab | 2.0 |

5. The General Biology Concentration

This concentration will allow maximum flexibility for students who want to develop their own unique plan of study. The concentration is designed for students who may not have one specific area of interest, but who are looking to be well-rounded in the biological sciences. Students pursuing careers in education, where a wider breadth of knowledge in biology is desirable, may choose to select this concentration.

General Biology Concentration Requirements**General Biology Concentration Electives****24.0**

2 or 3 Cell/Molecular/Genetics/Biochemistry (CMGB) Electives (see list below)

2 or 3 Organismal/Physiology Electives (see list below)

2 or 3 Ecology/Evolution/Genomics Electives (see list below)

Concentration Laboratory Courses

Two Laboratory electives (see list below)

4.0

Total Credits**28.0****Cell/Molecular/Genetics/Biochemistry (CMGB) Electives**

| | | |
|----------|---|-----|
| BIO 244 | Genetics I | 3.0 |
| BIO 285 | Forensic Biology | 3.0 |
| BIO 311 | Biochemistry | 4.0 |
| BIO 314 | Pharmacology | 3.0 |
| BIO 318 | Biology of Cancer | 3.0 |
| BIO 331 | Bioinformatics I | 3.0 |
| BIO 332 | Bioinformatics II | 3.0 |
| BIO 346 | Stem Cell Research | 3.0 |
| BIO 348 | Neuroscience: From Cells to Circuits | 3.0 |
| BIO 404 | Structure and Function of Biomolecules | 4.0 |
| BIO 413 | Genomics | 3.0 |
| BIO 415 | Proteins | 3.0 |
| BIO 421 | Biomembranes | 3.0 |
| BIO 430 | Cell Biology of Disease | 3.0 |
| BIO 433 | Advanced Cell Biology | 3.0 |
| BIO 444 | Human Genetics | 3.0 |
| BIO 447 | Advanced Genetics and Molecular Biology | 3.0 |
| BIO 453 | Protein Dysfunction in Disease | 3.0 |
| BIO 462 | Biology of Neuron Function | 3.0 |
| BIO 465 | Neurobiology of Disease | 3.0 |
| ENVS 326 | Molecular Ecology | 3.0 |

Organismal/Physiology Electives

| | | |
|----------|--|-----|
| BIO 201 | Human Physiology I | 4.0 |
| BIO 203 | Human Physiology II | 4.0 |
| BIO 221 | Microbiology | 3.0 |
| BIO 256 | Vertebrate Morphology and Physiology | 3.0 |
| BIO 264 | Ethnobotany | 3.0 |
| BIO 284 | Biology of Stress | 3.0 |
| BIO 286 | Forensic Toxicology | 3.0 |
| BIO 320 | Microbial Pathogenesis | 3.0 |
| BIO 323 | Parasitology | 3.0 |
| BIO 349 | Behavioral Neuroscience | 3.0 |
| BIO 372 | Histology | 4.0 |
| BIO 373 | Developmental Biology | 3.0 |
| BIO 386 | Gross Anatomy I | 2.0 |
| BIO 388 | Gross Anatomy II | 2.0 |
| BIO 412 | Biology of Aging | 3.0 |
| BIO 420 | Virology | 3.0 |
| BIO 426 | Immunology | 3.0 |
| BIO 435 | Immunobiology of Disease | 3.0 |
| BIO 461 | Neurobiology of Autism Disorders | 3.0 |
| BIO 466 | Endocrinology | 4.0 |
| BIO 468 | Pathophysiology | 4.0 |
| ENVS 254 | Invertebrate Morphology and Physiology | 3.0 |
| ENVS 393 | Entomology | 3.0 |

Ecology/Evolution/Genomics Electives

| | | |
|----------|--------------------------------------|-----|
| BIO 228 | Evolutionary Biology & Human Health | 3.0 |
| BIO 331 | Bioinformatics I | 3.0 |
| BIO 332 | Bioinformatics II | 3.0 |
| BIO 413 | Genomics | 3.0 |
| ENVS 230 | General Ecology | 3.0 |
| ENVS 247 | Native Plants and Sustainability | 3.0 |
| ENVS 284 | Physiological and Population Ecology | 3.0 |
| ENVS 286 | Community and Ecosystem Ecology | 3.0 |

| | | |
|----------|---|-----|
| ENVS 315 | Plant Animal Interactions | 3.0 |
| ENVS 322 | Tropical Ecology | 3.0 |
| ENVS 323 | Tropical Field Studies | 3.0 |
| ENVS 328 | Conservation Biology | 3.0 |
| ENVS 330 | Aquatic Ecology | 3.0 |
| ENVS 333 | Wetland Ecology | 3.0 |
| ENVS 343 | Equatorial Guinea: Field Methods | 3.0 |
| ENVS 352 | Ornithology | 3.0 |
| ENVS 354 | Ichthyology | 3.0 |
| ENVS 355 | Biogeography | 3.0 |
| ENVS 360 | Evolutionary Developmental Biology | 3.0 |
| ENVS 364 | Animal Behavior | 3.0 |
| ENVS 382 | Field Botany of the New Jersey Pine Barrens | 4.0 |
| ENVS 383 | Ecology of the New Jersey Pine Barrens | 4.0 |
| ENVS 388 | Marine Field Methods | 4.0 |
| ENVS 390 | Marine Ecology | 3.0 |
| ENVS 391 | Freshwater and Marine Algae | 3.0 |
| ENVS 410 | Physiological Ecology | 3.0 |
| ENVS 412 | Biophysical Ecology | 3.0 |
| ENVS 438 | Biodiversity | 3.0 |
| ENVS 470 | Advanced Topics in Evolution | 3.0 |

Laboratory Electives

| | | |
|----------|---|----------|
| BIO 202 | Human Physiology Laboratory | 2.0 |
| BIO 213 | Drosophila Neural Research | 3.0 |
| BIO 215 | Techniques in Cell Biology | 3.0 |
| BIO 222 | Microbiology Laboratory | 2.0 |
| BIO 232 | Discovering Antibiotics | 3.0 |
| BIO 257 | Vertebrate Morphology & Physiology Lab | 2.0 |
| BIO 306 | Biochemistry Laboratory | 2.0 |
| BIO 329 | Dictyostelium Research | 3.0 |
| BIO 333 | Bioinformatics Laboratory | 2.0 |
| BIO 374 | Developmental Biology Lab | 2.0 |
| BIO 387 | Gross Anatomy I Laboratory | 2.0 |
| BIO 389 | Gross Anatomy II Lab | 2.0 |
| BIO 497 | Research (by permission of the department) | 0.5-12.0 |
| ENVS 255 | Invertebrate Morphology and Physiology Lab | 2.0 |
| ENVS 327 | Molecular Ecology Laboratory | 2.0 |
| ENVS 344 | Equatorial Guinea: Field Research | 6.0 |
| ENVS 353 | Field Ornithology Lab | 2.0 |
| ENVS 382 | Field Botany of the New Jersey Pine Barrens | 4.0 |
| ENVS 383 | Ecology of the New Jersey Pine Barrens | 4.0 |
| ENVS 388 | Marine Field Methods | 4.0 |
| ENVS 394 | Entomology Laboratory | 2.0 |

Note about laboratory credits: ENVS 382 and ENVS 388 have both a lecture and laboratory component.

6. The Cell and Gene Therapy Concentration

The Cell and Gene Therapy concentration provides a strong biological foundation for those aspiring toward professions in this unique subdiscipline. These therapies have the potential to transform medicine by alleviating the cause of disease using RNA, DNA and cells to reprogram the body's defenses to fight disease. The cell and gene therapy workforce is expected to grow 35-94% between 2022 and 2032. This concentration will benefit students pursuing careers in medicine bioinformatics, regulatory compliance, public health, research and industry.

Cell and Gene Therapy Concentration Requirements

| | | |
|---|--------------------|---------|
| BIO 244 | Genetics I | 3.0 |
| BIO 346 | Stem Cell Research | 3.0 |
| BIO 413 | Genomics | 3.0 |
| or BIO 426 | Immunology | |
| BIO 444 | Human Genetics | 3.0 |
| or BIO 420 | Virology | |
| Select two Cell/Molecular/Genetics/Biochemistry (CMGB) Electives (see list below) | | 6.0 |
| Select one Organismal/Physiology Elective (see list below) | | 3.0-4.0 |

Select one Ecology/Evolution/Genomics Elective (see list below) 3.0-4.0

Concentration Laboratory Courses

Two Laboratory Electives (see list below) 4.0-6.0

Total Credits **28.0-32.0**

Cell/Molecular/Genetics/Biochemistry (CMGB) Electives

| | | |
|---------|--------------------------------|-----|
| BIO 314 | Pharmacology | 3.0 |
| BIO 318 | Biology of Cancer | 3.0 |
| BIO 416 | Biochemistry of Major Diseases | 3.0 |
| BIO 430 | Cell Biology of Disease | 3.0 |
| BIO 444 | Human Genetics | 3.0 |
| BIO 453 | Protein Dysfunction in Disease | 3.0 |

Organismal/Physiology Electives

| | | |
|---------|-----------------------|-----|
| BIO 201 | Human Physiology I | 4.0 |
| BIO 373 | Developmental Biology | 3.0 |
| BIO 420 | Virology | 3.0 |
| BIO 426 | Immunology | 3.0 |

Ecology/Evolution/Genomics Electives

| | | |
|---------|-------------------------------------|-----|
| BIO 228 | Evolutionary Biology & Human Health | 3.0 |
| BIO 331 | Bioinformatics I | 3.0 |
| BIO 413 | Genomics | 3.0 |
| BIO 436 | Population Genetics | 4.0 |

Laboratory Electives

| | | |
|---------|----------------------------------|----------|
| BIO 213 | Drosophila Neural Research | 3.0 |
| BIO 215 | Techniques in Cell Biology | 3.0 |
| BIO 232 | Discovering Antibiotics | 3.0 |
| BIO 242 | SEA-GENES I | 2.0 |
| BIO 306 | Biochemistry Laboratory | 2.0 |
| BIO 329 | Dictyostelium Research | 3.0 |
| BIO 497 | Research (by permission of Dept) | 0.5-12.0 |

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plans of Study

4 year, no co-op

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|------------------------|------------------------|------------------|----------|
| BIO 131 | 4.0 BIO 132 | 4.0 BIO 133 | 4.0 VACATION | |
| BIO 134 or 142 | 1.0-2.0 BIO 135 or 143 | 1.0-2.0 BIO 136 or 144 | 1.0-2.0 | |
| CHEM 101 | 3.5 CHEM 102 | 4.5 CHEM 103 | 4.5 | |
| ENGL 101 or 111 | 3.0 CIVC 101 | 1.0 ENGL 103 or 113 | 3.0 | |
| MATH 121 or 101 | 4.0 ENGL 102 or 112 | 3.0 MATH 239 or 123 | 4.0 | |
| UNIV S101 | 1.0 MATH 122 or 102 | 4.0 | | |
| | 16.5-17.5 | 17.5-18.5 | 16.5-17.5 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|---------|----------------|----------------|----------------|---------|
| BIO 207 | 1.0 BIO 208 | 1.0 BIO 224 | 4.0 VACATION | |

| | | | | |
|--|--|--|-----------------------|----------------|
| BIO 209 | 4.0 BIO 211 | 4.0 BIO 225 | 2.0 | |
| BIO 219 | 3.0 CHEM 242 | 4.0 BIO 311 or CHEM 243 | 3.0-4.0 | |
| CHEM 241 | 4.0 PHYS 153 | 4.0 PHIL 251 | 3.0 | |
| PHYS 152 | 4.0 UNIV S201 | 1.0 PHYS 154 | 4.0 | |
| | Biology Laboratory Requirement course * | 2.0 | | |
| | 16 | 16 | 16-17 | 0 |
| Third Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| ENVS 212 | 4.0 COM 310 | 3.0 COM 230 | 3.0 VACATION | |
| MATH 410 | 3.0 MATH 411 | 3.0 BIO/ENVS elective | 3.0 | |
| BIO/ENVS elective | 3.0 BIO/ENVS elective | 3.0 Biology Laboratory Requirement course * | 2.0 | |
| Humanities/Social Science elective | 3.0 Humanities/Social Science elective | 3.0 Free elective | 3.0 | |
| Science, Technology, Health & Human Affairs elective | 3.0 | Humanities/Social Science elective | 3.0 | |
| | 16 | 12 | 14 | 0 |
| Fourth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits | |
| BIO 471 | 2.0 BIO 472 | 2.0 BIO 473 | 2.0 | |
| BIO/ENVS electives | 6.0 BIO/ENVS elective | 6.0 BIO/ENVS elective | 3.0 | |
| Free electives ** | 7.0 Free electives | 6.0 Free electives | 9.0 | |
| | 15 | 14 | 14 | |

Total Credits 183.5-187.5

* See degree requirements (p. 13).

** Students not participating in co-op will take one additional credit of Free Elective instead of COOP 101.

4 year, 1 co-op

| | | | | |
|--------------------|--------------------------------------|-------------------------|--|----------------|
| First Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| BIO 131 | 4.0 BIO 132 | 4.0 BIO 133 | 4.0 VACATION | |
| BIO 134 or 142 | 1.0-2.0 BIO 135 or 143 | 1.0-2.0 BIO 136 or 144 | 1.0-2.0 | |
| CHEM 101 | 3.5 CHEM 102 | 4.5 CHEM 103 | 4.5 | |
| ENGL 101 or 111 | 3.0 CIVC 101 | 1.0 COOP 101 * | 1.0 | |
| MATH 121 or 101 | 4.0 ENGL 102 or 112 | 3.0 ENGL 103 or 113 | 3.0 | |
| UNIV S101 | 1.0 MATH 122 or 102 | 4.0 MATH 239 or 123 | 4.0 | |
| | 16.5-17.5 | 17.5-18.5 | 17.5-18.5 | 0 |
| Second Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| BIO 207 | 1.0 BIO 208 | 1.0 BIO 311 or CHEM 243 | 3.0-4.0 BIO 224 | 4.0 |
| BIO 209 | 4.0 BIO 211 | 4.0 ENVS 212 | 4.0 BIO 225 | 2.0 |
| BIO 219 | 3.0 CHEM 242 | 4.0 PHIL 251 | 3.0 BIO/ENVS elective | 3.0 |
| CHEM 241 | 4.0 PHYS 153 | 4.0 PHYS 154 | 4.0 Humanities/Social Science elective | 3.0 |
| PHYS 152 | 4.0 UNIV S201 | 1.0 | Science, Technology, Health & Human Affairs elective | 3.0 |
| | Biology Laboratory requirement ** | 2.0 | | |
| | 16 | 16 | 14-15 | 15 |
| Third Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| COOP EXPERIENCE | COOP EXPERIENCE | COM 230 | 3.0 COM 310 | 3.0 |
| | | MATH 410 | 3.0 MATH 411 | 3.0 |
| | | BIO/ENVS elective | 3.0 BIO/ENVS elective | 3.0 |
| | | Free electives | 6.0 Biology Laboratory Requirement course ** | 2.0 |
| | | | Free elective | 3.0 |
| | 0 | 0 | 15 | 14 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits |
|--------------------|---------------------------------------|---|-----------|
| BIO 471 | 2.0 BIO 472 | 2.0 BIO 473 | 2.0 |
| BIO/ENVS electives | 6.0 BIO/ENVS electives | 6.0 BIO/ENVS elective | 3.0 |
| Free electives | 6.0 Free elective | 3.0 Free electives | 6.0 |
| | Humanities/Social Science elective | 3.0 Humanities/Social Science elective | 3.0 |
| | 14 | 14 | 14 |

Total Credits 183.5-187.5

* Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

** See degree requirements (p. 13).

5 year, 3 co-op**First Year**

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|------------------------|------------------------|------------------|----------|
| BIO 131 | 4.0 BIO 132 | 4.0 BIO 133 | 4.0 VACATION | |
| BIO 134 or 142 | 1.0-2.0 BIO 135 or 143 | 1.0-2.0 BIO 136 or 144 | 1.0-2.0 | |
| CHEM 101 | 3.5 CHEM 102 | 4.5 CHEM 103 | 4.5 | |
| ENGL 101 or 111 | 3.0 CIVC 101 | 1.0 COOP 101* | 1.0 | |
| MATH 121 or 101 | 4.0 ENGL 102 or 112 | 3.0 ENGL 103 or 113 | 3.0 | |
| UNIV S101 | 1.0 MATH 122 or 102 | 4.0 MATH 239 or 123 | 4.0 | |
| | 16.5-17.5 | 17.5-18.5 | 17.5-18.5 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|-----------------|----------------|--|-----------|
| COOP EXPERIENCE | COOP EXPERIENCE | BIO 207 | 1.0 BIO 208 | 1.0 |
| | | BIO 209 | 4.0 BIO 211 | 4.0 |
| | | BIO 219 | 3.0 CHEM 242 | 4.0 |
| | | CHEM 241 | 4.0 PHYS 153 | 4.0 |
| | | PHYS 152 | 4.0 UNIV S201 | 1.0 |
| | | | Biology Laboratory Requirement course** | 2.0 |
| | 0 | 0 | 16 | 16 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|-----------------|---------------------|--|-----------|
| COOP EXPERIENCE | COOP EXPERIENCE | BIO 311 or CHEM 243 | 3.0-4.0 BIO 224 | 4.0 |
| | | ENVS 212 | 4.0 BIO 225 | 2.0 |
| | | PHIL 251 | 3.0 BIO/ENVS elective | 3.0 |
| | | PHYS 154 | 4.0 Humanities/Social Science elective | 3.0 |
| | | | Science, Technology, Health & Human Affairs elective | 3.0 |
| | 0 | 0 | 14-15 | 15 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|-----------------|-------------------|--|-----------|
| COOP EXPERIENCE | COOP EXPERIENCE | COM 230 | 3.0 COM 310 | 3.0 |
| | | MATH 410 | 3.0 MATH 411 | 3.0 |
| | | BIO/ENVS elective | 3.0 BIO/ENVS elective | 3.0 |
| | | Free electives | 6.0 Biology Laboratory Requirement course** | 2.0 |
| | | | Free elective | 3.0 |
| | 0 | 0 | 15 | 14 |

Fifth Year

| Fall | Credits Winter | Credits Spring | Credits |
|--------------------|------------------------|-----------------------|---------|
| BIO 471 | 2.0 BIO 472 | 2.0 BIO 473 | 2.0 |
| BIO/ENVS electives | 6.0 BIO/ENVS electives | 6.0 BIO/ENVS elective | 3.0 |

| | | | |
|----------------|---------------------------------------|---|-----------|
| Free electives | 6.0 Free elective | 3.0 Free electives | 6.0 |
| | Humanities/Social Science elective | 3.0 Humanities/Social Science elective | 3.0 |
| | 14 | 14 | 14 |

Total Credits 183.5-187.5

* Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

** See degree requirements (p. 13).

Co-op/Career Opportunities

Opportunities

Students earn a bachelor's degree in the biological sciences and are prepared for technical careers in research or commercial laboratories or for professional schools.

Graduates typically work for pharmaceutical companies, university and medical research laboratories, biotechnology companies, or in government laboratories. Many graduates also choose to pursue an advanced degree in the medical, dental and veterinary disciplines; or Masters or PhD degrees in Biology-related fields and Public Health.

Co-op Opportunities

Past co-op employers of biosciences majors have included:

- GlaxoSmithKline
- Fox Chase Cancer Center
- Children's Hospital of Philadelphia
- Johnson and Johnson
- Merck
- Wistar Institute
- Moss Rehab
- ViroPharma, Inc.
- Janssen Biotech
- Integral Molecular

Visit the Drexel Steinbright Career Development Center (<http://www.drexel.edu/scdc/>) page for more detailed information on co-op and post-graduate opportunities.

Dual/Accelerated Degree

Combined Bachelor's/Master's Degree

Qualified students can take graduate courses in their junior and senior years for graduate credit. They can also complete a combined Biological Sciences BS/Biological Sciences MS (p. 162) degree in five years. Further questions about the BS/MS degree program should be directed to the departmental graduate advisor:

Kate Pelusi
Graduate Program Manager
Department of Biology
215.895.6374
kp475@drexel.edu

Facilities

The Department of Biology resides in the Papadakis Integrated Sciences Building (PISB). This state of the art facility has well-equipped teaching laboratories with networked computers and advanced digital image analysis capability. Both teaching and research laboratories contain a range of modern equipment including basic and cutting-edge light microscopes, confocal microscopy facilities, a Cell Imaging Center, basic and analytical ultracentrifuges, spectrophotometers, scintillation and luminescence counters, densitometers and cell culture facilities.

Visit the Research in Biology (<http://www.drexel.edu/coas/academics/departments-centers/biology/research/>) webpage for more information.

Biological Sciences Faculty

Shivanthi Anandan, PhD (*University of California, Los Angeles*) *Vice Provost for Undergraduate Education*. Associate Professor. Microbial genetics, in particular the analysis of light-regulated signal transduction pathways and the regulation of gene expression in photosynthesizing organisms.

John R. Bethea, PhD (*University of Alabama at Birmingham*). Professor. Neuroscience and immunology.

Valerie Bracchi-Ricard, PhD (*University Joseph Fourier, Grenoble, France*). Research Assistant Professor. Role of TNF and TNF receptors in neuroinflammation and remyelination following spinal cord injury.

Laura Duwel, PhD (*University of Cincinnati*) *Assistant Department Head, Department of Biology*. Teaching Professor. Immunology and microbiology.

Felice Elefant, PhD (*Temple University*) *Director of the Biology Graduate Program*. Professor. Understanding the roles of two classes of chromatin regulatory proteins termed histone acetyltransferases (HATs) and histone de-methylases.

Denise Garcia, PhD (*UCLA*). Associate Professor. Neuroscience, the role of astrocytes in the central nervous system.

Tali Gidalevitz, PhD (*University of Chicago*). Associate Professor. Genetic and molecular pathways regulating protein folding homeostasis, and their role in protein conformation diseases, aging, and development.

Mary Katherine Gonder, PhD (*The City University of New York*) *Department Head, Director, Bioko Biodiversity Protection Program Co-Founder, Central African Biodiversity Alliance*. Professor. Deciphering spatial patterns of biodiversity across the Gulf of Guinea and Congo Basin region; Conservation measures to mitigate the effects of habitat loss and climate change in western equatorial Africa.

Meshagae Hunte-Brown, PhD (*Drexel University*). Teaching Professor. Stable isotopes in aquatic food webs, ecosystem ecology, STEM education.

Kari Lenhart, PhD (*Princeton University*). Assistant Professor. Coordination of stem cell behavior and regulation of stem cell cytokinesis in the young and aged niche.

Robert Loudon, PhD (*Thomas Jefferson University*). Associate Teaching Professor. Rho GTPases, regulation of actin cytoskeleton, Regulation of G protein-coupled receptors by receptor kinases and arrestins.

Michael O'Connor, MD, PhD (*MD, Johns Hopkins University; PhD, Colorado State*). Professor. Biophysical and physiological ecology, thermoregulation of vertebrates, ecological modeling.

Sean O'Donnell, PhD (*University of Wisconsin-Madison*). Professor. Climate ecology, focusing on geographic variation and species differences in thermal physiology; Behavior and ecology of army ant/bird interactions; Neurobiology, focusing on brain plasticity and brain evolution in social insects.

Ryan Petrie, PhD (*McGill University*). Assistant Professor. Mechanisms of cell movement through three-dimensional extracellular matrix.

Jerome Ricard, PhD (*University Joseph Fourier, Grenoble, France*). Research Assistant Professor. Inflammation and cell death after spinal cord injury. Regulation of cell death by Eph receptors.

Jacob Russell, PhD (*University of Arizona*). Professor. Microbiomes and metagenomics; ecology and evolution of symbiosis.

Nianli Sang, MB, PhD (*M.B., Fudan University Shanghai Medical College; Ph.D., Thomas Jefferson University*) *Co-Director of the Cell Imaging Center*. Associate Professor. Molecular and cellular biology of cancer; posttranslational modification, folding and quality control of proteins and their implication in cell physiology and human diseases.

Aleister Saunders, PhD (*University of North Carolina, Chapel Hill*) *Executive Vice Provost for Research, Director of the RNAi Resource Center*. Professor. Identification and characterization of genes and proteins involved in Alzheimer's disease.

Kevin P.W. Smith, PhD (*Drexel University*). Associate Teaching Professor. Linking behavioral ecology and organismal diversity, neonate behavior in herpetological models, STEM education.

Elias T. Spiliotis, PhD (*The Johns Hopkins University*) *Co-Director of the Cell Imaging Center*. Associate Professor. Cell polarity and cell division: regulation of cytoskeleton-dependent motility.

Jennifer Stanford, PhD (*Harvard University*). Associate Professor. Evaluating and improving approaches to teach STEM content in higher education environments to promote student learning, engagement in STEM courses, and STEM student retention.

Monica M. Togna, PhD (*New Jersey Institute of Technology*). Assistant Teaching Professor. Examination of the structure and function of living organisms from the cellular to the organismal level in order to better understand common physiological processes.

Emeritus Faculty

Joseph Bentz, PhD (*State University of New York [SUNY] at Buffalo*). Professor Emeritus. Biophysics, biochemistry and biopharmaceutics, focused on the molecular basis of biological membrane transport and fusion.

Cecilie Goodrich, PhD (*Harvard University*). Professor Emeritus. Neuroscience and systems physiology, postnatal maturation of physiology and behavior in relation to brain immunocytochemistry.

Donna Murasko, PhD (*Penn State Hershey Medical Center*) *Dean Emeritus*. Professor. The effects of aging on the adaptive immune response to influenza virus and retrovirus latency and reactivation.

Chemistry BA

Major: Chemistry

Degree Awarded: Bachelor of Arts (BA)

Calendar Type: Quarter

Minimum Required Credits: 184.0

Co-op Options: One Co-op (Four years)

Classification of Instructional Programs (CIP) code: 40.0501

Standard Occupational Classification (SOC) code: 19-2031

About the Program

The BA in Chemistry is designed for students who want a foundational education in chemistry and the flexibility to select courses in other fields. The Bachelor of Arts in Chemistry program is less demanding mathematically compared to the Bachelor of Science, and is well suited for those interested in entering medical school and other chemistry-related fields, as well as those aspiring to careers in biotechnology, forensic chemistry, and environmental chemistry. The BA in Chemistry is also well suited for students who are interested in double majoring. BA in Chemistry graduates might opt to work as laboratory technicians in the pharmaceutical industry, as research assistants in medical school science departments, such as toxicology or biochemistry, or as technicians in biotechnology and forensic firms.

Additional Information

For more information about the major in Chemistry, contact:

Daniel King, PhD
Undergraduate Affairs Committee Chair
Department of Chemistry
Drexel University
Drexel University
dk68@drexel.edu

Degree Requirements (BA)

General Education Requirements

| | | |
|---|---|----------|
| CIVC 101 | Introduction to Civic Engagement | 1.0 |
| COOP 101 | Career Management and Professional Development | 1.0 |
| ENGL 101 | Composition and Rhetoric I: Inquiry and Exploratory Research | 3.0 |
| or ENGL 111 | English Composition I | |
| ENGL 102 | Composition and Rhetoric II: Advanced Research and Evidence-Based Writing | 3.0 |
| or ENGL 112 | English Composition II | |
| ENGL 103 | Composition and Rhetoric III: Themes and Genres | 3.0 |
| or ENGL 113 | English Composition III | |
| UNIV S101 | The Drexel Experience | 1.0 |
| UNIV S201 | Looking Forward: Academics and Careers | 1.0 |
| Humanities and Arts electives * | | 6.0 |
| International Studies electives * | | 6.0 |
| Language Requirements courses * | | 8.0-12.0 |
| Social and Behavioral Studies electives * | | 6.0 |
| Studies in Diversity electives * | | 6.0 |
| CHEM 121 | Majors Chemistry I | 5.0 |
| CHEM 122 | Majors Chemistry II | 5.0 |
| CHEM 123 | Majors Chemistry III | 5.5 |
| CHEM 230 | Quantitative Analysis | 4.0 |
| CHEM 231 [WI] | Quantitative Analysis Laboratory | 2.0 |
| CHEM 246 | Organic Chemistry for Majors I | 6.5 |

| | | |
|-----------------------------------|--|--------------------|
| CHEM 248 | Organic Chemistry for Majors II | 6.5 |
| CHEM 249 | Organic Chemistry for Majors III | 7.0 |
| CHEM 253 | Thermodynamics and Kinetics | 4.0 |
| CHEM 270 | Software Skills for Chemists | 3.0 |
| CHEM 357 [WI] | Physical Chemistry Laboratory I | 2.5 |
| CHEM 367 | Chemical Information Retrieval | 3.0 |
| CHEM 421 | Inorganic Chemistry I | 3.0 |
| Chemistry Electives | | |
| Select two Chemistry Electives ** | | 6.0 |
| Biology Requirements | | |
| BIO 131 & BIO 134 | Cells and Biomolecules and Cells and Biomolecules Lab | 5.0 |
| BIO 132 & BIO 135 | Genetics and Evolution and Genetics and Evolution Lab | 5.0 |
| BIO 133 & BIO 136 | Physiology and Ecology and Anatomy and Ecology Lab | 5.0 |
| Mathematics Requirements | | |
| MATH 121 | Calculus I | 4.0 |
| MATH 122 | Calculus II | 4.0 |
| MATH 123 | Calculus III | 4.0 |
| MATH 200 | Multivariate Calculus | 4.0 |
| Physics Requirements | | |
| PHYS 101 | Fundamentals of Physics I | 4.0 |
| PHYS 102 | Fundamentals of Physics II | 4.0 |
| PHYS 201 | Fundamentals of Physics III | 4.0 |
| Free Electives *** | | 33.0-37.0 |
| Total Credits | | 184.0-192.0 |

* Categories of Electives:

- *Humanities and Arts Electives*
Designated courses in art, art history, communication studies, foreign languages (300-level or above), history, literature, music, philosophy, religion, and theatre arts.
- *International Electives*
Designated courses in anthropology, art history, history, literature, music, politics and sociology. Courses with an international focus may be used to fulfill requirements in other categories as well.
- *Language Requirement*
Students may satisfy the language course requirements in two ways: (1) complete at least 8.0 credits of a foreign language at Drexel and, at minimum, must complete the 103 level of the target language (or beyond if they place higher); or (2) take 12.0 credits of a computer language over two terms.
- *Social and Behavioral Studies Electives*
Designated courses in anthropology, criminal justice, economics, international relations, history, politics, psychology and sociology.
- *Studies in Diversity Electives*
Africana studies, women's studies or designated cross-listed courses in anthropology, art, art history, history, literature, music, philosophy, politics and sociology.

** Courses with CHEM prefix, although ENVS chemistry courses can also fulfill this requirement (with Department approval).

*** The total number of free elective credits depends on the number of credits required to fulfill the language requirement.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study (BA)

4 year, 1 co-op

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|----------------------|--------------------------|--------------------------|----------------|----------|
| BIO 131 & BIO 134 | 5.0 BIO 132 & BIO 135 | 5.0 BIO 133 & BIO 136 | 5.0 VACATION | |
| CHEM 121 | 5.0 CHEM 122 | 5.0 CHEM 123 | 5.5 | |
| ENGL 101 or 111 | 3.0 CIVC 101 | 1.0 ENGL 103 or 113 | 3.0 | |
| MATH 121 | 4.0 ENGL 102 or 112 | 3.0 MATH 123 | 4.0 | |
| UNIV S101 | 1.0 MATH 122 | 4.0 | | |
| | 18 | 18 | 17.5 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|------------------------|----------------|-------------------------|-----------------------------------|-----------|
| CHEM 230 & CHEM 231 | 6.0 CHEM 248 | 6.5 CHEM 249 | 7.0 COOP 101* | 1.0 |
| CHEM 246 | 6.5 MATH 200 | 4.0 PHYS 102 | 4.0 PHYS 201 | 4.0 |
| Free elective | 3.0 PHYS 101 | 4.0 Humanities elective | 3.0 Free electives | 6.0 |
| | | | International Studies elective | 3.0 |
| | 15.5 | 14.5 | 14 | 14 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-------------------|---|---------------------|-----------------|----------|
| CHEM 253 | 4.0 CHEM 270 | 3.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| CHEM 367 | 3.0 CHEM 357 | 2.5 | | |
| CHEM 421 | 3.0 Diversity Studies elective | 3.0 | | |
| UNIV S201 | 1.0 Language elective | 4.0 | | |
| Language elective | 4.0 Social and Behavioral Studies elective | 3.0 | | |
| | 15 | 15.5 | 0 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits |
|---|---------------------------------------|--------------------|-----------|
| Chemistry elective | 3.0 Chemistry elective | 3.0 Free electives | 12.0 |
| Diversity Studies elective | 3.0 Free electives | 6.0 | |
| Free electives | 6.0 Humanities elective | 3.0 | |
| Social and Behavioral Studies elective | 3.0 International Studies elective | 3.0 | |
| | 15 | 15 | 12 |

Total Credits 184

* COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Co-op/Career Opportunities

Opportunities for Chemistry majors include working in research and development in corporate and government laboratories in the chemical, pharmaceutical, and agricultural (e.g., U.S. Department of Agriculture) sectors. There is a remarkably high concentration of chemical and pharmaceutical companies in the Philadelphia region. Other options include entering medical, dental, law, or other professional schools. The major in Chemistry is sufficiently flexible to allow students to prepare to teach at the secondary level. With proper selection of electives, students can meet teacher certification requirements.

Sample Co-op Opportunities

A four-year co-op degree is offered. When students complete their co-op job, they are asked to write an overview of their experience. These brief quotes are taken from some recent student reports:

Assistant chemist, pharmaceuticals manufacturer: "My position involved the synthesis and characterization of target compounds in the endothelium project. Involved the development of synthetic roots to the prescribed target. This would include the investigation of reactions which were going to be used...the position was very independent...great working environment."

Co-op chemist, petroleum refiner: "Performed synthesis of ligands and metal complexes. Operated FT-IR spectrometer for sample analysis. Submitted samples for analysis by mass spectrometer and NMR...The position allowed me to develop the skills necessary for independent research in organic synthesis. "

Assistant lab technician, pharmaceuticals manufacturer: "I was an assistant technician in a mass spectrometry lab...I was responsible for the development of SDS-gel electrophoresis techniques for gels and gel membranes...I developed the methods independently and my employer encouraged me to be an expert on the technique and explore any method I found that would benefit the lab. "

Visit the Drexel Steinbright Career Development Center (<http://www.drexel.edu/scdc/>) page for more detailed information on co-op and post-graduate opportunities.

Facilities

There are nine undergraduate teaching laboratories in the department: three Freshman Chemistry labs, three Organic Chemistry labs, a Physical Chemistry lab, an Analytical Instrumentation Laboratory, and a combined Analytical/Inorganic Chemistry lab.

Mass Spectrometry Laboratory

The department maintains a professionally staffed mass spectrometry facility available to all members of the university community. Currently available instrumentation consists of a Waters Autospec M high resolution magnetic-sector mass spectrometer, a Bruker Autoflex III MALDI Time-of-Flight Mass Spectrometer, a Thermo LTQ-FT Fourier Transform Mass Spectrometer, a Sciex API-3000 triple-quadrupole mass spectrometer, and a Varian Saturn 2000 Gas Chromatograph/Ion-trap mass spectrometer system.

Nuclear Magnetic Resonance Laboratory

The professionally staffed Chemistry department NMR facility is equipped with 300MHz and 500MHz Varian Unity INNOVA NMR systems; both instruments have multi-nuclear capability. The probe on the 500MHz instrument is a cryogenically cooled triple resonance model (1H {13C/15N}) suitable for protein analysis. A Varian X-band 12" EPR spectrometer is also available.

Analytical Instrumentation Laboratory

The open-access departmental Analytical Instrumentation Laboratory includes two Perkin-Elmer (PE) Spectrum One Fourier-transform infrared absorption spectrometers each with a universal diamond ATR accessory, a PE Lambda-35 UV/visible spectrometer, a PE Lambda-950 UV/visible/NIR spectrometer with a 60-mm-diameter diffuse reflectance integrating sphere, a PE model 343 polarimeter, a PE LS55B luminescence spectrometer, a PE Clarus 500 capillary-column GC with dual FID detectors, a Clarus 500 capillary-column GC/MS system (with electron impact capability), a PE Series 200 Quaternary HPLC development system with UV/visible photodiode array detector, a PE Series 200 binary HPLC system interfaced to a Sciex 2000 triple-quadrupole mass spectrometer, a PE Series 2000 binary Gel Permeation Chromatography system with refractive index detector, and a Varian AA240FS flame atomic absorption spectrometer equipped with a GTA 120 Graphite Furnace Accessory.

Organic Instrumentation Laboratory

The Organic Instrumentation Laboratory (co-located with the organic synthesis teaching laboratories in the Papdakis Integrated Sciences Building) is equipped with two Perkin-Elmer (PE) Spectrum Two Fourier-transform infrared absorption spectrometers each with a universal diamond ATR accessory, a PE Clarus 500 capillary-column GC with one FID and one TCD detector, and an Anasazi EFT-90 FT-NMR system.

Other Departmental Facilities

The department has a VEECO INNOVA N3 Multimode Scanning Probe Microscope and also maintains a computational chemistry laboratory equipped with nine Dell Optiplex 790 computers running Hyperchem v 8.0. Research laboratories for each of the department faculty members are located in Disque and Stratton Halls. Instrumentation available in the research laboratories is described on individual faculty web pages. Full-time professional support includes two electronic instrument specialists (for NMR and MS- Chemistry department), two electronics specialists (College of Arts & Sciences Electronics Shop), and four machinists (Drexel University Machine Shop).

Chemistry Faculty

Reza Farasat, PhD (*University of Alabama*). Assistant Teaching Professor. Modification of polymers for diverse applications; utilizing Thermoanalysis techniques to study polymeric and non-polymeric materials; nanotechnology; applying Multi-detector Size Exclusion Chromatography for characterization of polymers; creating composites to improve materials' properties.

Fraser Fleming, PhD (*University of British Columbia (Canada)*). Professor. Nitriles, Isonitriles, Stereochemistry, Organometallics

Joe P. Foley, PhD (*University of Florida*) *Department Head*. Professor. Separation science, especially the fundamentals and biomedical/pharmaceutical applications of the following voltage- or pressure-driven separation techniques: capillary electrophoresis (CE), electrokinetic chromatography, supercritical fluid chromatography, and high-performance and two-dimensional liquid chromatography (LC). Within these techniques, we explore novel separation modes (e.g., dual-opposite-injection CE and sequential elution LC), novel surfactant aggregate pseudophases, and chiral separations.

Lee Hoffman, PhD (*Flinders University, Adelaide, South Australia*). Assistant Teaching Professor. Interfacial studies on the self-assembly of natural organic materials, understanding the nature of each component, and development of a mechanism describing this process; Dendrimer/metal nanocomposite design and synthesis hosting metal nanoparticles, utilizing the multivalent dendritic polymer architecture for further exploitation with other molecules such as antibodies and other targeting species.

Monica Ilies, PhD (*Polytechnic University of Bucharest*). Associate Teaching Professor. Bioorganic chemistry and chemical biology; bioinorganic chemistry and biochemistry.

Haifeng Frank Ji, PhD (*Chinese Academy of Sciences*). Professor. Micromechanical sensors for biological and environmental applications; Nanomechanical drug screening technology.

Daniel B. King, PhD (*University of Miami*). Associate Professor. Assessment of active learning methods and technology in chemistry courses; incorporation of environmental data into chemistry classroom modules; development of hands-on activities and laboratory experiments.

Jamie Ludwig, PhD (*UT Southwestern Medical Center*). Discovery and optimization of biocatalytic transformations for use inorganic synthesis.

Dionicio Martinez-Solario, PhD (*University of Alabama*). Assistant Professor. Total synthesis of complex biologically active natural products serving as inspirational platforms for the discovery and development of new reactions and synthetic methods.

Craig McClure, PhD (*University of Michigan*). Associate Teaching Professor. Promotion of quantitative literacy in introductory courses; development of guided inquiry activities for introductory chemistry; outreach programs in STEM fields.

Kevin G. Owens, PhD (*Indiana University*). Associate Professor. Mass spectrometry research, including the development of sample preparation techniques for quantitative analysis and mass spectrometric imaging using matrix-assisted laser desorption/ionization (MALDI) time-of-flight mass spectrometry (TOFMS) techniques for both biological and synthetic polymer systems, the development of laser spectroscopic techniques for combustion analysis, and the development of correlation analysis and other chemometric techniques for automating the analysis of mass spectral information.

Susan A. Rutkowsky, PhD (*Drexel University*) *Associate Department Head*. Associate Teaching Professor. Development of labs and lecture demonstrations for general and organic chemistry courses; STEM outreach programs.

Jeremiah Scepaniak, PhD (*New Mexico State University*). Assistant Professor. Design transition metal-based contrast agents for MRI & synthesis of bimetallic complexes to activate small molecules.

Karl Sohlberg, PhD (*University of Delaware*). Associate Professor. Computational and theoretical materials-related chemistry: (1) complex catalytic materials; (2) mechanical and electrical molecular devices.

Anthony Wambsgans, PhD (*Rice University*). Associate Teaching Professor.

Ezra Wood, PhD (*University of California-Berkeley*). Associate Professor. Radical chemistry and formation of secondary pollutants in urban and forest environments, impacts of biomass burning on air pollution and climate change, pollutant emissions, and design and deployment of novel instrumentation for field studies.

Jun Xi, PhD (*Cornell University*). Associate Teaching Professor. Biomacromolecular interactions both in solution and in confined environment; mechanisms of DNA replication and DNA repair; structure and function of molecular chaperones; drug target identification and new therapeutic development; single molecule enzymology; DNA directed organic synthesis.

Emeritus Faculty

Anthony W. Addison, PhD (*University of Kent at Canterbury, England*). Professor Emeritus. Design and synthesis of novel biomimetic and oligonuclear chelates of copper, nickel, iron, ruthenium and vanadium; their interpretation by magnetochemical, electrochemical and spectroscopic methods, including electron spin resonance; CD and ESR spectroscopy and kinetics for elucidation of molecular architecture of derivatives (including NO) of oxygen-binding and electron-transfer heme- and non-heme iron metalloproteins of vertebrate and invertebrate origins; energy-transfer by Ru, Ir and lanthanide-containing molecules and assemblies.

Amar Nath, PhD (*Moscow State University, Moscow USSR*). Professor Emeritus.

Reinhard Schweitzer-Stenner, PhD (*Universität Bremen (Germany)*). Professor. Exploring conformational ensembles of unfolded or partially folded peptides and proteins; determining the parameters governing peptide self-aggregation; structure and function of heme proteins; investigating protein-membrane interactions; use of IR, VCD, Raman, NMR and absorption spectroscopy for structure analysis.

Peter A. Wade, PhD (*Purdue University*). Professor Emeritus. Exploration of a newly discovered [3,3]-sigmatropic rearrangement in which O-allyl nitronic esters are thermally converted to β,β -unsaturated nitro compounds; development and exploitation of a carbon-based hemiacetal mimic; and exploration of cycloaddition reactions involving nitroethylene derivatives and novel nitrile oxides.

Chemistry BS

Major: Chemistry

Degree Awarded: Bachelor of Science (BS)

Calendar Type: Quarter

Minimum Required Credits: 189.0

Co-op Options: Three Co-op (Five years); One Co-op (Four years); No Co-op (Four years)

Classification of Instructional Programs (CIP) code: 40.0501

Standard Occupational Classification (SOC) code: 19-2031

About the Program

The Bachelor of Science in Chemistry is certified by the American Chemical Society. The chemistry BS program provides a complete introduction to the many subfields of chemistry, along with significant hands-on laboratory research experience. All students are required to earn at least 9.0 credits of undergraduate research experience prior to graduation.

The BS in Chemistry is well suited for students wishing to pursue graduate degrees in chemistry or a related discipline. The degree also assures that students are properly trained and prepared for rewarding careers as chemists in a range of industries, including pharmaceutical, biotech, environmental, manufacturing or other allied fields.

Most graduate courses in chemistry are open to qualified seniors. Prerequisites and descriptions of available graduate courses appear in the graduate catalog.

The BS degree also can be completed with a Biochemistry concentration. Bachelor of Science in Chemistry majors in this concentration gain an enhanced ability to engage in critical thinking and communicate scientific ideas across disciplines. Interested students can contact their academic advisors for more information.

Additional Information

For more information about the major in Chemistry, contact:

Daniel King, PhD
Undergraduate Affairs Committee Chair
Department of Chemistry
Drexel University
dk68@drexel.edu

Degree Requirements

General Education Requirements

| | | |
|------------------------------|---|-----|
| CIVC 101 | Introduction to Civic Engagement | 1.0 |
| COOP 101 | Career Management and Professional Development * | 1.0 |
| ENGL 101 | Composition and Rhetoric I: Inquiry and Exploratory Research | 3.0 |
| or ENGL 111 | English Composition I | |
| ENGL 102 | Composition and Rhetoric II: Advanced Research and Evidence-Based Writing | 3.0 |
| or ENGL 112 | English Composition II | |
| ENGL 103 | Composition and Rhetoric III: Themes and Genres | 3.0 |
| or ENGL 113 | English Composition III | |
| UNIV S101 | The Drexel Experience | 1.0 |
| UNIV S201 | Looking Forward: Academics and Careers | 1.0 |
| Technical electives ** | | 6.0 |
| Liberal Studies electives ** | | 6.0 |

Chemistry Requirements

| | | |
|---------------|---|-----|
| CHEM 121 | Majors Chemistry I | 5.0 |
| CHEM 122 | Majors Chemistry II | 5.0 |
| CHEM 123 | Majors Chemistry III | 5.5 |
| CHEM 230 | Quantitative Analysis | 4.0 |
| CHEM 231 [WI] | Quantitative Analysis Laboratory | 2.0 |
| CHEM 246 | Organic Chemistry for Majors I | 6.5 |
| CHEM 248 | Organic Chemistry for Majors II | 6.5 |
| CHEM 249 | Organic Chemistry for Majors III | 7.0 |
| CHEM 253 | Thermodynamics and Kinetics | 4.0 |
| CHEM 270 | Software Skills for Chemists | 3.0 |
| CHEM 346 | Qualitative Organic Chemistry | 5.5 |
| CHEM 355 | Physical Chemistry IV | 3.0 |
| CHEM 357 [WI] | Physical Chemistry Laboratory I | 2.5 |
| CHEM 358 | Physical Chemistry Laboratory II | 2.5 |
| CHEM 359 | Atomic and Molecular Spectroscopy | 3.0 |
| CHEM 367 | Chemical Information Retrieval | 3.0 |
| CHEM 420 | Molecular Symmetry and Group Theory Applied Chemistry | 3.0 |
| CHEM 421 | Inorganic Chemistry I | 3.0 |

| | | |
|--|--|--------------------|
| CHEM 422 | Inorganic Chemistry II | 3.0 |
| CHEM 425 | Inorganic Chemistry Laboratory | 4.0 |
| CHEM 430 | Analytical Chemistry I | 3.0 |
| CHEM 431 [WI] | Analytical Chemistry II | 4.0 |
| CHEM 493 | Senior Research Project | 9.0 |
| Biology Requirements | | |
| BIO 131 | Cells and Biomolecules | 4.0 |
| BIO 134 | Cells and Biomolecules Lab | 1.0 |
| BIO 214 | Principles of Cell Biology | 4.0 |
| Biochemistry Requirements *** | | |
| BIO 311 | Biochemistry | 3.0-4.0 |
| or BIO 404 | Structure and Function of Biomolecules | |
| or CHEM 371 | Chemistry of Biomolecules | |
| BIO 306 | Biochemistry Laboratory | 2.0 |
| Computer/Mathematics Requirements | | |
| MATH 121 | Calculus I | 4.0 |
| MATH 122 | Calculus II | 4.0 |
| MATH 123 | Calculus III | 4.0 |
| MATH 200 | Multivariate Calculus | 4.0 |
| MATH 201 | Linear Algebra | 4.0 |
| or MATH 210 | Differential Equations | |
| Physics Requirements | | |
| PHYS 101 | Fundamentals of Physics I | 4.0 |
| PHYS 102 | Fundamentals of Physics II | 4.0 |
| PHYS 201 | Fundamentals of Physics III | 4.0 |
| Free Electives | | 21.0 |
| Total Credits | | 189.0-190.0 |

* Students not participating in co-op will not take COOP 101; 1 credit of Free Elective will be added in place of COOP 101.

** Technical electives are defined as 200+ level courses from Science, Mathematics, Business, Engineering or Information Studies. Liberal studies electives are defined as courses (at any level) from all other areas.

*** The American Chemical Society requires ACS-certified students to take a specified number of biochemistry courses. To fulfill this requirement in the BS curriculum, students should take a combination of one lecture and one lab course from the choice of: BIO 311, BIO 306, BIO 404, or CHEM 371 to fulfill the biochemistry requirement. Students may also choose to take the two lecture courses (BIO 311, BIO 404, or CHEM 371) rather than a lecture/laboratory combination.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

4 year, no co-op

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|---------------------|---------------------|----------------|---------|
| BIO 131 | 4.0 CHEM 122 | 5.0 CHEM 123 | 5.5 VACATION | |
| BIO 134 | 1.0 CIVC 101 | 1.0 ENGL 103 or 113 | 3.0 | |
| CHEM 121 | 5.0 ENGL 102 or 112 | 3.0 MATH 123 | 4.0 | |
| ENGL 101 or 111 | 3.0 MATH 122 | 4.0 PHYS 102 | 4.0 | |
| MATH 121 | 4.0 PHYS 101 | 4.0 | | |

| | | | | |
|------------------------|------------------------------|------------------------------|-----------------------|----------------|
| UNIV S101 | 1.0 | | | |
| | 18 | 17 | 16.5 | 0 |
| Second Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| CHEM 230 & CHEM 231 | 6.0 CHEM 248 | 6.5 BIO 214 | 4.0 VACATION | |
| CHEM 246 | 6.5 MATH 200 | 4.0 CHEM 249 | 7.0 | |
| PHYS 201 | 4.0 Free elective | 3.0 MATH 210 or 201 | 4.0 | |
| | Technical Elective * | 3.0 Free elective | 3.0 | |
| | 16.5 | 16.5 | 18 | 0 |
| Third Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| CHEM 253 | 4.0 CHEM 270 | 3.0 Liberal Studies elective | 3.0 VACATION | |
| CHEM 367 | 3.0 CHEM 357 | 2.5 Technical elective * | 3.0 | |
| CHEM 421 | 3.0 CHEM 420 | 3.0 Free electives | 9.0 | |
| CHEM 430 | 3.0 CHEM 431 | 4.0 | | |
| UNIV S201 | 1.0 | | | |
| | 14 | 12.5 | 15 | 0 |
| Fourth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits | |
| CHEM 346 | 5.5 BIO 306 | 2.0 CHEM 358 | 2.5 | |
| CHEM 355 | 3.0 CHEM 359 | 3.0 CHEM 422 | 3.0 | |
| CHEM 493 | 3.0 CHEM 493 | 3.0 CHEM 425 | 4.0 | |
| BIO 311 or 404** | 4.0 Liberal Studies elective | 3.0 CHEM 493 | 3.0 | |
| | Free elective | 4.0 Free elective | 3.0 | |
| | 15.5 | 15 | 15.5 | |

Total Credits 190

* Technical electives are defined as 200+ level courses from Science, Mathematics, Business, Engineering or Information Studies. Liberal studies electives are defined as courses (at any level) from all other areas.

** The American Chemical Society requires ACS-certified students to take a specified number of biochemistry courses. To fulfill this requirement in the BS curriculum, students should take a combination of one lecture and one lab course from the choice of: BIO 311, BIO 306, BIO 404 or CHEM 371 to fulfill the biochemistry requirement. Students may also choose to take the two lecture courses (BIO 311, BIO 404, or CHEM 371) rather than a lecture/laboratory combination.

NOTE: Students not participating in co-op will not take COOP 101; 1 credit of Free Elective will be added in place of COOP 101.

4 year, 1 co-op

| | | | | |
|------------------------|-----------------------|-----------------------|------------------------------|----------------|
| First Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| BIO 131 | 4.0 CHEM 122 | 5.0 CHEM 123 | 5.5 VACATION | |
| BIO 134 | 1.0 CIVC 101 | 1.0 ENGL 103 or 113 | 3.0 | |
| CHEM 121 | 5.0 ENGL 102 or 112 | 3.0 MATH 123 | 4.0 | |
| ENGL 101 or 111 | 3.0 MATH 122 | 4.0 PHYS 102 | 4.0 | |
| MATH 121 | 4.0 PHYS 101 | 4.0 | | |
| UNIV S101 | 1.0 | | | |
| | 18 | 17 | 16.5 | 0 |
| Second Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| CHEM 230 & CHEM 231 | 6.0 CHEM 248 | 6.5 BIO 214 | 4.0 Liberal Studies elective | 3.0 |
| CHEM 246 | 6.5 MATH 200 | 4.0 CHEM 249 | 7.0 Technical elective * | 3.0 |
| PHYS 201 | 4.0 Free elective | 3.0 COOP 101** | 1.0 Free electives | 9.0 |
| | Technical Elective * | 3.0 MATH 210 or 201 | 4.0 | |
| | | Free elective | 3.0 | |
| | 16.5 | 16.5 | 19 | 15 |
| Third Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| CHEM 253 | 4.0 CHEM 270 | 3.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| CHEM 367 | 3.0 CHEM 357 | 2.5 | | |
| CHEM 421 | 3.0 CHEM 420 | 3.0 | | |
| CHEM 430 | 3.0 CHEM 431 | 4.0 | | |

| | | | | |
|-----------|-----------|-------------|----------|----------|
| UNIV S201 | 1.0 | | | |
| | 14 | 12.5 | 0 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits | |
|-------------------|------------------------------|-------------------|-------------|--|
| BIO 311 or 404*** | 4.0 BIO 306 | 2.0 CHEM 358 | 2.5 | |
| CHEM 346 | 5.5 CHEM 359 | 3.0 CHEM 422 | 3.0 | |
| CHEM 355 | 3.0 CHEM 493 | 3.0 CHEM 425 | 4.0 | |
| CHEM 493 | 3.0 Liberal Studies elective | 3.0 CHEM 493 | 3.0 | |
| | Free elective | 3.0 Free elective | 3.0 | |
| | 15.5 | 14 | 15.5 | |

Total Credits 190

* Technical electives are defined as 200+ level courses from Science, Mathematics, Business, Engineering or Information Studies. Liberal studies electives are defined as courses (at any level) from all other areas.

** COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

*** The American Chemical Society requires ACS-certified students to take a specified number of biochemistry courses. To fulfill this requirement in the BS curriculum, students should take a combination of one lecture and one lab course from the choice of: BIO 311, BIO 306, BIO 404 or CHEM 371 to fulfill the biochemistry requirement. Students may also choose to take the two lecture courses (BIO 311, BIO 404, or CHEM 371) rather than a lecture/laboratory combination.

5 year, 3 co-op**First Year**

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|---------------------|---------------------|----------------|----------|
| BIO 131 | 4.0 CHEM 122 | 5.0 CHEM 123 | 5.5 VACATION | |
| BIO 134 | 1.0 CIVC 101 | 1.0 COOP 101* | 1.0 | |
| CHEM 121 | 5.0 ENGL 102 or 112 | 3.0 ENGL 103 or 113 | 3.0 | |
| ENGL 101 or 111 | 3.0 MATH 122 | 4.0 MATH 123 | 4.0 | |
| MATH 121 | 4.0 PHYS 101 | 4.0 PHYS 102 | 4.0 | |
| UNIV S101 | 1.0 | | | |
| | 18 | 17 | 17.5 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|---------------------|-------------------|---------------------|-----------------|----------|
| CHEM 230 & CHEM 231 | 6.0 CHEM 248 | 6.5 COOP EXPERIENCE | COOP EXPERIENCE | |
| CHEM 246 | 6.5 MATH 200 | 4.0 | | |
| PHYS 201 | 4.0 Free elective | 3.0 | | |
| | 16.5 | 13.5 | 0 | 0 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|------------------------------|---------------------|-----------------|----------|
| BIO 214 | 4.0 CHEM 270 | 3.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| CHEM 249 | 7.0 CHEM 357 | 2.5 | | |
| CHEM 253 | 4.0 Technical elective** | 3.0 | | |
| MATH 210 or 201 | 4.0 Liberal Studies Elective | 3.0 | | |
| | Free elective | 3.0 | | |
| | 19 | 14.5 | 0 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------|--------------------------|---------------------|-----------------|----------|
| CHEM 355 | 3.0 CHEM 359 | 3.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| CHEM 367 | 3.0 CHEM 420 | 3.0 | | |
| CHEM 421 | 3.0 CHEM 431 | 4.0 | | |
| CHEM 430 | 3.0 Technical elective** | 3.0 | | |
| UNIV S201 | 1.0 Free elective | 3.0 | | |
| | 13 | 16 | 0 | 0 |

Fifth Year

| Fall | Credits Winter | Credits Spring | Credits | |
|-------------------|------------------------------|----------------|---------|--|
| BIO 311 or 404*** | 4.0 BIO 306 | 2.0 CHEM 422 | 3.0 | |
| CHEM 346 | 5.5 CHEM 493 | 3.0 CHEM 425 | 4.0 | |
| CHEM 358 | 2.5 Liberal Studies elective | 3.0 CHEM 493 | 3.0 | |

| | | | |
|----------|--------------------|--------------------|-----------|
| CHEM 493 | 3.0 Free electives | 6.0 Free electives | 6.0 |
| | 15 | 14 | 16 |

Total Credits 190

* COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

** Technical electives are defined as 200+ level courses from Science, Mathematics, Business, Engineering or Information Studies. Liberal studies electives are defined as courses (at any level) from all other areas.

*** *Biochemistry Requirement:* The American Chemical Society requires ACS-certified students to take a specified number of biochemistry courses. To fulfill this requirement in the BS curriculum, you should take a combination of one lecture and one lab course from the choice of: BIO 311, BIO 306, BIO 404 or CHEM 371 to fulfill the biochemistry requirement. Students may also choose to take the two lecture courses (BIO 404, BIO 311) or CHEM 371) rather than a lecture/laboratory combination.

Biochemistry Concentration Requirements

General Education Requirements

| | | |
|-----------------------------|---|-----|
| ENGL 101 or ENGL 111 | Composition and Rhetoric I: Inquiry and Exploratory Research English Composition I | 3.0 |
| ENGL 102 or ENGL 112 | Composition and Rhetoric II: Advanced Research and Evidence-Based Writing English Composition II | 3.0 |
| ENGL 103 or ENGL 113 | Composition and Rhetoric III: Themes and Genres English Composition III | 3.0 |
| UNIV S101 | The Drexel Experience | 1.0 |
| CIVC 101 | Introduction to Civic Engagement | 1.0 |
| COOP 101 | Career Management and Professional Development | 1.0 |
| UNIV S201 | Looking Forward: Academics and Careers | 1.0 |
| Technical electives * | | 6.0 |
| Liberal Studies electives * | | 6.0 |

Chemistry Requirements

| | | |
|---------------|---|-----|
| CHEM 121 | Majors Chemistry I | 5.0 |
| CHEM 122 | Majors Chemistry II | 5.0 |
| CHEM 123 | Majors Chemistry III | 5.5 |
| CHEM 230 | Quantitative Analysis | 4.0 |
| CHEM 231 [WI] | Quantitative Analysis Laboratory | 2.0 |
| CHEM 246 | Organic Chemistry for Majors I | 6.5 |
| CHEM 248 | Organic Chemistry for Majors II | 6.5 |
| CHEM 249 | Organic Chemistry for Majors III | 7.0 |
| CHEM 253 | Thermodynamics and Kinetics | 4.0 |
| CHEM 270 | Software Skills for Chemists | 3.0 |
| CHEM 346 | Qualitative Organic Chemistry | 5.5 |
| CHEM 357 [WI] | Physical Chemistry Laboratory I | 2.5 |
| CHEM 367 | Chemical Information Retrieval | 3.0 |
| CHEM 420 | Molecular Symmetry and Group Theory Applied Chemistry | 3.0 |
| CHEM 421 | Inorganic Chemistry I | 3.0 |
| CHEM 422 | Inorganic Chemistry II | 3.0 |
| CHEM 425 | Inorganic Chemistry Laboratory | 4.0 |
| CHEM 430 | Analytical Chemistry I | 3.0 |
| CHEM 431 [WI] | Analytical Chemistry II | 4.0 |
| CHEM 493 | Senior Research Project | 9.0 |

Biology Requirements

| | | |
|---------|----------------------------|-----|
| BIO 131 | Cells and Biomolecules | 4.0 |
| BIO 134 | Cells and Biomolecules Lab | 1.0 |
| BIO 214 | Principles of Cell Biology | 4.0 |

Biochemistry Requirements

| | | |
|----------|--|-----|
| CHEM 371 | Chemistry of Biomolecules | 3.0 |
| BIO 311 | Biochemistry | 4.0 |
| BIO 306 | Biochemistry Laboratory | 2.0 |
| BIO 404 | Structure and Function of Biomolecules | 4.0 |

Computer/Mathematics Requirements

| | | |
|----------|-------------|-----|
| MATH 121 | Calculus I | 4.0 |
| MATH 122 | Calculus II | 4.0 |

| | | |
|-----------------------------|-----------------------------|-------|
| MATH 123 | Calculus III | 4.0 |
| MATH 200 | Multivariate Calculus | 4.0 |
| MATH 201 | Linear Algebra | 4.0 |
| Physics Requirements | | |
| PHYS 101 | Fundamentals of Physics I | 4.0 |
| PHYS 102 | Fundamentals of Physics II | 4.0 |
| PHYS 201 | Fundamentals of Physics III | 4.0 |
| Free electives | | |
| Free electives | | 21.0 |
| Total Credits | | 188.5 |

* Technical electives are defined as 200+ level courses from Science, Mathematics, Business, Engineering or Information Science. Liberal studies electives are defined as courses (at any level) from all other areas.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Biochemistry Concentration Sample Plan of Study

4 year, no-cop

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|----------------------|---------------------|---------------------|----------------|----------|
| BIO 131 & BIO 134 | 5.0 CHEM 122 | 5.0 CHEM 123 | 5.5 VACATION | |
| CHEM 121 | 5.0 CIVC 101 | 1.0 ENGL 103 or 113 | 3.0 | |
| ENGL 101 or 111 | 3.0 ENGL 102 or 112 | 3.0 MATH 123 | 4.0 | |
| MATH 121 | 4.0 MATH 122 | 4.0 PHYS 102 | 4.0 | |
| UNIV S101 | 1.0 PHYS 101 | 4.0 | | |
| | 18 | 17 | 16.5 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|------------------------|------------------------------|---------------------------|----------------|----------|
| CHEM 230 & CHEM 231 | 6.0 CHEM 248 | 6.5 BIO 214 | 4.0 VACATION | |
| CHEM 246 | 6.5 MATH 200 | 4.0 CHEM 249 | 7.0 | |
| PHYS 201 | 4.0 Liberal Studies elective | 3.0 MATH 201 or 210 | 4.0 | |
| | Free elective * | 4.0 Technical elective ** | 3.0 | |
| | 16.5 | 17.5 | 18 | 0 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------|----------------|---------------------------|----------------|----------|
| CHEM 253 | 4.0 CHEM 270 | 3.0 BIO 311 | 4.0 VACATION | |
| CHEM 367 | 3.0 CHEM 357 | 2.5 CHEM 371 | 3.0 | |
| CHEM 421 | 3.0 CHEM 420 | 3.0 Technical elective ** | 3.0 | |
| CHEM 430 | 3.0 CHEM 431 | 4.0 Free electives | 6.0 | |
| UNIV S201 | 1.0 | | | |
| | 14 | 12.5 | 16 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits |
|----------|------------------------------|----------------|---------|
| BIO 404 | 4.0 BIO 306 | 2.0 CHEM 422 | 3.0 |
| CHEM 346 | 5.5 CHEM 493 | 3.0 CHEM 425 | 4.0 |
| CHEM 493 | 3.0 Liberal Studies elective | 3.0 CHEM 493 | 3.0 |

| | | | |
|---------------|--------------------|-------------------|-----------|
| Free elective | 3.0 Free electives | 6.0 Free elective | 3.0 |
| | 15.5 | 14 | 13 |

Total Credits 188.5

* Students not participating in co-op will not take COOP 101; 1 credit of Free Elective will be added in place of COOP 101.

** Must be at a 200+ level. See Degree Requirements for more information on acceptable classes.

4 year, 1 co-op

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|----------------------|---------------------|---------------------|----------------|----------|
| BIO 131 & BIO 134 | 5.0 CHEM 122 | 5.0 CHEM 123 | 5.5 VACATION | |
| CHEM 121 | 5.0 CIVC 101 | 1.0 ENGL 103 or 113 | 3.0 | |
| ENGL 101 or 111 | 3.0 ENGL 102 or 112 | 3.0 MATH 123 | 4.0 | |
| MATH 121 | 4.0 MATH 122 | 4.0 PHYS 102 | 4.0 | |
| UNIV S101 | 1.0 PHYS 101 | 4.0 | | |
| | 18 | 17 | 16.5 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|------------------------|------------------------------|---------------------|------------------------------|-----------|
| CHEM 230 & CHEM 231 | 6.0 CHEM 248 | 6.5 BIO 214 | 4.0 Technical elective ** | 3.0 |
| CHEM 246 | 6.5 MATH 200 | 4.0 CHEM 249 | 7.0 Liberal Studies elective | 3.0 |
| PHYS 201 | 4.0 Liberal Studies elective | 3.0 COOP 101 * | 1.0 Free electives | 9.0 |
| | Free elective | 3.0 MATH 201 or 210 | 4.0 | |
| | | Free elective | 3.0 | |
| | 16.5 | 16.5 | 19 | 15 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------|----------------|---------------------|-----------------|----------|
| CHEM 253 | 4.0 CHEM 270 | 3.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| CHEM 421 | 3.0 CHEM 357 | 2.5 | | |
| CHEM 430 | 3.0 CHEM 420 | 3.0 | | |
| CHEM 367 | 3.0 CHEM 431 | 4.0 | | |
| UNIV S201 | 1.0 | | | |
| | 14 | 12.5 | 0 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits |
|----------|------------------------------|----------------|-----------|
| CHEM 346 | 5.5 CHEM 493 | 3.0 CHEM 371 | 3.0 |
| CHEM 493 | 3.0 BIO 306 | 2.0 CHEM 422 | 3.0 |
| BIO 311 | 4.0 Liberal Studies elective | 3.0 CHEM 425 | 4.0 |
| BIO 404 | 4.0 Technical elective ** | 3.0 CHEM 493 | 3.0 |
| | Free elective | 3.0 | |
| | 16.5 | 14 | 13 |

Total Credits 188.5

* COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

** Must be at a 200+ level. See Degree Requirements for more information on acceptable classes.

5 year, 3 co-op

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|----------------------|---------------------|---------------------|----------------|---------|
| BIO 131 & BIO 134 | 5.0 CHEM 122 | 5.0 CHEM 123 | 5.5 VACATION | |
| CHEM 121 | 5.0 CIVC 101 | 1.0 COOP 101 * | 1.0 | |
| ENGL 101 or 111 | 3.0 ENGL 102 or 102 | 3.0 ENGL 103 or 113 | 3.0 | |
| MATH 121 | 4.0 MATH 122 | 4.0 MATH 123 | 4.0 | |

| | | | | |
|------------------------|------------------------------|-----------------------|-----------------------|----------------|
| UNIV S101 | 1.0 PHYS 101 | 4.0 PHYS 102 | 4.0 | |
| | 18 | 17 | 17.5 | 0 |
| Second Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| CHEM 230 & CHEM 231 | 6.0 CHEM 248 | 6.5 COOP EXPERIENCE | COOP EXPERIENCE | |
| CHEM 246 | 6.5 MATH 200 | 4.0 | | |
| PHYS 201 | 4.0 Free elective | 3.0 | | |
| | 16.5 | 13.5 | 0 | 0 |
| Third Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| BIO 214 | 4.0 CHEM 270 | 3.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| CHEM 249 | 7.0 CHEM 357 | 2.5 | | |
| CHEM 253 | 4.0 Technical elective ** | 3.0 | | |
| MATH 201 or 210 | 4.0 Free elective | 3.0 | | |
| | Liberal Studies elective | 3.0 | | |
| | 19 | 14.5 | 0 | 0 |
| Fourth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| CHEM 367 | 3.0 CHEM 420 | 3.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| CHEM 421 | 3.0 CHEM 431 | 4.0 | | |
| CHEM 430 | 3.0 Technical elective ** | 3.0 | | |
| BIO 311 | 4.0 Free elective | 3.0 | | |
| UNIV S201 | 1.0 | | | |
| | 14 | 13 | 0 | 0 |
| Fifth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits | |
| CHEM 346 | 5.5 CHEM 493 | 3.0 CHEM 371 | 3.0 | |
| CHEM 493 | 3.0 BIO 306 | 2.0 CHEM 422 | 3.0 | |
| BIO 404 | 4.0 Liberal Studies elective | 3.0 CHEM 425 | 4.0 | |
| Free elective | 3.0 Free electives | 6.0 CHEM 493 | 3.0 | |
| | | Free elective | 3.0 | |
| | 15.5 | 14 | 16 | |

Total Credits 188.5

* COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

** Must be at a 200+ level. See Degree Requirements for more information on acceptable classes.

Co-op/Career Opportunities

Opportunities for Chemistry majors include working in research and development in corporate and government laboratories in the chemical, pharmaceutical, and agricultural (e.g., U.S. Department of Agriculture) sectors. There is a remarkably high concentration of chemical and pharmaceutical companies in the Philadelphia region. Other options include entering medical, dental, law, or other professional schools. The major in Chemistry is sufficiently flexible to allow students to prepare to teach at the secondary level. With proper selection of electives, students can meet teacher certification requirements.

Sample Co-op Opportunities

Five-year and four-year co-op degrees are offered. When students complete their co-op job(s), they are asked to write an overview of their experience(s). These brief quotes are taken from some recent student reports:

Assistant chemist, pharmaceuticals manufacturer: "My position involved the synthesis and characterization of target compounds in the endothelium project. Involved the development of synthetic routes to the prescribed target. This would include the investigation of reactions which were going to be used...the position was very independent...great working environment."

Co-op chemist, petroleum refiner: "Performed synthesis of ligands and metal complexes. Operated FT-IR spectrometer for sample analysis. Submitted samples for analysis by mass spectrometer and NMR...The position allowed me to develop the skills necessary for independent research in organic synthesis."

Assistant lab technician, pharmaceuticals manufacturer: "I was an assistant technician in a mass spectrometry lab...I was responsible for the development of SDS-gel electrophoresis techniques for gels and gel membranes...I developed the methods independently and my employer encouraged me to be an expert on the technique and explore any method I found that would benefit the lab. "

Visit the Drexel Steinbright Career Development Center (<http://www.drexel.edu/scdc/>) page for more detailed information on co-op and post-graduate opportunities.

Facilities

There are nine undergraduate teaching laboratories in the department: three Freshman Chemistry labs, three Organic Chemistry labs, a Physical Chemistry lab, an Analytical Instrumentation Laboratory, and a combined Analytical/Inorganic Chemistry lab.

Mass Spectrometry Laboratory

The department maintains a professionally staffed mass spectrometry facility available to all members of the university community. Currently available instrumentation consists of a Waters Autospec M high resolution magnetic-sector mass spectrometer, a Bruker Autoflex III MALDI Time-of-Flight Mass Spectrometer, a Thermo LTQ-FT Fourier Transform Mass Spectrometer, a Sciex API-3000 triple-quadrupole mass spectrometer, and a Varian Saturn 2000 Gas Chromatograph/Ion-trap mass spectrometer system.

Nuclear Magnetic Resonance Laboratory

The professionally staffed Chemistry department NMR facility is equipped with 300MHz and 500MHz Varian Unity INNOVA NMR systems; both instruments have multi-nuclear capability. The probe on the 500MHz instrument is a cryogenically cooled triple resonance model (^1H $\{^{13}\text{C}/^{15}\text{N}\}$) suitable for protein analysis. A Varian X-band 12" EPR spectrometer is also available.

Analytical Instrumentation Laboratory

The open-access departmental Analytical Instrumentation Laboratory includes two Perkin-Elmer (PE) Spectrum One Fourier-transform infrared absorption spectrometers each with a universal diamond ATR accessory, a PE Lambda-35 UV/visible spectrometer, a PE Lambda-950 UV/visible/NIR spectrometer with a 60-mm-diameter diffuse reflectance integrating sphere, a PE model 343 polarimeter, a PE LS55B luminescence spectrometer, a PE Clarus 500 capillary-column GC with dual FID detectors, a Clarus 500 capillary-column GC/MS system (with electron impact capability), a PE Series 200 Quaternary HPLC development system with UV/visible photodiode array detector, a PE Series 200 binary HPLC system interfaced to a Sciex 2000 triple-quadrupole mass spectrometer, a PE Series 2000 binary Gel Permeation Chromatography system with refractive index detector, and a Varian AA240FS flame atomic absorption spectrometer equipped with a GTA 120 Graphite Furnace Accessory.

Organic Instrumentation Laboratory

The Organic Instrumentation Laboratory (co-located with the organic synthesis teaching laboratories in the Papdakis Integrated Sciences Building) is equipped with two Perkin-Elmer (PE) Spectrum Two Fourier-transform infrared absorption spectrometers each with a universal diamond ATR accessory, a PE Clarus 500 capillary-column GC with one FID and one TCD detector, and an Anasazi EFT-90 FT-NMR system.

Other Departmental Facilities

The department has a VEECO INNOVA N3 Multimode Scanning Probe Microscope and also maintains a computational chemistry laboratory equipped with nine Dell Optiplex 790 computers running Hyperchem v 8.0. Research laboratories for each of the department faculty members are located in Disque and Stratton Halls. Instrumentation available in the research laboratories is described on individual faculty web pages. Full-time professional support includes two electronic instrument specialists (for NMR and MS- Chemistry department), two electronics specialists (College of Arts & Sciences Electronics Shop), and four machinists (Drexel University Machine Shop).

Chemistry Faculty

Reza Farasat, PhD (*University of Alabama*). Assistant Teaching Professor. Modification of polymers for diverse applications; utilizing Thermoanalysis techniques to study polymeric and non-polymeric materials; nanotechnology; applying Multi-detector Size Exclusion Chromatography for characterization of polymers; creating composites to improve materials' properties.

Fraser Fleming, PhD (*University of British Columbia (Canada)*). Professor. Nitriles, Isonitriles, Stereochemistry, Organometallics

Joe P. Foley, PhD (*University of Florida*) *Department Head*. Professor. Separation science, especially the fundamentals and biomedical/pharmaceutical applications of the following voltage- or pressure-driven separation techniques: capillary electrophoresis (CE), electrokinetic chromatography, supercritical fluid chromatography, and high-performance and two-dimensional liquid chromatography (LC). Within these techniques, we explore novel separation modes (e.g., dual-opposite-injection CE and sequential elution LC), novel surfactant aggregate pseudophases, and chiral separations.

Lee Hoffman, PhD (*Flinders University, Adelaide, South Australia*). Assistant Teaching Professor. Interfacial studies on the self-assembly of natural organic materials, understanding the nature of each component, and development of a mechanism describing this process; Dendrimer/metal nanocomposite design and synthesis hosting metal nanoparticles, utilizing the multivalent dendritic polymer architecture for further exploitation with other molecules such as antibodies and other targeting species.

Monica Ilies, PhD (*Polytechnic University of Bucharest*). Associate Teaching Professor. Bioorganic chemistry and chemical biology; bioinorganic chemistry and biochemistry.

Haifeng Frank Ji, PhD (*Chinese Academy of Sciences*). Professor. Micromechanical sensors for biological and environmental applications; Nanomechanical drug screening technology.

Daniel B. King, PhD (*University of Miami*). Associate Professor. Assessment of active learning methods and technology in chemistry courses; incorporation of environmental data into chemistry classroom modules; development of hands-on activities and laboratory experiments.

Jamie Ludwig, PhD (*UT Southwestern Medical Center*). Discovery and optimization of biocatalytic transformations for use inorganic synthesis.

Dionicio Martinez-Solario, PhD (*University of Alabama*). Assistant Professor. Total synthesis of complex biologically active natural products serving as inspirational platforms for the discovery and development of new reactions and synthetic methods.

Craig McClure, PhD (*University of Michigan*). Associate Teaching Professor. Promotion of quantitative literacy in introductory courses; development of guided inquiry activities for introductory chemistry; outreach programs in STEM fields.

Kevin G. Owens, PhD (*Indiana University*). Associate Professor. Mass spectrometry research, including the development of sample preparation techniques for quantitative analysis and mass spectrometric imaging using matrix-assisted laser desorption/ionization (MALDI) time-of-flight mass spectrometry (TOFMS) techniques for both biological and synthetic polymer systems, the development of laser spectroscopic techniques for combustion analysis, and the development of correlation analysis and other chemometric techniques for automating the analysis of mass spectral information.

Susan A. Rutkowsky, PhD (*Drexel University*) *Associate Department Head*. Associate Teaching Professor. Development of labs and lecture demonstrations for general and organic chemistry courses; STEM outreach programs.

Jeremiah Scepaniak, PhD (*New Mexico State University*). Assistant Professor. Design transition metal-based contrast agents for MRI & synthesis of bimetallic complexes to activate small molecules.

Karl Sohlberg, PhD (*University of Delaware*). Associate Professor. Computational and theoretical materials-related chemistry: (1) complex catalytic materials; (2) mechanical and electrical molecular devices.

Anthony Wambsgans, PhD (*Rice University*). Associate Teaching Professor.

Ezra Wood, PhD (*University of California-Berkeley*). Associate Professor. Radical chemistry and formation of secondary pollutants in urban and forest environments, impacts of biomass burning on air pollution and climate change, pollutant emissions, and design and deployment of novel instrumentation for field studies.

Jun Xi, PhD (*Cornell University*). Associate Teaching Professor. Biomacromolecular interactions both in solution and in confined environment; mechanisms of DNA replication and DNA repair; structure and function of molecular chaperones; drug target identification and new therapeutic development; single molecule enzymology; DNA directed organic synthesis.

Emeritus Faculty

Anthony W. Addison, PhD (*University of Kent at Canterbury, England*). Professor Emeritus. Design and synthesis of novel biomimetic and oligonuclear chelates of copper, nickel, iron, ruthenium and vanadium; their interpretation by magnetochemical, electrochemical and spectroscopic methods, including electron spin resonance; CD and ESR spectroscopy and kinetics for elucidation of molecular architecture of derivatives (including NO) of oxygen-binding and electron-transfer heme- and non-heme iron metalloproteins of vertebrate and invertebrate origins; energy-transfer by Ru, Ir and lanthanide-containing molecules and assemblies.

Amar Nath, PhD (*Moscow State University, Moscow USSR*). Professor Emeritus.

Reinhard Schweitzer-Stenner, PhD (*Universität Bremen (Germany)*). Professor. Exploring conformational ensembles of unfolded or partially folded peptides and proteins; determining the parameters governing peptide self-aggregation; structure and function of heme proteins; investigating protein-membrane interactions; use of IR, VCD, Raman, NMR and absorption spectroscopy for structure analysis.

Peter A. Wade, PhD (*Purdue University*). Professor Emeritus. Exploration of a newly discovered [3,3]-sigmatropic rearrangement in which O-allyl nitronic esters are thermally converted to α,β -unsaturated nitro compounds; development and exploitation of a carbon-based hemiacetal mimic; and exploration of cycloaddition reactions involving nitroethylene derivatives and novel nitrile oxides.

Communication

Major: Communication

Degree Awarded: Bachelor of Arts (BA)

Calendar Type: Quarter

Minimum Required Credits: 180.0

Co-op Options: Three Co-op (Five years); One Co-op (Four years); No Co-op (Four years)

Classification of Instructional Programs (CIP) code: 09.0401; 09.0900; 09.0908; 09.9999; 09.0199

Standard Occupational Classification (SOC) code: 11-2011; 11-2031; 27-3022; 27-3041; 27-3042; 27-3043

About the Program

The Department of Communication is committed to helping students gain expertise in a variety of communication theories, methods, and professional skills for creative problem solving. In doing so, students will learn the importance of engaging in ethical behavior in communication with diverse audiences, cultures, and contexts for their learning and professional experiences.

Students will also learn to appreciate the vital role of media and communication in sustaining democratic institutions, civic engagement, and inclusive citizenry. Furthermore, COM students will gain real-world acumen through their co-op experiences to understand and prepare for professional challenges in their communication field.

Students may complete the BA in Communication with a concentration in public relations or journalism. Those who want to keep their options open may concentrate in general communication.

All communication majors take a common core of courses that emphasize communication theory and methods. Students in the BA program also study a modern language.

Career Paths

Students in the public relations concentration take courses and pursue careers in public relations, social media analytics and management, corporate communication, and nonprofit communication. Journalism students take courses and pursue careers as reporters, copywriters, editors, and media specialists. Students in the communication concentration have the flexibility of crafting their path through the major and thus have career possibilities in any of the areas listed here. Many communication graduates also go on to law school, business school, or graduate school.

Additional Information

If you would like to learn more about the Department of Communication, please visit the Department of Communication website (<http://drexel.edu/coas/academics/departments-centers/communication/>).

Degree Requirements: Communication Concentration (BA)

Students who select the communication concentration take courses in all of the existing concentrations, as well as other communication courses to prepare them for any communication-related career, or professional post-graduate options.

General Requirements

| | | |
|-----------------------------|---|----------|
| CIVC 101 | Introduction to Civic Engagement | 1.0 |
| COOP 101 | Career Management and Professional Development * | 1.0 |
| ENGL 101 or ENGL 111 | Composition and Rhetoric I: Inquiry and Exploratory Research English Composition I | 3.0 |
| ENGL 102 or ENGL 112 | Composition and Rhetoric II: Advanced Research and Evidence-Based Writing English Composition II | 3.0 |
| ENGL 103 or ENGL 113 | Composition and Rhetoric III: Themes and Genres English Composition III | 3.0 |
| PSY 101 | General Psychology I | 3.0 |
| UNIV H101 | The Drexel Experience | 1.0 |
| UNIV H201 | Looking Forward: Academics and Careers | 1.0 |
| Two mathematics courses | | 6.0-8.0 |
| Two science courses | | 6.0-8.0 |
| Foreign language courses ** | | 8.0-12.0 |
| Humanities and fine arts | | 12.0 |
| Social sciences | | 9.0 |
| International studies | | 6.0 |
| Studies in diversity | | 6.0 |

Communication Core Requirements

Theory Sequence

| | | |
|-------------------------|---|-----|
| COM 101 | Human Communication | 3.0 |
| COM 150 | Mass Media and Society | 3.0 |
| COM 210 | Theory and Models of Communication | 3.0 |
| COM 400 | Seminar in Communication | 3.0 |
| LING 101 or LING 102 | Introduction to Linguistics Language and Society | 3.0 |

Methods Sequence

| | | |
|---------|--|-----|
| COM 220 | Qualitative Research Methods | 3.0 |
| COM 221 | Quantitative Research Methods in Communication | 3.0 |

Additional Core Requirements

| | | |
|---------|-----------------------------|-----|
| COM 222 | Interpersonal Communication | 3.0 |
|---------|-----------------------------|-----|

| | | |
|---|---|--------------------|
| COM 230 | Techniques of Speaking | 3.0 |
| COM 240 | New Technologies In Communication | 3.0 |
| COM 247 | Strategic Social Media Communication | 3.0 |
| COM 491 | Senior Project in Communication I | 3.0 |
| COM 492 | Senior Project in Communication II | 3.0 |
| PHIL 305 | Ethics and the Media | 3.0 |
| Additional Breadth in COM | | |
| COM 160 [WJ] | Introduction to Journalism | 3.0 |
| COM 181 | Public Relations Principles and Theory | 3.0 |
| COM 261 [WJ] | Advanced Journalism | 3.0 |
| or COM 282 | Public Relations Writing in the Digital Age | |
| COM 310 [WJ] | Technical Communication | 3.0 |
| Two additional COM classes at 300 level or higher | | 6.0 |
| Additional Electives | | |
| COM electives | | 24.0 |
| Free electives | | 27.0 |
| Total Credits | | 180.0-188.0 |

* Students not participating in co-op will not take COOP 101; 1 credit of Free Elective will be added in place of COOP 101.

** Students must complete at least 8 credits of a foreign language at Drexel and, at minimum, must complete the 103 level of the target language (or beyond if they place higher).

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study: Communication Concentration (BA)

4 year, no co-op

| First Year | | | | |
|-------------------------|-----------------------------|---|----------------|----------|
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| COM 101 | 3.0 CIVC 101 | 1.0 COM 160 or 181 | 3.0 VACATION | |
| COM 150 | 3.0 COM 181 or 160 | 3.0 COM 230 | 3.0 | |
| ENGL 101 or 111 | 3.0 ENGL 102 or 112 | 3.0 ENGL 103 or 113 | 3.0 | |
| PSY 101 | 3.0 Foreign Language Course | 4.0 Humanities Elective | 3.0 | |
| UNIV H101 | 1.0 Math Course | 3.0-4.0 Math Course | 3.0-4.0 | |
| Foreign Language Course | 4.0 | | | |
| | 17 | 14-15 | 15-16 | 0 |
| Second Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| COM 210 | 3.0 COM 220 | 3.0 COM 221 | 3.0 VACATION | |
| COM 222 | 3.0 COM 247 | 3.0 COM 261 or 282 | 3.0 | |
| Humanities Elective | 3.0 LING 101 or 102 | 3.0 COM 310 | 3.0 | |
| Science Course | 3.0-4.0 COM Elective | 3.0 COM Elective | 3.0 | |
| Social Science Elective | 3.0 Science Course | 3.0-4.0 International or Diversity Elective | 3.0 | |
| | 15-16 | 15-16 | 15 | 0 |

| Third Year | | | | |
|--|----------------------------|---|-----------------------|----------------|
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| PHIL 305 | 3.0 COM 240 | 3.0 COM Elective (above 300 level) | 3.0 VACATION | |
| COM Electives | 6.0 UNIV H201 | 1.0 Free Electives | 6.0 | |
| Free Elective | 3.0 COM Electives | 6.0 International or Diversity Elective | 3.0 | |
| International or Diversity Elective | 3.0 Free Elective | 3.0 Social Science Elective | 3.0 | |
| | Humanities Elective | 3.0 | | |
| | 15 | 16 | 15 | 0 |
| Fourth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits | Credits |
| COM 400 | 3.0 COM 491 | 3.0 COM 492 | 3.0 | |
| Communication Elective (above 300 level) | 3.0 Communication Elective | 3.0 COM Elective | 3.0 | |
| Free Electives** | 7.0 Free Elective | 3.0 Free Electives | 6.0 | |
| International or Diversity Elective | 3.0 Humanities Elective | 3.0 | | |
| | Social Science Elective | 3.0 | | |
| | 16 | 15 | 12 | |

Total Credits 180-184

* See degree requirements (p.).

** Students not participating in co-op will not take COOP 101; 1 credit of Free Elective will be added in place of COOP 101.

4 year, one co-op

| First Year | | | | |
|--------------------------|---|---|---|----------------|
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| COM 101 | 3.0 CIVC 101 | 1.0 COM 160 or 181 | 3.0 VACATION | |
| COM 150 | 3.0 COM 181 or 160 | 3.0 COM 230 | 3.0 | |
| ENGL 101 or 111 | 3.0 COOP 101** | 1.0 ENGL 103 or 113 | 3.0 | |
| PSY 101 | 3.0 ENGL 102 or 112 | 3.0 Humanities Elective | 3.0 | |
| UNIV H101 | 1.0 Foreign Language Course* | 4.0 Math Course | 3.0-4.0 | |
| Foreign Language Course* | 4.0 Math Course | 3.0-4.0 | | |
| | 17 | 15-16 | 15-16 | 0 |
| Second Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| COM 210 | 3.0 COM 220 | 3.0 COM 221 | 3.0 PHIL 305 | 3.0 |
| COM 222 | 3.0 COM 247 | 3.0 COM 261 or 282 | 3.0 COM Electives | 6.0 |
| Humanities Elective | 3.0 LING 101 or 102 | 3.0 COM 310 | 3.0 Free Elective | 3.0 |
| Science Course | 3.0-4.0 COM Elective | 3.0 COM Elective | 3.0 International or Diversity Elective | 3.0 |
| Social Science Elective | 3.0 Science Course | 3.0-4.0 International or Diversity Elective | 3.0 | |
| | 15-16 | 15-16 | 15 | 15 |
| Third Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| COM 240 | 3.0 COM Elective (above 300 level) | 3.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| UNIV H201 | 1.0 Free Electives | 6.0 | | |
| COM Electives | 6.0 International or Diversity Elective | 3.0 | | |
| Free Elective | 3.0 Social Science Elective | 3.0 | | |
| Humanities Elective | 3.0 | | | |
| | 16 | 15 | 0 | 0 |
| Fourth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits | Credits |
| COM 400 | 3.0 COM 491 | 3.0 COM 492 | 3.0 | |

| | | | |
|---|----------------------------|--------------------|-----------|
| Communication Elective (above 300 level) | 3.0 Communication Elective | 3.0 COM Elective | 3.0 |
| Free electives | 6.0 Free Elective | 3.0 Free Electives | 6.0 |
| International or Diversity Elective | 3.0 Humanities Elective | 3.0 | |
| | Social Science Elective | 3.0 | |
| | 15 | 15 | 12 |

Total Credits 180-184

* See degree requirements (p.).

** Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

5 year, 3 co-op**First Year**

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------------------|---------------------------------|-------------------------|----------------|----------|
| COM 101 | 3.0 CIVC 101 | 1.0 COM 160 or 181 | 3.0 VACATION | |
| COM 150 | 3.0 COM 181 or 160 | 3.0 COM 230 | 3.0 | |
| ENGL 101 or 111 | 3.0 COOP 101** | 1.0 ENGL 103 or 113 | 3.0 | |
| PSY 101 | 3.0 ENGL 102 or 112 | 3.0 Humanities Elective | 3.0 | |
| UNIV H101 | 1.0 Foreign Language Course* | 4.0 Math Course | 3.0-4.0 | |
| Foreign Language Course* | 4.0 Math Course | 3.0-4.0 | | |
| | 17 | 15-16 | 15-16 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-------------------------|----------------------|---------------------|-----------------|----------|
| COM 210 | 3.0 COM 220 | 3.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| COM 222 | 3.0 COM 247 | 3.0 | | |
| Humanities Elective | 3.0 LING 101 or 102 | 3.0 | | |
| Science Course | 3.0-4.0 COM Elective | 3.0 | | |
| Social Science Elective | 3.0 Science Course | 3.0-4.0 | | |
| | 15-16 | 15-16 | 0 | 0 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--|--|---------------------|-----------------|----------|
| COM 221 | 3.0 PHIL 305 | 3.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| COM 261 or 282 | 3.0 COM Electives | 6.0 | | |
| COM 310 | 3.0 Free Elective | 3.0 | | |
| COM Elective | 3.0 International or Diversity Elective | 3.0 | | |
| International or Diversity Elective | 3.0 | | | |
| | 15 | 15 | 0 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|---------------------|--|---------------------|-----------------|----------|
| COM 240 | 3.0 COM Elective (above 300 level) | 3.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| UNIV H201 | 1.0 Free Electives | 6.0 | | |
| COM Electives | 6.0 International or Diversity Elective | 3.0 | | |
| Free Elective | 3.0 Social Science Elective | 3.0 | | |
| Humanities Elective | 3.0 | | | |
| | 16 | 15 | 0 | 0 |

Fifth Year

| Fall | Credits Winter | Credits Spring | Credits |
|---|----------------------------|--------------------|---------|
| COM 400 | 3.0 COM 491 | 3.0 COM 492 | 3.0 |
| Communication Elective (above 300 level) | 3.0 Communication Elective | 3.0 COM Elective | 3.0 |
| Free Electives | 6.0 Free Elective | 3.0 Free Electives | 6.0 |

| | | | |
|-------------------------------------|-------------------------|-----------|-----------|
| International or Diversity Elective | 3.0 Humanities Elective | 3.0 | |
| | Social Science Elective | 3.0 | |
| | 15 | 15 | 12 |

Total Credits 180-184

* See degree requirements (p.).

** Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Degree Requirements: Journalism Concentration (BA)

Journalism provides students with the skills and theoretical perspective they need to be a journalist in today's swiftly changing media environment. An extension of the program's core curriculum, the concentration hones the student's ability to write, edit, and produce audiovisual content while at the same time exposing the student to new and evolving aspects of the field.

University Requirements

| | | |
|-------------|---|-----|
| CIVC 101 | Introduction to Civic Engagement | 1.0 |
| COOP 101 | Career Management and Professional Development * | 1.0 |
| ENGL 101 | Composition and Rhetoric I: Inquiry and Exploratory Research | 3.0 |
| or ENGL 111 | English Composition I | |
| ENGL 102 | Composition and Rhetoric II: Advanced Research and Evidence-Based Writing | 3.0 |
| or ENGL 112 | English Composition II | |
| ENGL 103 | Composition and Rhetoric III: Themes and Genres | 3.0 |
| or ENGL 113 | English Composition III | |
| UNIV H101 | The Drexel Experience | 1.0 |
| UNIV H201 | Looking Forward: Academics and Careers | 1.0 |

College of Arts and Sciences Core Curriculum **

| | | |
|---|-------------------|---------|
| Developing Quantitative Reasoning ** | | 6.0-8.0 |
| Two courses in MATH based on placement exams OR | | |
| PHIL 111 | Symbolic Logic I | |
| or PHIL 121 | Symbolic Logic II | |
| Engaging the Natural World ** | | 6.0-8.0 |
| Analyzing Cultures & Histories ** | | 6.0-8.0 |
| Understanding Society & Human Behavior ** | | 6.0-8.0 |
| Cultivating Global Competence ** | | 6.0-8.0 |
| Perspectives in Diversity ** | | 3.0-4.0 |

Communication Major Requirements

| | | |
|--|--|-------------|
| Theory and Key Concepts | | 12.0 |
| COM 101 | Human Communication | |
| COM 150 | Mass Media and Society | |
| COM 210 | Theory and Models of Communication | |
| LING 101 | Introduction to Linguistics | |
| or LING 102 | Language and Society | |
| Methods Sequence | | 6.0 |
| COM 220 | Qualitative Research Methods | |
| COM 221 | Quantitative Research Methods in Communication | |
| Application Sequence | | 6.0 |
| COM 491 | Senior Project in Communication I | |
| COM 492 | Senior Project in Communication II | |
| Journalism Concentration Requirements | | 24.0 |
| COM 160 [WI] | Introduction to Journalism | |
| COM 216 | Sourcing Challenges in Journalism | |
| COM 261 [WI] | Advanced Journalism | |
| COM 263 | Multiplatform Journalism | |
| COM 266 | Copy Editing for the Media | |
| COM 315 [WI] | Investigative Journalism | |
| COM 365 | Journalists, the Courts, and the Law | |

| | | |
|--|--|--------------------|
| COM 391 | Critiques of Journalism and News Media | |
| Communication Electives | | 18.0 |
| Select an additional six COM (100-499) courses | | |
| Free Electives | | 68.0 |
| Total Credits | | 180.0-191.0 |

* Students not participating in co-op will take one additional credit of free elective instead of COOP 101. Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

** See Core Curriculum List (p. 5) for complete list of course options.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study: Journalism Concentration (BA)

4 year, no co-op

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------------------------|---|--|----------------|----------|
| COM 101 | 3.0 CIVC 101 | 1.0 COM 216 | 3.0 VACATION | |
| COM 150 | 3.0 COM 160 | 3.0 COM 261 | 3.0 | |
| ENGL 101 or 111 | 3.0 ENGL 102 or 112 | 3.0 ENGL 103 or 113 | 3.0 | |
| UNIV H101 | 1.0 Cultivating Global Competence | 3.0-4.0 Analyzing Cultures & Histories | 3.0-4.0 | |
| Cultivating Global Competence | 3.0-4.0 Developing Quantitative Reasoning | 3.0-4.0 Engaging the Natural World | 3.0-4.0 | |
| Developing Quantitative Reasoning | 3.0-4.0 Free Elective | 3.0 | | |
| | 16-18 | 16-18 | 15-17 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--------------------------------|------------------------|--------------------|----------------|----------|
| COM 210 | 3.0 COM 220 | 3.0 COM 221 | 3.0 VACATION | |
| Analyzing Cultures & Histories | 3.0-4.0 COM 263 | 3.0 COM 266 | 3.0 | |
| COM Elective | 3.0 LING 101 or 102 | 3.0 COM Elective | 3.0 | |
| Engaging the Natural World | 3.0-4.0 Free Electives | 6.0 Free Electives | 6.0 | |
| Free Elective | 3.0 | | | |
| | 15-17 | 15 | 15 | 0 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--|----------------------|-------------------------------|----------------|---------|
| COM Elective | 3.0 COM 315 | 3.0 COM Electives | 6.0 VACATION | |
| Free Electives | 6.0 UNIV H201 | 1.0 Free Electives | 6.0 | |
| Understanding Society & Human Behavior | 3.0-4.0 COM Elective | 3.0 Perspectives in Diversity | 3.0-4.0 | |
| | Free Electives | 6.0 | | |

| | Understanding Society & Human Behavior | | 3.0-4.0 | |
|--------------------|---|-----------------------|----------------|---|
| | 12-13 | 16-17 | 15-16 | 0 |
| Fourth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits | |
| COM 391 | 3.0 COM 492 | 3.0 COM 365 | 3.0 | |
| COM 491 | 3.0 COM Elective | 3.0 Free Electives | 12.0 | |
| Free Electives | 9.0 Free Electives | 9.0 | | |
| | 15 | 15 | 15 | |

Total Credits 180-191

4 year, one co-op

| First Year | | | | |
|-----------------------------------|---|------------------------------------|-----------------------|----------------|
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| COM 101 | 3.0 CIVC 101 | 1.0 COM 216 | 3.0 VACATION | |
| COM 150 | 3.0 COOP 101* | 1.0 COM 261 | 3.0 | |
| ENGL 101 or 111 | 3.0 COM 160 | 3.0 ENGL 103 or 113 | 3.0 | |
| UNIV H101 | 1.0 ENGL 102 or 112 | 3.0 Analyzing Cultures & Histories | 3.0-4.0 | |
| Cultivating Global Competence | 3.0-4.0 Cultivating Global Competence | 3.0-4.0 Engaging the Natural World | 3.0-4.0 | |
| Developing Quantitative Reasoning | 3.0-4.0 Developing Quantitative Reasoning | 3.0-4.0 | | |
| | 16-18 | 14-16 | 15-17 | 0 |

| Second Year | | | | |
|--------------------------------|-------------------------|-----------------------|--|----------------|
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| COM 210 | 3.0 COM 220 | 3.0 COM 221 | 3.0 COM Electives | 6.0 |
| Analyzing Cultures & Histories | 3.0-4.0 LING 101 or 102 | 3.0 COM 266 | 3.0 Free Electives | 6.0 |
| COM Elective | 3.0 Free Electives | 9.0 Free Electives | 9.0 Understanding Society & Human Behavior | 3.0-4.0 |
| Engaging the Natural World | 3.0-4.0 | | | |
| Free Elective | 3.0 | | | |
| | 15-17 | 15 | 15 | 15-16 |

| Third Year | | | | |
|-------------------|-----------------------|--|-------------------------------|----------------|
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| COOP EXPERIENCE | COOP EXPERIENCE | COM 263 | 3.0 COM Elective | 3.0 |
| | | UNIV H201 | 1.0 Free Electives | 9.0 |
| | | COM Elective | 3.0 Perspectives in Diversity | 3.0-4.0 |
| | | Free Electives | 6.0 | |
| | | Understanding Society & Human Behavior | 3.0-4.0 | |
| | 0 | 0 | 16-17 | 15-16 |

| Fourth Year | | | | |
|--------------------|-----------------------|-----------------------|----------------|--|
| Fall | Credits Winter | Credits Spring | Credits | |
| COM 391 | 3.0 COM 492 | 3.0 COM 365 | 3.0 | |
| COM 491 | 3.0 COM Elective | 3.0 Free Electives | 12.0 | |
| Free Electives | 8.0 Free Electives | 9.0 | | |
| | 14 | 15 | 15 | |

Total Credits 180-191

* Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

5 year, 3 co-op

| First Year | | | | |
|-----------------------------------|---|------------------------------------|--|----------------|
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| COM 101 | 3.0 CIVC 101 | 1.0 COM 261 | 3.0 VACATION | |
| COM 150 | 3.0 COM 160 | 3.0 ENGL 103 or 113 | 3.0 | |
| ENGL 101 or 111 | 3.0 COOP 101* | 1.0 Analyzing Cultures & Histories | 3.0-4.0 | |
| UNIV H101 | 1.0 ENGL 102 or 112 | 3.0 COM Elective | 3.0 | |
| Cultivating Global Competence | 3.0-4.0 Cultivating Global Competence | 3.0-4.0 Engaging the Natural World | 3.0-4.0 | |
| Developing Quantitative Reasoning | 3.0-4.0 Developing Quantitative Reasoning | 3.0-4.0 | | |
| | 16-18 | 14-16 | 15-17 | 0 |
| Second Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| COOP EXPERIENCE | COOP EXPERIENCE | COM 210 | 3.0 COM 220 | 3.0 |
| | | COM 266 | 3.0 COM Electives | 6.0 |
| | | Analyzing Cultures and Histories | 3.0-4.0 Free Elective | 3.0 |
| | | Engaging the Natural World | 3.0-4.0 Understanding Society & Human Behavior | 3.0-4.0 |
| | | Free Elective | 3.0 | |
| | 0 | 0 | 15-17 | 15-16 |
| Third Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| COOP EXPERIENCE | COOP EXPERIENCE | COM 221 | 3.0 COM 263 | 3.0 |
| | | COM 315 | 3.0 COM Elective | 3.0 |
| | | Free Electives | 9.0 Free Electives | 6.0 |
| | | | Understanding Society & Human Behavior | 3.0-4.0 |
| | 0 | 0 | 15 | 15-16 |
| Fourth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| COOP EXPERIENCE | COOP EXPERIENCE | COM 391 | 3.0 COM 365 | 3.0 |
| | | UNIV H201 | 1.0 COM Elective | 3.0 |
| | | COM Elective | 3.0 Free Electives | 6.0 |
| | | Free Electives | 9.0 Perspectives in Diversity | 3.0-4.0 |
| | 0 | 0 | 16 | 15-16 |
| Fifth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits | |
| COM 491 | 3.0 COM 492 | 3.0 COM Elective | 3.0 | |
| Free Electives | 12.0 COM Elective | 3.0 Free Electives | 12.0 | |
| | Free Electives | 8.0 | | |
| | 15 | 14 | 15 | |
| Total Credits 180-191 | | | | |

* Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Degree Requirements: Public Relations Concentration (BA)

The concentration in public relations covers a broad range of activities that help an organization and its public communicate with one another. The field includes public relations, media relations, event planning, publication design, employee and customer communication, social media, and government relations.

Skills in this field include written, oral, and visual communication. A public relations specialist might be called on to write articles for an in-house newsletter, to research and write an annual report to shareholders, to publicize a special event, to write a speech for an executive, to plan a press conference, to develop a media plan for an organization, or to script a video for an employee orientation session.

University Requirements

| | | |
|-------------------------|---|-----|
| CIVC 101 | Introduction to Civic Engagement | 1.0 |
| COOP 101 | Career Management and Professional Development * | 1.0 |
| ENGL 101 or ENGL 111 | Composition and Rhetoric I: Inquiry and Exploratory Research English Composition I | 3.0 |
| ENGL 102 or ENGL 112 | Composition and Rhetoric II: Advanced Research and Evidence-Based Writing English Composition II | 3.0 |
| ENGL 103 or ENGL 113 | Composition and Rhetoric III: Themes and Genres English Composition III | 3.0 |
| UNIV H101 | The Drexel Experience | 1.0 |
| UNIV H201 | Looking Forward: Academics and Careers | 1.0 |

College of Arts and Science Core Curriculum **

| | | |
|---|---------------------------------------|---------|
| Developing Quantitative Reasoning ** | | 6.0-8.0 |
| Two courses in MATH based on placement exams OR | | |
| PHIL 111 or PHIL 121 | Symbolic Logic I Symbolic Logic II | |
| Engaging the Natural World ** | | 6.0-8.0 |
| Analyzing Cultures & Histories ** | | 6.0-8.0 |
| Understanding Society & Human Behavior ** | | 6.0-8.0 |
| Cultivating Global Competence ** | | 6.0-8.0 |
| Perspectives in Diversity ** | | 3.0-4.0 |

Communication Major Requirements

| | | |
|--|---|--------------------|
| Theory and Key Concepts | | 12.0 |
| COM 101 | Human Communication | |
| COM 150 | Mass Media and Society | |
| COM 210 | Theory and Models of Communication | |
| LING 101 or LING 102 | Introduction to Linguistics Language and Society | |
| Methods Sequence | | 6.0 |
| COM 220 | Qualitative Research Methods | |
| COM 284 | Public Relations Research, Measurement and Evaluation | |
| Application Sequence | | 6.0 |
| COM 491 | Senior Project in Communication I | |
| COM 492 | Senior Project in Communication II | |
| Public Relations Concentration Requirements | | 21.0 |
| COM 160 [WI] | Introduction to Journalism | |
| COM 181 | Public Relations Principles and Theory | |
| COM 247 | Strategic Social Media Communication | |
| COM 248 | Reputation Management in Public Relations | |
| COM 282 [WI] | Public Relations Writing in the Digital Age | |
| COM 286 | Public Relations Strategies and Tactics | |
| COM 386 | Public Relations Campaign Planning | |
| Communication Electives | | 21.0 |
| Select seven COM (100-499) courses | | |
| Free Electives | | 68.0 |
| Total Credits | | 180.0-191.0 |

* Students not participating in co-op will take one additional credit of free elective instead of COOP 101. Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

** See Core Curriculum List (<http://catalog.drexel.edu/undergraduate/collegeofartsandsciences/#corecurriculumtext>) for complete list of courses.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore

year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study: Public Relations Concentration (BA)

4 year, no co-op

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------------------------|---|------------------------------------|----------------|----------|
| COM 101 | 3.0 CIVC 101 | 1.0 COM 282 | 3.0 VACATION | |
| COM 150 | 3.0 COM 160 | 3.0 ENGL 103 or 113 | 3.0 | |
| ENGL 101 or 111 | 3.0 COM 181 | 3.0 Analyzing Cultures & Histories | 3.0-4.0 | |
| UNIV H101 | 1.0 ENGL 102 or 112 | 3.0 COM Elective | 3.0 | |
| Cultivating Global Competence | 3.0-4.0 Cultivating Global Competence | 3.0-4.0 Engaging the Natural World | 3.0-4.0 | |
| Developing Quantitative Reasoning | 3.0-4.0 Developing Quantitative Reasoning | 3.0-4.0 | | |
| | 16-18 | 16-18 | 15-17 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--------------------------------|--|--|----------------|----------|
| COM 210 | 3.0 COM 247 | 3.0 COM Elective | 3.0 VACATION | |
| COM 220 | 3.0 COM 284 | 3.0 Free Electives | 9.0 | |
| Analyzing Cultures & Histories | 3.0-4.0 LING 101 or 102 | 3.0 Understanding Society & Human Behavior | 3.0-4.0 | |
| COM Elective | 3.0 COM Elective | 3.0 | | |
| Engaging the Natural World | 3.0-4.0 Understanding Society & Human Behavior | 3.0-4.0 | | |
| | 15-17 | 15-16 | 15-16 | 0 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|---------------------------|--------------------|-------------------|----------------|----------|
| COM 286 | 3.0 COM 248 | 3.0 UNIV H201 | 1.0 VACATION | |
| Free Electives | 9.0 Free Electives | 12.0 COM Elective | 3.0 | |
| Perspectives in Diversity | 3.0-4.0 | Free Electives | 12.0 | |
| | 15-16 | 15 | 16 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits |
|----------------|--------------------|--------------------|-----------|
| COM 386 | 3.0 COM 492 | 3.0 COM Electives | 6.0 |
| COM 491 | 3.0 COM Elective | 3.0 Free Electives | 9.0 |
| Free Electives | 6.0 Free Electives | 9.0 | |
| | 12 | 15 | 15 |

Total Credits 180-191

4 year, one co-op

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------------------------|---|------------------------------------|----------------|----------|
| COM 101 | 3.0 CIVC 101 | 1.0 COM 282 | 3.0 VACATION | |
| COM 150 | 3.0 COOP 101* | 1.0 ENGL 103 or 113 | 3.0 | |
| ENGL 101 or 111 | 3.0 COM 160 | 3.0 Analyzing Cultures & Histories | 3.0-4.0 | |
| UNIV H101 | 1.0 COM 181 | 3.0 COM Elective | 3.0 | |
| Cultivating Global Competence | 3.0-4.0 ENGL 102 or 112 | 3.0 Engaging the Natural World | 3.0-4.0 | |
| Developing Quantitative Reasoning | 3.0-4.0 Developing Quantitative Reasoning | 3.0-4.0 | | |
| | 16-18 | 14-15 | 15-17 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--------------------------------|--|--|-----------------------------------|--------------|
| COM 210 | 3.0 COM 247 | 3.0 COM Elective | 3.0 Cultivating Global Competence | 3.0-4.0 |
| COM 220 | 3.0 COM 284 | 3.0 Free Electives | 9.0 Free Electives | 14.0 |
| Analyzing Cultures & Histories | 3.0-4.0 LING 101 or 102 | 3.0 Understanding Society & Human Behavior | 3.0-4.0 | |
| COM Elective | 3.0 COM Elective | 3.0 | | |
| Engaging the Natural World | 3.0-4.0 Understanding Society & Human Behavior | 3.0-4.0 | | |
| | 15-17 | 15-16 | 15-16 | 17-18 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|-----------------|---------------------------|--------------------|-----------|
| COOP EXPERIENCE | COOP EXPERIENCE | COM 286 | 3.0 COM 248 | 3.0 |
| | | UNIV H201 | 1.0 COM Elective | 3.0 |
| | | Free Electives | 9.0 Free Electives | 9.0 |
| | | Perspectives in Diversity | 3.0-4.0 | |
| | 0 | 0 | 16-17 | 15 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits |
|----------------|--------------------|--------------------|-----------|
| COM 386 | 3.0 COM 492 | 3.0 COM Electives | 6.0 |
| COM 491 | 3.0 COM Elective | 3.0 Free Electives | 6.0 |
| Free Electives | 9.0 Free Electives | 9.0 | |
| | 15 | 15 | 12 |

Total Credits 180-191

- * Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major. COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

5 year, 3 co-op**First Year**

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------------------------|---------------------------------------|------------------------------------|----------------|----------|
| COM 101 | 3.0 CIVC 101 | 1.0 COM 282 | 3.0 VACATION | |
| COM 150 | 3.0 COOP 101* | 1.0 ENGL 103 or 113 | 3.0 | |
| ENGL 101 or 111 | 3.0 COM 160 | 3.0 Analyzing Cultures & Histories | 3.0-4.0 | |
| UNIV H101 | 1.0 COM 181 | 3.0 COM Elective | 3.0 | |
| Cultivating Global Competence | 3.0-4.0 ENGL 102 or 112 | 3.0 Engaging the Natural World | 3.0-4.0 | |
| Developing Quantitative Reasoning | 3.0-4.0 Cultivating Global Competence | 3.0-4.0 | | |
| | Developing Quantitative Reasoning | 3.0-4.0 | | |
| | 16-18 | 17-19 | 15-17 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|-----------------|--------------------------------|--|--------------|
| COOP EXPERIENCE | COOP EXPERIENCE | COM 210 | 3.0 COM 247 | 3.0 |
| | | COM 220 | 3.0 COM 284 | 3.0 |
| | | Analyzing Cultures & Histories | 3.0-4.0 LING 101 or 102 | 3.0 |
| | | COM Elective | 3.0 COM Elective | 3.0 |
| | | Engaging the Natural World | 3.0-4.0 Understanding Society & Human Behavior | 3.0-4.0 |
| | 0 | 0 | 15-17 | 15-16 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|-----------------|----------------|-------------------------------|---------|
| COOP EXPERIENCE | COOP EXPERIENCE | COM 286 | 3.0 COM 248 | 3.0 |
| | | COM Elective | 3.0 Free Electives | 9.0 |
| | | Free Electives | 6.0 Perspectives in Diversity | 3.0-4.0 |

| | | | | |
|------------------------------|-----------------------|--|-----------------------|----------------|
| | | Understanding Society & Human Behavior | 3.0-4.0 | |
| | 0 | 0 | 15-16 | 15-16 |
| Fourth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| COOP EXPERIENCE | COOP EXPERIENCE | COM 386 | 3.0 COM Elective | 3.0 |
| | | UNIV H201 | 1.0 Free Electives | 12.0 |
| | | Free Electives | 9.0 | |
| | 0 | 0 | 13 | 15 |
| Fifth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits | |
| COM 491 | 3.0 COM 492 | 3.0 COM Elective | 3.0 | |
| Free Electives | 12.0 COM Elective | 3.0 Free Electives | 11.0 | |
| | Free Electives | 9.0 | | |
| | 15 | 15 | 14 | |
| Total Credits 180-191 | | | | |

* Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Co-op/Career Opportunities

Public Relations Concentration

Students with a concentration in public relations find employment in a wide variety of fields, including public relations, advertising, special events planning, writing and editing, and public information. In addition, the strong communication and management skills stressed by this concentration enable students to find positions in management, human resources, marketing, consulting, and publishing.

Although graduate study is not necessary for those who pursue careers in public relations, students have used the major as a basis for graduate work in a variety of areas, including communication, business, and law.

Co-op Experiences in Public Relations

Cooperative education opportunities are available with a variety of corporations and nonprofits in such positions as corporate communication specialist, public relations assistant, and newsletter writer. The following are samples of co-op experiences:

- *Advertising and Promotions Assistant*, CoreStates Bicycle Championships, Philadelphia.
- *Corporate Communications Co-op*, Philadelphia Electric Company, Philadelphia.
- *Advertising/ Promotions Co-op*, U.S. Marketing Division, Mobil Oil Corp., Fairfax, VA.
- *Assistant Coordinator*, Communications Bureau, United Way of Southeastern Pennsylvania, Philadelphia.

Journalism Concentration

Journalism students pursue careers in journalism, broadcast media, and news. Given the rapidly changing nature of these fields, graduates may also find work in new types of publishing platforms, such as social media or mobile, or involving audiovisual content creation. Journalism graduates may also choose to pursue graduate study, whether in journalism or another discipline.

Co-op Experiences in Journalism

Journalism students have held co-ops with a number of media, news, and information companies, including the following:

- *Production assistant*, WPVI-TV (Channel 6) Philadelphia
- *Staff writer*, Delaware County Daily Times
- *Promotions department*, WPLY-FM (Y-100)
- *Production assistant*, sports department, FOX-29 (WTFX-TV)

Communication Concentration

Students in the communication concentration develop a focus that fits their interests in the field of communication and will thus be ready for a variety of career options that require strong writing and research skills, as well as graduate or professional school.

Co-op Experiences in Communication

Students in this concentration can choose from the variety of co-op opportunities open to any student in communication.

Visit the Drexel Steinbright Career Development Center (<http://www.drexel.edu/scdc/>) page for more detailed information on co-op and post-graduate opportunities.

Communication Faculty

Ronald Bishop, III, PhD (*Temple University*). Professor. Investigative reporting, sports journalism, journalism history, journalism sourcing patterns, textual narrative and ideological analysis, cultural history of fame.

Karen Cristiano, MS (*Temple University*) *Assistant Department Head of Communication*. Teaching Professor. Journalism, medical writing, feature writing, copy editing, mass media and society.

Richard Forney Assistant Teaching Professor. Broadcast journalism technology and the effects of new technologies on personal and corporate communication skills.

Ernest A. Hakanen, PhD (*Temple University*) *Director, Graduate Programs in Communication, Culture & Media*. Professor. Telecommunications policy, adolescent media use, communication theory and history, global media, and semiotics.

Barbara Hoekje, PhD (*University of Pennsylvania*). Associate Professor. Sociolinguistic theory, discourse analysis, applied linguistics (language teaching, learning, and testing).

Alexander Jenkins, PhD (*Drexel University*). Assistant Teaching Professor. Digital games, video games, emotion, morality, online fan communities, emerging media, convergence.

Hyunmin Lee, PhD (*University of Missouri*) *Director, Undergraduate Programs in Communication*. Associate Professor. Social media strategies for relationship and reputation management in public relations; media messages of public health issues and its psychological and behavioral effects on the public.

Susan Magee, MFA *Director Online Teaching*. Instructor. Digital Publishing, Content creation, Blogging, Strategic Social Media, Public Relations, Business and Technical Communication

Julia May, PhD (*Drexel University*) *Director, Strategic and Digital Communication MS Program*. Associate Teaching Professor. Political communication; international politics and its news coverage; public opinion; transatlantic relations; war, torture and human rights; debate in the public sphere.

Alexander Nikolaev, PhD (*Florida State University*). Associate Professor. Public relations, political communication, organizational communication, mass communication, international communications and negotiations, communications theory.

Rakhmiel Peltz, PhD (*University of Pennsylvania*). Professor. Judaic studies, Yiddish culture and linguistics, ethnography of communication, immigrant cultural studies.

Douglas V. Porpora, PhD (*Temple University*). Professor. War, genocide, torture, and human rights; macro-moral reasoning in public sphere debate; contemporary social theory moral and political communication; religion.

Rachel R. Reynolds, PhD (*University of Illinois*). Associate Professor. Sociolinguistics, ethnography of communication and discourse analysis; violence against women in mass media; political economy of migration; semiotics including the textual, the visual and multimodal.

Rosemary Rys, MA (*Rowan University*). Assistant Teaching Professor. Public relations and marketing.

Wesley Shumar, PhD (*University of Pennsylvania*). Professor. Digital media and learning; culture of higher education; entrepreneurship education; craft culture; semiotic of consumer culture.

Allan Stegeman, MA (*University of Houston*). Teaching Professor. Communication, technology and mass media, video.

Scott Tattar, BA (*York College of Pennsylvania*) *Faculty Advisor, Drexel PRSSA, Communication Department Recruitment Liaison*. Instructor. Public relations

Hilde Van den Bulck, PhD (*Katholieke Universiteit Leuven*) *Department Head of Communication*. Professor. Political economy of media structures; media policies for digitized media ecologies; stakeholders and coalitions in media policies; digitization; convergence and legacy media; public (service) media; celebrity culture and industry; fandom and anti-fandom.

Asta Zelenkauskaitė, PhD (*Indiana University*). Associate Professor. Social media; user-generated content; computer-mediated communication; interactivity; active audience analysis; mobile communication; gender and online identity; prosumer culture; internet of things; quantitative/qualitative research.

Emeritus Faculty

Alexander Friedlander, PhD (*Carnegie Mellon University*). Associate Professor. Rhetorical theory and practice, document design, writing and technology.

Lawrence Souder, PhD (*Temple University*) *Director, Drexel Edits*. Teaching Professor. Science and technical writing, communication ethics, nonprofit communication.

Criminology and Justice Studies

About the Department

In what ways did the War on Drugs of the 1980s and 1990s impact urban communities in terms of street-corner dealing, violence, and overall health? What are the lasting effects of that "War" paradigm as they relate to national incarceration rates, racial disparities in police shootings, stop-and-frisk, and the adjudication process? How far will the fight against terrorism push the legal and ethical boundaries of government surveillance and the monitoring of electronic communications, and what will be the impacts of such forces? In what ways are "big data" being used (now and in the future) by justice, intelligence, or private organizations to identify social networks, conduct risk assessments, and make decisions about crime policy and resource deployment? Finally, how do climate change and pandemics influence crime and conflict across communities, and where does the collective discipline of criminology and criminal justice "fit" at the intersections of crime, housing, education, climate, and infectious disease policy? These are just some of the questions the Criminology and Justice Studies faculty (<https://drexel.edu/coas/academics/departments-centers/criminology-justice-studies/faculty/>) work every day to answer, both through their research and scholarship, and in the classroom with our students.

Drexel University's degree programs in Criminology and Justice Studies offer a rich educational experience that emphasizes justice and criminological theory, the use of analytical tools and data to answer big questions about crime and justice, all while teaching students how to translate conceptual knowledge into state of the art practice. Along the way, the Department of Criminology and Justice Studies offers global educational opportunities with two courses taught abroad, a set of community-based courses that take students beyond the classroom to practice the learning process, as well as an urban educational experience in one of the premier cities in the country. With its three thematic concentrations -- Criminal Justice, Justice Informatics, and Justice Studies -- the Department of Criminology and Justice Studies offers students many pathways through which to explore a curriculum that emphasizes innovative learning opportunities, global and civic engagement, and a culture that fosters student successes and well being.

Please click the links below to explore the degree concentrations in Criminology and Justice Studies.

Degree Concentrations

- Criminal Justice (<http://catalog.drexel.edu/undergraduate/collegeofartsandsciences/criminaljusticeconcl/>)
- Justice Informatics (<http://catalog.drexel.edu/undergraduate/collegeofartsandsciences/justiceinformatics/>)
- Justice Studies (<http://catalog.drexel.edu/undergraduate/collegeofartsandsciences/criminologyandjusticestudies/justicestudiesconcl/>)

Criminology and Justice Studies Faculty

Robert D'Ovidio, PhD (*Temple University*). Associate Professor. The intersection of computer technology, crime, and the criminal justice system; criminological theory; surveillance; and digital forensics.

Ashley Dickinson, PhD, MPH (*Indiana University of Pennsylvania*). Associate Teaching Professor. Offender rehabilitation; capital punishment; LGBTQ+ community (criminal behavior and victimization); crime and health.

Jordan Hyatt, PhD, JD (*University of Pennsylvania, Villanova University School of Law*). Associate Professor. Community corrections; drug treatment; homelessness; probation/parole; re-entry; risk assessment; sentencing.

Shannon K. Jacobsen, PhD (*Rutgers University*). Assistant Professor. Gender, crime and victimization; fear of crime and perceptions of risk; campus crime; public safety; communities and crime; social inequalities; mixed methods research

Robert J. Kane, PhD (*Temple University*) *Department Head*. Professor. Police authority and accountability; urban ecology and sociology; violence and public health; police strategies and practices.

Kathleen Powell, PhD (*Rutgers University*). Post-Doctoral Fellow. Crime, punishment, and the life course; the intersection of health and justice system involvement; legal financial obligations; correctional interventions.

Cyndi Rickards, EdD (*Drexel University*). Associate Teaching Professor. Director of Justice Studies. Issues of mass incarceration, community-engaged scholarship, intersection of mental health and the CJ system, the criminal justice system and the lived experience.

Kristene Unsworth, PhD (*University of Washington*). Assistant Teaching Professor. Information science, policy and ethics, critical discourse analysis and qualitative methodology.

English

Major: English

Degree Awarded: Bachelor of Arts (BA)

Calendar Type: Quarter

Minimum Required Credits: 181.0

Co-op Options: Three Co-op (Five years); One Co-op (Four years)

Classification of Instructional Programs (CIP) code: 23.0101

Standard Occupational Classification (SOC) code: 25-1123

About the Program

The English curriculum focuses on three areas:

- A rich **Academic Core** grounded in disciplinary expertise that promotes literary exploration, sophisticated textual literacy, excellent writing, and other transferable skills;
- **Applied Learning** opportunities using skills in research, interpretation, analysis, and writing to solve real-world problems;
- Opportunities for **Civic Engagement**, connecting with community partners to promote social justice and the common good.

Our flexible curriculum offers three concentrations:

- Literary Studies (<http://catalog.drexel.edu/undergraduate/collegeofartsandsciences/english-literaryconcentration/>)
- Writing (<http://catalog.drexel.edu/undergraduate/collegeofartsandsciences/english-writingconcentration/>)
- Secondary Education (<http://catalog.drexel.edu/undergraduate/collegeofartsandsciences/english-secondaryeducation-concentration/>)

We study British, American, and World literatures, stressing the cultural, historical, and political contexts that shape literary production. Courses in creative and professional writing are reinforced by opportunities for hands-on experience in writing, editing, and publishing.

The Department of English and Philosophy (<http://www.drexel.edu/coas/academics/departments-centers/english-philosophy/>) offers an intellectually stimulating learning experience that embraces opportunities in Philadelphia, in our region, and across the world. Our dedicated and award-winning faculty enable creativity and rigor within a supportive environment.

Students develop solid techniques in critical inquiry as well as in writing, literary analysis, and research skills. We engage issues critical to success in the twenty-first century: the connection between oral, written, and digital modes; analytical, ethical, and critical thinking; the relevance and relation of the past to the present; the relations between and among cultures; the role of literary and philosophical texts in our attempts to explain human motives and behavior; issues of personal and communal identity; and the connection of the literary arts to social change.

Co-op/Career Opportunities

English majors pursue a range of professions. Many go on to law school or graduate studies. Others build careers in business, politics and government, education, digital and popular media, publishing, and communications. The critical thinking, analytical, and writing skills provided by our program are essential for high-level decision-making and problem solving in any professional situation.

At Drexel, English majors gain valuable work experience through co-op employment and internship opportunities. They work as writers, analysts, and researchers at major corporations, Philadelphia-area museums, city government and visitors' bureaus, television and radio stations, law firms, and nonprofit organizations.

Visit the Drexel Steinbright Career Development Center (<http://www.drexel.edu/scdc/>) for more detailed information on co-op and post-graduate opportunities.

English Faculty

Jan Armon, PhD (*University of Michigan*). Associate Teaching Professor. Academic functions of personal writing, composition.

Kenneth Bingham, MA (*Temple University*). Teaching Professor. First-year writing; engineering ethics; literature of baseball.

Valerie Booth, PhD (*Emory University*). Associate Teaching Professor.

Paula Marantz Cohen, PhD (*Columbia University*) *Distinguished Professor, Dean of the Pennoni Honors College*. Co-editor, *Journal of Modern Literature*; Host of the Drexel Interview. Nineteenth- and early twentieth-century English and American literature; film studies.

Lisa DiMaio, MEd (*Temple University*). Teaching Professor. English as a second language

Dan Driscoll, MA (*Temple University*) *Associate Director University Writing Program*. Teaching Professor. Associate Director, University Writing Center: Curricular Initiatives. Co-Director, Minor in Writing. First-year writing.

Anne Erickson, PhD (*Purdue University*). Assistant Teaching Professor. Online educational applications; the short story cycle.

Nomi Eve, MFA (*Brown University*) *Director of the Creative Writing MFA Program*. Assistant Teaching Professor.

Robert Finegan, MFA (*University of Pittsburgh*). Associate Teaching Professor. First-year writing; technical and creative writing.

Valerie Fox, PhD (*SUNY at Binghamton*). Teaching Professor. Founding Editor, *Press 1.* Twentieth century drama; modern and contemporary American poetry; first-year writing.

Edward Fristrom, PhD (*State University of New York-Albany*). Associate Teaching Professor. Professional writing, creative writing, multimedia, and writing education.

Keunah Han, PhD (*Temple University*). Associate Teaching Professor. English as a Second Language (ESL)

Cassandra Hirsch, MFA (*Rosemont College*). Associate Teaching Professor. Fiction.

Gabriella Ibieta, PhD (*City University of New York*) *Director, Programs in English*. Associate Professor. Comparative literature; Cuban and Latin American fiction.

Henry Israeli, MFA (*University of Iowa*). Associate Teaching Professor. Founder and editor of Saturnalia Books, a publisher of contemporary poetry.

Kirsten Kaschock, PhD (*University of Georgia*). Associate Teaching Professor. Creative writing (poetry and prose).

Elizabeth Kimball, PhD (*Temple University*). Assistant Professor. College writing, civic engaged learning, multi lingual and trans lingual practice, history and theory of rhetoric, public and community writing, 18th and 19th century U.S. rhetorical history

Miriam Kotzin, PhD (*New York University*). Professor. Founding Editor, *Per Contra.* American literature; genre studies; creative writing; communications.

Roger Kurtz, PhD (*University of Iowa*) *Department Head*. Professor. Postcolonial and world literatures

Stephen Mandell, PhD (*Temple University*). Professor. First-year writing; technical writing; speech; American literature.

Deirdre McMahon, PhD (*University of Iowa*). Teaching Professor. 19th-century British literature and culture: empire, critical race studies and analyses of material culture.

Marianallet Mendez-Rivera, PhD (*University of Minnesota*). Assistant Teaching Professor. Use of the mass media to secure, maintain and enhance political power; international technical communication—including issues of translation v. localization.

Harriet Levin Millan, MFA (*University of Iowa*) *Director, Certificate in Writing and Publishing*. Associate Teaching Professor. Poetry.

Jill Moses, MFA (*University of Oregon*). Associate Teaching Professor. Dramatic literature; first-year writing.

Christopher T. Nielson, PhD (*Purdue University*). Teaching Professor. Shakespeare; Renaissance drama and literature; dramatic literature; first-year writing.

Karen Nulton, PhD (*Rutgers University*) *Director, Writing Assessment*. Teaching Professor. Writing assessment, writing pedagogy, and writing across the curriculum.

Margene Peterson, MA (*Rhode Island School of Design*). Assistant Teaching Professor. English as a Second Language (ESL); the learning styles and strategies of non-native speakers of English.

Maegan Poland, PhD (*University of Nevada, Las Vegas*). Assistant Teaching Professor. Creative writing; first-year writing

Abioseh Porter, PhD (*University of Alberta, Canada*). Professor. Comparative literature; postcolonial literatures

Donald Riggs, PhD (*University of North Carolina-Chapel Hill*). Teaching Professor. Cinematic monsters; science fiction and fantasy literature and film; Renaissance literature; creative writing; first-year writing.

Donna Rondolone, PhD (*University of Pennsylvania*). Associate Teaching Professor. Medieval literature; Arthurian legend; first-year writing.

Gail Rosen, JD (*Temple University*). Teaching Professor. Literature and law; first-year writing.

Doreen Alvarez Saar, PhD (*SUNY Buffalo*). Professor. Early American literature; Eighteenth-century America; race and gender studies.

Sheila Sandapen, PhD (*Indiana University of Pennsylvania*) *Assistant Director, First Year Writing Program*. Associate Teaching Professor. First-year writing; cultural studies; women's studies; history and film.

Fred A. Siegel, PhD (*New York University*) *Director, First-Year Writing Program*. Teaching Professor. Popular theater; dramatic literature, creative non-fiction; first-year writing.

Scott Stein, MFA (*University of Miami*) *Director, Drexel Publishing Group*. Teaching Professor. Creative writing; first-year writing; Founding Editor, *When Falls the Coliseum: A Journal of American Culture (Or Lack Thereof)*.

Eva Thury, PhD (*University of Pennsylvania*). Associate Professor. Mythology; classical literature; drama; first-year writing; desktop publishing and software documentation.

Kathleen Volk Miller, MA (*Rutgers University*). Teaching Professor. Co-Editor, *Painted Bride Quarterly (PBQ)*; creative writing; first-year writing.

Maria Volynsky, EdD (*Temple University*) *Associate Director, First-Year Writing Program; ESL Coordinator*. Associate Teaching Professor. English as a Second Language (ESL).

Scott Warnock, PhD (*Temple University*) *Associate Dean for Undergraduate Education*. Professor. Rhetoric and composition; medical writing; information technology and literacy.

Robert A. Watts, MA (*Temple University*). Associate Teaching Professor. Creative writing; first-year writing.

Vincent Williams, PhD (*Temple University*). Associate Teaching Professor. First-year writing; the intersection of race, gender, class and urbanism.

Jennifer Yusin, PhD (*Emory University*). Associate Professor. Postcolonial literature; trauma theory; literary theory; psychoanalysis, and memory studies in contemporary literature in English.

Emeritus Faculty

Valarie Arms, PhD (*Temple University*). Professor Emeritus. Rhetoric and Composition

Richard Astro, PhD (*University of Washington*) *Distinguished Professor*. Provost Emeritus. Twentieth-century American literature; literature and sports.

Raymond Brebach, PhD (*University of Illinois*). Professor Emeritus. Modern British fiction; the novel; textual studies.

Environmental Science

Major: Environmental Science

Degree Awarded: Bachelor of Science (BS)

Calendar Type: Quarter

Minimum Required Credits: 185.5

Co-op Options: Three Co-op (Five years); One Co-op (Four years); No Co-op (Four years)

Classification of Instructional Programs (CIP) code: 03.0104

Standard Occupational Classification (SOC) code: 19-2041

About the Program

The Environmental Science program at Drexel University is committed to educating undergraduates for technical careers and graduate study in the diverse areas of environmental science vital to understanding, conservation, and restoration of clean and healthy natural environments in the 21st century. The affiliation between the Academy of Natural Sciences (<https://ansp.org/>) and Drexel University offers students unique opportunities to take a leadership role in ecology, environmental science, and environmental policy, and to grow the scope, capacity, and reputation of the natural sciences at the University. The philosophy of the Biodiversity, Earth & Environmental Science Department is "*Experiential Learning Early and Often.*"

Environmental science is a multidisciplinary field designed to examine environmental problems and find solutions. This field requires understanding of a number of disciplines including biology, physics, and chemistry. Solving some of our environmental problems also requires knowledge of environmental policy, ethics, and scientific data analysis.

The program has an integrated curricular approach designed around student laboratory and field investigations. The goal of this program is to give students not only knowledge about biology, chemistry, and ecology, but also the ability to use the tools and skills of a scientist. The program includes extensive use of computers in the laboratory and students make frequent oral and written presentations based on their laboratory projects.

Field experience electives may include trips to local aquatic and terrestrial habitats, such as streams, lakes, the John Heinz National Wildlife Refuge, New Jersey Pine Barrens, Delaware, Barnegat and Chesapeake Bays, and the Appalachian Mountains. Students are also encouraged to take advantage of study abroad (<http://www.drexel.edu/studyabroad/>) options, including ENVIS field courses. These programs often require early planning, so it is advisable for interested students to speak to their advisor about opportunities in their first year.

Concentrations are available in:

- Ecology & Evolution
- Applied Environmental Science

Additional Information

For more information about the program, visit the Department of Biodiversity, Earth & Environmental Science's (<http://www.drexel.edu/coas/academics/departments-centers/bees/>) webpage.

Laurie G. Zinberg, M.A.
Senior Academic Advisor
College of Arts and Science
Email: lgz23@drexel.edu

Or email bees@drexel.edu.

Degree Requirements

The program is designed to prepare students for careers in environmental science, environmental assessment, marine science, basic and applied ecology, biodiversity, evolutionary biology, and conservation and paleontology. The requirements for specific concentrations in Biodiversity and Evolution, Earth Science, and Ecology and Conservation, as well as Environmental Science, follow the list of degree requirements.

Degree Requirements

Humanities and Social Science

| | | |
|-------------------------------------|---|-----|
| CIVC 101 | Introduction to Civic Engagement | 1.0 |
| COM 230 | Techniques of Speaking | 3.0 |
| COM 310 [WI] | Technical Communication | 3.0 |
| COOP 101 | Career Management and Professional Development * | 1.0 |
| ENGL 101 | Composition and Rhetoric I: Inquiry and Exploratory Research | 3.0 |
| or ENGL 111 | English Composition I | |
| ENGL 102 | Composition and Rhetoric II: Advanced Research and Evidence-Based Writing | 3.0 |
| or ENGL 112 | English Composition II | |
| ENGL 103 | Composition and Rhetoric III: Themes and Genres | 3.0 |
| or ENGL 113 | English Composition III | |
| PHIL 340 | Environmental Ethics | 3.0 |
| or PHIL 341 | Environmental Philosophy | |
| Humanities/Social Science electives | | 6.0 |
| UNIV S101 | The Drexel Experience | 1.0 |
| UNIV S201 | Looking Forward: Academics and Careers | 1.0 |

Mathematics, Statistics & Computing

21.0

Select one of the following sequences:

Calculus sequence

| | |
|----------|--------------|
| MATH 121 | Calculus I |
| MATH 122 | Calculus II |
| MATH 123 | Calculus III |

Analysis sequence

| | |
|----------|-----------------------------------|
| MATH 101 | Introduction to Analysis I |
| MATH 102 | Introduction to Analysis II |
| MATH 239 | Mathematics for the Life Sciences |

Additional required math & computing courses:

| | |
|----------|-----------------------------|
| MATH 410 | Scientific Data Analysis I |
| MATH 411 | Scientific Data Analysis II |
| CS 171 | Computer Programming I |

Physical Sciences

| | | |
|--------------------------------------|---|---------|
| CHEM 101 | General Chemistry I | 3.5 |
| CHEM 102 | General Chemistry II | 4.5 |
| CHEM 103 | General Chemistry III | 4.5 |
| Choose two chemistry electives from: | | 5.0-7.0 |
| CHEM 241 | Organic Chemistry I | |
| ENVS 302 | Environmental Chemistry Laboratory | |
| ENVS 310 | Introduction to Environmental Chemistry | |
| Physics sequence | | |
| PHYS 152 | Introductory Physics I | 4.0 |
| PHYS 153 | Introductory Physics II | 4.0 |

| | | |
|---|--|-----------|
| PHYS 154 | Introductory Physics III | 4.0 |
| Biological Sciences | | |
| BIO 131 | Cells and Biomolecules | 4.0 |
| BIO 132 | Genetics and Evolution | 4.0 |
| BIO 133 | Physiology and Ecology | 4.0 |
| BIO 134 | Cells and Biomolecules Lab | 1.0 |
| BIO 135 | Genetics and Evolution Lab | 1.0 |
| BIO 136 | Anatomy and Ecology Lab | 1.0 |
| Geoscience Requirements | | |
| GEO 101 | Physical Geology | 4.0 |
| GEO 103 | Introduction to Field Methods in Earth Science | 2.0 |
| GEO 201 [WI] | Earth Systems Processes | 3.0 |
| Environmental Science Core Requirements | | |
| ENVS 101 | Introduction to Environmental Science | 5.0 |
| ENVS 102 | Natural History, Research and Collections | 2.0 |
| ENVS 201 | Practical Identification of Plants and Animals | 2.0 |
| ENVS 212 | Evolution | 4.0 |
| ENVS 284 | Physiological and Population Ecology | 3.0 |
| ENVS 286 | Community and Ecosystem Ecology | 3.0 |
| ENVS 308 | GIS and Environmental Modeling | 3.0 |
| ENVS 441 [WI] | Issues in Global Change I: Seminar | 2.0 |
| ENVS 442 | Issues in Global Change II: Research | 2.0 |
| ENVS 443 | Issues in Global Change III: Synthesis | 2.0 |
| Choose one of the following: | | 3.0-4.0 |
| ENSS 283 | Introduction to Environmental Policy | |
| ENSS 326 | Cities and Sustainability | |
| ENSS 348 | Delaware River Issues and Policy | |
| PSCI 284 | Environmental Politics | |
| Environmental Science Lab Requirements | | |
| BIO 222 | Microbiology Laboratory | 2.0 |
| BIO 225 | Vertebrate Biology and Evolution Laboratory | |
| BIO 257 | Vertebrate Morphology & Physiology Lab | |
| ENVS 323 | Tropical Field Studies | |
| ENVS 327 | Molecular Ecology Laboratory | |
| ENVS 353 | Field Ornithology Lab | |
| ENVS 382 | Field Botany of the New Jersey Pine Barrens | |
| ENVS 383 | Ecology of the New Jersey Pine Barrens | |
| ENVS 387 | Restoration Ecology | |
| ENVS 388 | Marine Field Methods | |
| ENVS 394 | Entomology Laboratory | |
| Environmental Concentration Requirements | | |
| See list of concentration requirements below. | | 14.0-15.0 |
| Environmental Electives ** | | |
| 12.0 | | |
| BIO 221 | Microbiology | |
| BIO 224 | Form, Function & Evolution of Vertebrates | |
| BIO 256 | Vertebrate Morphology and Physiology | |
| BIO 436 | Population Genetics | |
| GEO 205 | Dinosaurs and Their World | |
| GEO 207 | Introduction to Oceanography | |
| GEO 215 | Mineralogy | |
| GEO 301 | Advanced Field Methods in Earth Science | |
| GEO 306 | Environmental Geology | |
| GEO 309 | Geochemistry | |
| GEO 312 | Sedimentology and Stratigraphy | |
| GEO 320 | Invertebrate Paleobiology and Paleoecology | |
| GEO 322 | Vertebrate Paleontology | |
| GEO 325 | Structural Geology | |
| GEO 342 | Geomorphology | |
| GEO 346 | Coastal Geology | |
| GEO 348 | Oceanography | |
| GEO 350 | Volcanology | |
| GEO 375 | Field Camp | |

| | |
|-----------------------|--|
| GEO 401 | Igneous and Metamorphic Petrology |
| GEO 412 | Geology of Groundwater |
| GEO 418 | Geophysics |
| GEO 444 | Plate Tectonics |
| ENSS 244 | Sociology of the Environment |
| ENSS 283 | Introduction to Environmental Policy |
| ENSS 285 | Introduction to Urban Planning |
| ENSS 326 | Cities and Sustainability |
| ENSS 341 | Environmental Movements in America |
| ENSS 346 | Environmental Justice |
| ENSS 348 | Delaware River Issues and Policy |
| ENVS 247 | Native Plants and Sustainability |
| ENVS 275 | Global Climate Change |
| ENVS 289 | Global Warming, Biodiversity and Your Future |
| ENVS 304 | Energy and the Environment: Iceland |
| ENVS 312 | Systematic Biology |
| ENVS 315 | Plant Animal Interactions |
| ENVS 322 | Tropical Ecology |
| ENVS 326 | Molecular Ecology |
| ENVS 328 | Conservation Biology |
| ENVS 330 | Aquatic Ecology |
| ENVS 333 | Wetland Ecology |
| ENVS 335 | Aquatic Insects and Water Quality |
| ENVS 352 | Ornithology |
| ENVS 354 | Ichthyology |
| ENVS 355 | Biogeography |
| ENVS 362 | Urban Ecology |
| ENVS 364 | Animal Behavior |
| ENVS 372 | Environmental Assessment |
| ENVS 376 | Environmental and Ecological Remediation |
| ENVS 382 | Field Botany of the New Jersey Pine Barrens |
| ENVS 383 | Ecology of the New Jersey Pine Barrens |
| ENVS 385 | Systems Ecology |
| ENVS 387 | Restoration Ecology |
| ENVS 388 | Marine Field Methods |
| ENVS 390 | Marine Ecology |
| ENVS 391 | Freshwater and Marine Algae |
| ENVS 393 | Entomology |
| ENVS 401 | Chemistry of the Environment |
| ENVS 405 | Atmospheric Chemistry |
| ENVS 410 | Physiological Ecology |
| ENVS 415 | Advanced Environmental GIS |
| ENVS 418 | Coastal Biogeochemistry |
| ENVS 438 | Biodiversity |
| ENVS 470 | Advanced Topics in Evolution |
| Free Electives | 24.0 |
| Total Credits | 185.5-189.5 |

- * Students not participating in co-op will not take COOP 101; 1.0 credit of Free Elective will be added in place of COOP 101. Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major. COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.
- ** Up to two GEO or ENSS courses may count as ENVS electives.

Environmental Science Concentrations

Ecology & Evolution Concentration

14.0-15.0

Choose 5 from below:

| | |
|----------|----------------------|
| ENVS 202 | Tree of Life |
| ENVS 312 | Systematic Biology |
| ENVS 328 | Conservation Biology |

| | |
|----------|------------------------------|
| ENVS 470 | Advanced Topics in Evolution |
| BIO 244 | Genetics I |
| BIO 436 | Population Genetics |

Total Credits **14.0-15.0**

Applied Environmental Science Concentration **14.0-15.0**

Required Courses

| | |
|----------------------|--|
| ENVS 203 | The Watershed Approach |
| ENVS 275 | Global Climate Change |
| ENVS 372 | Environmental Assessment |
| Choose 2 from below: | |
| ENVS 376 | Environmental and Ecological Remediation |
| ENVS 401 | Chemistry of the Environment |
| GEO 306 | Environmental Geology |

Total Credits **14.0-15.0**

Notes about Environmental Science opportunities:

- Field experience electives include quantitative environmental measurements in local aquatic and terrestrial habitats, such as streams, lakes, the Delaware Bay, the Poconos, and the New Jersey Pine Barrens (for example, Field Botany: NJ Pine Barrens; Ecology of the Pine Barrens; Marine Field Methods).
- Students are required to consult frequently with their academic advisors for curriculum planning. Many of the graduate courses in environmental science are also open to qualified seniors who wish to become familiar with some of the applications in the field. Prerequisites and descriptions of available graduate courses appear in the graduate catalog.
- The Equatorial Guinea: Bioko Island Study Abroad Program offers a unique opportunity for undergraduates and recent graduates to study tropical biodiversity and its conservation, with an emphasis on field work that takes advantage of Bioko Island's pristine rainforests ranging from sea level to over 10,000 feet in altitude, its seven species of rare monkeys, and its four species of nesting sea turtles. For more information, please visit the Drexel Study Abroad Office (<http://www.drexel.edu/studyabroad/>).

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

The plan of study below is a generic plan, suited for all four concentrations. Contact the program advisor for additional details.

4 Year, No co-op

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|---------------------|---------------------|----------------|----------|
| CHEM 101 | 3.5 ENVS 102 | 2.0 BIO 133 | 4.0 VACATION | |
| ENGL 101 or 111 | 3.0 BIO 132 | 4.0 BIO 136 | 1.0 | |
| ENVS 101 | 5.0 BIO 135 | 1.0 CHEM 103 | 4.5 | |
| MATH 101 or 121 | 4.0 CHEM 102 | 4.5 GEO 103 | 2.0 | |
| UNIV S101 | 1.0 ENGL 102 or 112 | 3.0 MATH 239 or 123 | 4.0 | |
| | MATH 102 or 122 | 4.0 | | |
| | 16.5 | 18.5 | 15.5 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|--------------------------|---------------------|----------------|---------|
| BIO 131 | 4.0 CS 171 | 3.0 ENVS 212 | 4.0 VACATION | |
| BIO 134 | 1.0 ENVS 286 | 3.0 GEO 101 | 4.0 | |
| ENGL 103 or 113 | 3.0 GEO 201 | 3.0 PHYS 152 | 4.0 | |
| ENVS 201 | 2.0 Concentration Course | 3.0 PHIL 340 or 341 | 3.0 | |

| | | | | |
|----------|-------------------|--------------------------|--------------|----------|
| ENVS 284 | 3.0 Free Elective | 4.0 Concentration Course | 2.0-3.0 | |
| CIVC 101 | 1.0 | | | |
| | 14 | 16 | 17-18 | 0 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|---------------|---|--------------------------|----------------|----------|
| COM 230 | 3.0 MATH 410 | 3.0 MATH 411 | 3.0 VACATION | |
| ENVS 308 | 3.0 PHYS 154 | 4.0 Concentration Course | 3.0 | |
| PHYS 153 | 4.0 Concentration Course | 3.0 ENV CHEM Elective | 2.0-3.0 | |
| UNIV S201 | 1.0 CHEM Elective | 3.0-4.0 ENSS Elective | 3.0-4.0 | |
| ENVS Elective | 3.0 Humanities/Social Science Elective | 3.0 Free Elective | 3.0 | |
| Free Elective | 3.0 | | | |
| | 17 | 16-17 | 14-16 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits |
|--|--|---|-----------|
| COM 310 | 3.0 ENVS 442 | 2.0 ENVS 443 | 2.0 |
| ENVS 441 | 2.0 Environmental Science (ENVS) Elective | 3.0 Environmental Science (ENVS) Electives | 6.0 |
| Concentration Course | 3.0 Humanities/Social Science Elective | 3.0 Free Electives | 6.0 |
| Environmental Science (ENVS) Lab Elective | 2.0 Free Electives | 6.0 | |
| Free Elective | 3.0 | | |
| | 13 | 14 | 14 |

Total Credits 185.5-189.5

4 Year, 1 co-op**First Year**

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|---------------------|---------------------|----------------|----------|
| CHEM 101 | 3.5 BIO 132 | 4.0 BIO 133 | 4.0 VACATION | |
| ENGL 101 or 111 | 3.0 BIO 135 | 1.0 BIO 136 | 1.0 | |
| ENVS 101 | 5.0 CHEM 102 | 4.5 CHEM 103 | 4.5 | |
| MATH 101 or 121 | 4.0 CIVC 101 | 1.0 COOP 101 | 1.0 | |
| UNIV S101 | 1.0 ENGL 102 or 112 | 3.0 GEO 103 | 2.0 | |
| | MATH 102 or 122 | 4.0 MATH 239 or 123 | 4.0 | |
| | 16.5 | 17.5 | 16.5 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|--------------------------|--------------------------|-----------------------|-----------|
| BIO 131 | 4.0 CS 171 | 3.0 ENVS 212 | 4.0 COM 230 | 3.0 |
| BIO 134 | 1.0 ENVS 286 | 3.0 GEO 101 | 4.0 ENVS 308 | 3.0 |
| ENGL 103 or 113 | 3.0 GEO 201 | 3.0 PHYS 152 | 4.0 PHYS 153 | 4.0 |
| ENVS 102 | 2.0 Concentration Course | 3.0 PHIL 340 or 341 | 3.0 UNIV S201 | 1.0 |
| ENVS 201 | 2.0 Free Elective | 3.0 Concentration Course | 2.0-3.0 ENVS Elective | 3.0 |
| ENVS 284 | 3.0 | | Free Elective | 3.0 |
| | 15 | 15 | 17-18 | 17 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|---------------------------------------|--------------------------|---------------------|-----------------|----------|
| MATH 410 | 3.0 MATH 411 | 3.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| PHYS 154 | 4.0 Concentration Course | 3.0 | | |
| Concentration Course | 3.0 ENV CHEM Elective | 2.0-3.0 | | |
| CHEM Elective | 3.0-4.0 ENSS Elective | 3.0-4.0 | | |
| Humanities/Social Science Elective | 3.0 Free Elective | 3.0 | | |
| | 16-17 | 14-16 | 0 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits |
|----------------------|--|---|---------|
| COM 310 | 3.0 ENVS 442 | 2.0 ENVS 443 | 2.0 |
| ENVS 441 | 2.0 Environmental Science (ENVS) Elective | 3.0 Environmental Science (ENVS) Electives | 6.0 |
| Concentration Course | 3.0 Humanities/Social Science Elective | 3.0 Free Electives | 6.0 |

| | | | |
|--|--------------------|-----------|-----------|
| Environmental Science (ENVS) Lab Elective | 2.0 Free Electives | 6.0 | |
| Free Elective | 3.0 | | |
| | 13 | 14 | 14 |

Total Credits 185.5-189.5

5 Year, 3 Co-ops

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|---------------------|---------------------|----------------|----------|
| CHEM 101 | 3.5 ENGL 102 or 112 | 3.0 BIO 133 | 4.0 VACATION | |
| ENGL 101 or 111 | 3.0 BIO 132 | 4.0 BIO 136 | 1.0 | |
| ENVS 101 | 5.0 BIO 135 | 1.0 CHEM 103 | 4.5 | |
| MATH 101 or 121 | 4.0 CHEM 102 | 4.5 COOP 101 | 1.0 | |
| UNIV S101 | 1.0 MATH 102 or 122 | 4.0 GEO 103 | 2.0 | |
| | CIVC 101 | 1.0 MATH 239 or 123 | 4.0 | |
| | 16.5 | 17.5 | 16.5 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|--------------------------|---------------------|-----------------|----------|
| BIO 131 | 4.0 CS 171 | 3.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| BIO 134 | 1.0 ENVS 286 | 3.0 | | |
| ENGL 103 or 113 | 3.0 GEO 201 | 3.0 | | |
| ENVS 102 | 2.0 Concentration Course | 3.0 | | |
| ENVS 201 | 2.0 Free Elective | 3.0 | | |
| ENVS 284 | 3.0 | | | |
| | 15 | 15 | 0 | 0 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|----------------------|-----------------------|---------------------|-----------------|----------|
| ENVS 212 | 4.0 COM 230 | 3.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| GEO 101 | 4.0 ENVS 308 | 3.0 | | |
| PHIL 340 or 341 | 3.0 PHYS 153 | 4.0 | | |
| PHYS 152 | 4.0 UNIV S201 | 1.0 | | |
| Concentration Course | 2.0-3.0 ENVS Elective | 3.0 | | |
| | Free Elective | 3.0 | | |
| | 17-18 | 17 | 0 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|---------------------------------------|--------------------------|---------------------|-----------------|----------|
| MATH 410 | 3.0 MATH 411 | 3.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| PHYS 154 | 4.0 Concentration Course | 3.0 | | |
| Concentration Course | 3.0 ENV CHEM Elective | 2.0-3.0 | | |
| CHEM Elective | 3.0-4.0 ENSS Elective | 3.0-4.0 | | |
| Humanities/Social Science Elective | 3.0 Free Elective | 3.0 | | |
| | 16-17 | 14-16 | 0 | 0 |

Fifth Year

| Fall | Credits Winter | Credits Spring | Credits |
|--|--|---|-----------|
| COM 310 | 3.0 ENVS 442 | 2.0 ENVS 443 | 2.0 |
| ENVS 441 | 2.0 Environmental Science (ENVS) Elective | 3.0 Environmental Science (ENVS) Electives | 6.0 |
| Concentration Course | 3.0 Humanities/Social Science Elective | 3.0 Free Electives | 6.0 |
| Environmental Science (ENVS) Lab Elective | 2.0 Free Electives | 6.0 | |
| Free Elective | 3.0 | | |
| | 13 | 14 | 14 |

Total Credits 185.5-189.5

* See degree requirements (p. 61).

Co-op/Career Opportunities

Environmental scientists pursue careers in environmental assessment, environmental health, ecology, conservation, marine science, and atmospheric science.

Co-op Opportunities

Co-op and research opportunities will be available with the scientists at the Academy of Natural Sciences (<http://www.anasp.org/>). In addition, recent co-op experiences have included:

CHPlanning, Center City Philadelphia
 Lakes Environmental Assn., Maine
 US Environmental Protection Agency, Center City Philadelphia
 Criterion Lab Inc, Philadelphia, PA Suburbs
 Philadelphia Water Department, Philadelphia
 Temple University, Philadelphia
 Fairway Testing Co., NYC
 University of Alaska, Fairbanks, Alaska
 Bioko Biodiversity Protection Program, Equatorial Guinea
 React Environmental Professional Services Group Inc., Philadelphia
 Air Management Services, Philadelphia
 Exelon Corporation, Philadelphia

Graduate Opportunities

Graduates in this major typically work for government environmental agencies, in environmental consulting firms, and in environmental departments of various industries. Additional training at the graduate level is an option for many students.

Visit the Drexel Steinbright Career Development Center (<http://www.drexel.edu/scdc/>) page for more detailed information on co-op and post-graduate opportunities.

Environmental Science Faculty

Jon Gelhaus, PhD (*University of Kansas*) *Curator, Department of Entomology; Academy of Natural Sciences*. Professor. Systematic expertise in crane flies (Tipuloidea); phylogenetic reconstruction; historical and ecological biogeography; biodiversity measures and evolution of morphological character systems.

Danielle Kreeger, PhD (*Oregon State University*). Research Associate Professor. Trophic interactions in aquatic ecosystems.

Stefanie Kroll, PhD (*SUNY College of Environmental Science and Forestry*) *Watershed Ecology Section Leader, Academy of Natural Sciences*. Assistant Research Professor. Aquatic macroinvertebrate ecology, bioindicators of human stressors on aquatic ecosystems, monitoring the effects of watershed conversation, management and restoration.

Marie J. Kurz, PhD (*University of Florida*) *Biogeochemistry Section Leader, Academy of Natural Sciences*. Assistant Research Professor. Interactions between geochemical, ecological & hydrologic processes in freshwater systems. Availability, transport and cycling of stream solutes; Stream ecosystem structure & function; Groundwater-surface water interactions; Adaptive management & restoration of water resources & aquatic ecosystems.

Tatyana Livshultz, PhD (*Cornell University*) *Assistant Curator of Botany*. Assistant Professor. Expertise of the milkweed and dogbane family (Apocynaceae); evolution and species diversity of the genus *Dischidia*; differences in floral form and function.

Amanda Lough, PhD (*Washington University in St. Louis*). Assistant Professor. Volcanic seismicity and the relation to magma plumbing systems; glacial seismicity and the seismicity of Antarctica; intraplate seismicity.

Richard McCourt, PhD (*University of Arizona*) *Curator of Botany, Academy of Natural Sciences of Drexel University; 2010-2012: Program Director, Division of Graduate Education, National Science Foundation*. Professor. Evolution, ecology, systematics of green algae..

Michael O'Connor, MD, PhD (*MD, Johns Hopkins University; PhD, Colorado State*). Professor. Biophysical and physiological ecology, thermoregulation of vertebrates, ecological modeling.

Sean O'Donnell, PhD (*University of Wisconsin-Madison*). Professor. Climate ecology, focusing on geographic variation and species differences in thermal physiology; Behavior and ecology of army ant/bird interactions; Neurobiology, focusing on brain plasticity and brain evolution in social insects.

Marina Potapova, PhD (*Russian Academy of Sciences*) *Associate Curator of Diatoms: Academy of Natural Sciences*. . Assistant Professor. Taxonomy, ecology, and biogeography of freshwater and coastal diatoms.

Gary Rosenberg, PhD (*Harvard University*) *Pilsbry Chair of Malacology*. Professor. Magnitude and origin of species-level diversity in the Mollusca. Biodiversity informatics

Jacob Russell, PhD (*University of Arizona*). Professor. Microbiomes and metagenomics; ecology and evolution of symbiosis.

Jocelyn A. Sessa, PhD (*Penn State University*) *Assistant Curator of Invertebrate Paleontology: Academy of Natural Sciences*. Assistant Professor. Paleocology; paleobiology; extinction recovery dynamics; climate change; isotope geochemistry; fossil and modern mollusks

David J. Velinsky, PhD (*Old Dominion University*) *Department Head, Biodiversity, Earth and Environmental Science*. Professor. Geochemical cycling of organic and inorganic constituents of sediments and waters; Sedimentary diagenesis of major and minor elements; Isotope biogeochemistry of carbon, nitrogen and sulfur in marine and freshwater systems.

Dane Ward, PhD (*Drexel University*). Assistant Teaching Professor. Urban agriculture and sustainability both in Philadelphia and Cienfuegos, Cuba, as well as insect community structure and population ecology of reptiles and amphibians in the New Jersey Pine Barrens.

Elizabeth B. Watson, PhD (*University of California, Berkeley*). Associate Professor. The implications of global and regional environmental change and unraveling the interacting effects of multiple anthropogenic stressors on coastal ecosystems to promote more informed management, conservation, and restoration.

Jason Weckstein, PhD (*Louisiana State University*) *Associate Curator of Ornithology*. Associate Professor. Avian phylogenetics, comparative biology and evolutionary history; biodiversity surveys of birds and their parasites and pathogens; coevolutionary history of birds and their parasites.

Emeritus Faculty

Susan S. Kilham, PhD (*Duke University*). Professor Emeritus. Aquatic ecology: phytoplankton; physiological ecology, especially of diatoms in freshwater and marine systems; large lakes; food webs; biogeochemistry.

John G. Lundberg, PhD (*University of Michigan*). Professor Emeritus. Diversity and diversification of fishes; documenting and interpreting the morphological, molecular, and taxonomic diversity of living and fossil fishes in the interrelated fields of systematic, faunistics and biogeography and paleobiology; exploration and collecting in poorly-known tropical freshwater habitats and regions.

Daniel Otte, PhD (*University of Michigan*) *Senior Curator, Systematics and Evolutionary Biology*. Professor Emeritus. Taxonomy and biogeography of Orthoptera (grasshoppers, crickets, katydids and their relatives).

James R. Spotila, PhD (*University of Arkansas*) *L. D. Betz Chair Professor*. Professor Emeritus. Physiological and biophysical ecology, thermoregulation of aquatic vertebrates, biology of sea turtles.

Environmental Studies and Sustainability

Major: Environmental Studies and Sustainability

Degree Awarded: Bachelor of Arts (BA)

Calendar Type: Quarter

Minimum Required Credits: 183.0

Co-op Options: Three Co-op (Five years); One Co-op (Four years); No Co-op (Four years)

Classification of Instructional Programs (CIP) code: 03.0103

Standard Occupational Classification (SOC) code: 19-2041

About the Program

The BA in Environmental Studies and Sustainability (ENSS) is administered in the Department of Biodiversity, Earth and Environmental Science (BEES). It is a multidisciplinary degree that takes advantage of existing courses in both the Arts and Sciences to educate graduates who will be able to work in government agencies, corporations, and nonprofit organizations who develop, implement, or are affected by environmental policies.

Objective

The objective of this major is to educate students so that they will be successful in finding solutions to environmental challenges that all societies will face in the 21st century. Graduates will be educated with the goal of thinking in terms of cross-cultural ideas and dialogue. In that way they will be encouraged to help people of all cultures understand environmental problems and act in the area of environmental stewardship.

The BA in Environmental Studies and Sustainability will provide graduates with a broad understanding of environmental science, policy development, needs of decision makers, attorneys and engineers, urban and international concerns, and current environmental issues. Important to any future position in fields of environmental policy, planning, and sustainability, the program builds on communication skills, collaboration abilities and team building, a "customer" orientation, creativity and innovative thinking ability, analytical ability, critical thinking and problem solving ability, a work orientation with professionalism and a positive attitude, occupation-specific skill and knowledge through co-op, and leadership ability. Students may opt to specialize in different study tracks including Policy, Government, and Business; Social Awareness and Action, and Scientific Inquiry.

Drexel Advantage

There is a distinct advantage to a student in undertaking an Environmental Studies and Sustainability degree at Drexel. Drexel University was one of the first universities in the nation to establish an undergraduate environmental science degree in the late 1960s. Since that time, Drexel has expanded to areas of environmental policy and sustainability. Over the long history of the program, Drexel has established an extensive network of co-op employers who value Drexel students, including federal and state governments, consulting firms, research institutions, non-profit organizations, and industry, with work ranging from biological field sampling to developing policy with governmental decision makers, action plans for non-profit organizations, or model environmental strategies with industrial sustainability offices. Drexel students take advantage of the co-op program to both get more extensive experience and get paid while doing so. By graduation, students' resumes include real-world experiences.

Degree Requirements

General Requirements

| | | |
|-------------|---|-----|
| CIVC 101 | Introduction to Civic Engagement | 1.0 |
| COOP 101 | Career Management and Professional Development * | 1.0 |
| ENGL 101 | Composition and Rhetoric I: Inquiry and Exploratory Research | 3.0 |
| or ENGL 111 | English Composition I | |
| ENGL 102 | Composition and Rhetoric II: Advanced Research and Evidence-Based Writing | 3.0 |
| or ENGL 112 | English Composition II | |
| ENGL 103 | Composition and Rhetoric III: Themes and Genres | 3.0 |
| or ENGL 113 | English Composition III | |
| MATH 101 | Introduction to Analysis I | 4.0 |
| MATH 107 | Probability and Statistics for Liberal Arts | 3.0 |
| UNIV S101 | The Drexel Experience | 1.0 |
| UNIV H201 | Looking Forward: Academics and Careers | 1.0 |

Social and Behavioral Sciences

| | | |
|--------------------------|------------------------------------|-----|
| SOC 101 | Introduction to Sociology | 3.0 |
| or ANTH 101 | Introduction to Cultural Diversity | |
| PSY 101 | General Psychology I | 3.0 |
| PSCI 110 | American Government | 4.0 |
| Social Behavior elective | | 3.0 |

Physical and Natural Sciences

| | | |
|--------------|--|-----|
| BIO 109 | Biological Diversity, Ecology & Evolution | 3.0 |
| BIO 110 | Biological Diversity, Ecology and Evolution Laboratory | 1.0 |
| ENVS 101 | Introduction to Environmental Science | 5.0 |
| ENVS 230 | General Ecology | 3.0 |
| ENSS 275 | Global Climate Change | 3.0 |
| or ENVS 289 | Global Warming, Biodiversity and Your Future | |
| GEO 201 [WI] | Earth Systems Processes | 3.0 |

Humanities and Fine Arts

| | | |
|----------------------------------|-----------------------------|-----|
| Humanities & Fine Arts Electives | | 6.0 |
| COM 317 [WI] | Environmental Communication | 3.0 |
| or COM 320 | Science Writing | |
| PHIL 340 | Environmental Ethics | 3.0 |
| or PHIL 341 | Environmental Philosophy | |

Diversity Electives

| | | |
|--|--|-----|
| | | 6.0 |
|--|--|-----|

International Studies

| | | |
|--|--|-----|
| | | 8.0 |
|--|--|-----|

Foreign Language

Students must complete at least 8 credits of a foreign language and, at minimum, must complete the 103 level of the target language (or beyond if they place higher).

ENSS Core Requirements

| | | |
|----------|---------------------------------------|-----|
| ECON 201 | Principles of Microeconomics | 4.0 |
| ECON 202 | Principles of Macroeconomics | 4.0 |
| ENSS 120 | Introduction to Environmental Studies | 3.0 |
| ENSS 244 | Sociology of the Environment | 4.0 |
| ENSS 283 | Introduction to Environmental Policy | 3.0 |
| ENSS 285 | Introduction to Urban Planning | 3.0 |
| ENSS 326 | Cities and Sustainability | 3.0 |
| ENSS 346 | Environmental Justice | 4.0 |
| ENVS 260 | Environmental Science and Society | 3.0 |
| PBHL 101 | Public Health 101 | 3.0 |
| PSCI 284 | Environmental Politics | 4.0 |

Modeling and Research

| | | |
|---|--|-------------|
| ENVS 308 | GIS and Environmental Modeling | 3.0 |
| SOC 241 | Research Design: Qualitative Methods | 4.0 |
| SOC 242 | Research Design: Quantitative Methods | 4.0 |
| Major Electives - choose from the list below | | 21.0 |
| CJS 373 | Environmental Crime | |
| COM 316 | Campaigns for Health & Environment | |
| COM 317 [WI] | Environmental Communication | |
| COM 318 | Film, Celebrity and the Environmental Movement | |
| COM 320 [WI] | Science Writing | |
| COM 375 [WI] | Grant Writing | |
| COM 376 | Nonprofit Communication | |
| ECON 301 | Microeconomics | |
| ECON 334 | Public Finance | |
| ECON 351 | Resource and Environmental Economics | |
| ENSS 348 | Delaware River Issues and Policy | |
| ENVS 286 | Community and Ecosystem Ecology | |
| ENVS 304 | Energy and the Environment: Iceland | |
| ENVS 310 | Introduction to Environmental Chemistry | |
| ENVS 323 | Tropical Field Studies | |
| ENVS 328 | Conservation Biology | |
| ENVS 330 | Aquatic Ecology | |
| ENVS 333 | Wetland Ecology | |
| ENVS 355 | Biogeography | |
| ENVS 362 | Urban Ecology | |
| ENVS 372 | Environmental Assessment | |
| ENVS 376 | Environmental and Ecological Remediation | |
| ENVS 383 | Ecology of the New Jersey Pine Barrens | |
| ENVS 387 | Restoration Ecology | |
| ENVS 390 | Marine Ecology | |
| ENVS 401 | Chemistry of the Environment | |
| ENVS 438 | Biodiversity | |
| GEO 111 | Natural Disasters | |
| GEO 207 | Introduction to Oceanography | |
| GEO 306 | Environmental Geology | |
| HIST 302 | The Study of Science, Technology, and Environment in History | |
| HIST 320 | Disaster in Global History | |
| HIST 321 | Themes in Global Environmental History | |
| HIST 322 | Empire and Environment | |
| HIST 323 | The History of Climate Change | |
| HIST 385 | Transnational History of Science, Technology and Environment | |
| PBHL 301 | Epidemiology in Public Health | |
| PBHL 303 | Overview of Issues in Global Health | |
| PBHL 304 | Introduction to Health & Human Rights | |
| PBHL 306 | Introduction to Community Health | |
| PBHL 314 | Environmental and Occupational Health | |
| PBHL 317 | The World's Water | |
| PHEV 145 | Weather I: Climate and Global Change | |
| PSCI 305 | Social Development: A Global Approach | |
| PSCI 334 | Politics of Environment and Health | |
| PSCI 369 | The Politics of Food | |
| PSY 352 | Psychology of Sustainability | |
| SOC 313 | Sociology of Global Health | |
| SOC 330 | Development and Underdevelopment in the Global South | |
| SOC 340 | Globalization | |
| SOC 349 | Sociology of Disasters | |
| SOC 355 [WI] | Classical Social Theory | |
| SOC 356 [WI] | Contemporary Social Theory | |
| SOC 364 | Computer-Assisted Data Analysis | |
| SOC 444 | Social Movements | |
| Senior Sequence | | |
| ENVS 441 [WI] | Issues in Global Change I: Seminar | 2.0 |
| ENVS 442 | Issues in Global Change II: Research | 2.0 |

| | | |
|----------------------|--|--------------|
| ENVS 443 | Issues in Global Change III: Synthesis | 2.0 |
| Free Electives | | 24.0 |
| Total Credits | | 183.0 |

- * Students not participating in co-op will not take COOP 101; 1 credit of Free Elective will be added in place of COOP 101. Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major. COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

4 year, No co-op

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|---------------------|-------------------------|----------------|----------|
| ENGL 101 or 111 | 3.0 BIO 109 | 3.0 ENGL 103 or 113 | 3.0 VACATION | |
| ENSS 120 | 3.0 BIO 110 | 1.0 MATH 107 | 3.0 | |
| ENVS 101 | 5.0 CIVC 101 | 1.0 SOC 101 or ANTH 101 | 3.0 | |
| MATH 101 | 4.0 ENGL 102 or 112 | 3.0 Foreign Language | 4.0 | |
| UNIV S101 | 1.0 PSY 101 | 3.0 Free elective | 4.0 | |
| | Foreign Language | 4.0 | | |
| | 16 | 15 | 17 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|----------|--------------------------|-------------------|----------------|----------|
| ENSS 283 | 3.0 ENSS 244 | 4.0 COM 317 | 3.0 VACATION | |
| ENVS 260 | 3.0 ENSS 275 or ENVS 289 | 3.0 ECON 201 | 4.0 | |
| PBHL 101 | 3.0 ENVS 230 | 3.0 ENSS 285 | 3.0 | |
| PSCI 110 | 4.0 ENVS 308 | 3.0 UNIV H201 | 1.0 | |
| | Free Elective | 3.0 Free Elective | 3.0 | |
| | 13 | 16 | 14 | 0 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-------------------------------|-----------------------------------|------------------------|----------------|----------|
| ECON 202 | 4.0 PHIL 340 or 341 | 3.0 ENSS 326 | 3.0 VACATION | |
| GEO 201 | 3.0 SOC 241 | 4.0 SOC 242 | 4.0 | |
| PSCI 284 | 4.0 Major Elective | 3.0 Major Electives | 6.0 | |
| Major Elective | 3.0 Free Elective | 3.0 Diversity Elective | 3.0 | |
| Humanities/Fine Arts Elective | 3.0 Humanities/Fine Arts Elective | 3.0 | | |
| | 17 | 16 | 16 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits |
|-----------------------|----------------------------|----------------------------|---------|
| ENSS 346 | 4.0 ENVS 442 | 2.0 ENVS 443 | 2.0 |
| ENVS 441 | 2.0 Major Elective | 3.0 Major Elective | 3.0 |
| Major Elective | 3.0 Diversity Elective | 3.0 International Elective | 3.0 |
| SOC/Behavior Elective | 3.0 International Elective | 3.0 Free Electives | 6.0 |

| | | | |
|---------------|-------------------|-----------|-----------|
| Free Elective | 3.0 Free Elective | 3.0 | |
| | 15 | 14 | 14 |

Total Credits 183

4 year, 1 co-op

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|---------------------|-------------------------|----------------|----------|
| ENGL 101 or 111 | 3.0 BIO 109 | 3.0 COOP 101 | 1.0 VACATION | |
| ENSS 120 | 3.0 BIO 110 | 1.0 ENGL 103 or 113 | 3.0 | |
| ENVS 101 | 5.0 CIVC 101 | 1.0 MATH 107 | 3.0 | |
| MATH 101 | 4.0 ENGL 102 or 112 | 3.0 SOC 101 or ANTH 101 | 3.0 | |
| UNIV S101 | 1.0 PSY 101 | 3.0 Foreign Language | 4.0 | |
| | Foreign Language | 4.0 Free Elective | 3.0 | |
| | 16 | 15 | 17 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|----------|---------------------|-------------------|--------------------------------------|-----------|
| ENSS 283 | 3.0 ENSS 244 | 4.0 COM 317 | 3.0 ECON 202 | 4.0 |
| ENVS 260 | 3.0 ENVS 230 | 3.0 ECON 201 | 4.0 GEO 201 | 3.0 |
| PBHL 101 | 3.0 ENVS 275 or 289 | 3.0 ENSS 285 | 3.0 PSCI 284 | 4.0 |
| PSCI 110 | 4.0 ENVS 308 | 3.0 UNIV H201 | 1.0 Major Elective | 3.0 |
| | Free Elective | 3.0 Free Elective | 3.0 Humanities/Fine Arts Elective | 3.0 |
| | 13 | 16 | 14 | 17 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|----------------------------------|------------------------|---------------------|-----------------|----------|
| PHIL 340 or 341 | 3.0 ENSS 326 | 3.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| SOC 241 | 4.0 SOC 242 | 4.0 | | |
| Major Elective | 3.0 Major Electives | 6.0 | | |
| Humanities/Fine Arts Elective | 3.0 Diversity Elective | 3.0 | | |
| Free Elective | 3.0 | | | |
| | 16 | 16 | 0 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits |
|-----------------------|----------------------------|----------------------------|-----------|
| ENSS 346 | 4.0 ENVS 442 | 2.0 ENVS 443 | 2.0 |
| ENVS 441 | 2.0 Major Elective | 3.0 Major Elective | 3.0 |
| Major Elective | 3.0 Diversity Elective | 3.0 International Elective | 3.0 |
| SOC/Behavior Elective | 3.0 International Elective | 3.0 Free Electives | 6.0 |
| Free Elective | 3.0 Free Elective | 3.0 | |
| | 15 | 14 | 14 |

Total Credits 183

5 year, 3 co-op

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|---------------------|-------------------------|----------------|----------|
| ENGL 101 or 111 | 3.0 BIO 109 | 3.0 COOP 101 | 1.0 VACATION | |
| ENSS 120 | 3.0 BIO 110 | 1.0 ENGL 103 or 113 | 3.0 | |
| ENVS 101 | 5.0 CIVC 101 | 1.0 MATH 107 | 3.0 | |
| MATH 101 | 4.0 ENGL 102 or 112 | 3.0 SOC 101 or ANTH 101 | 3.0 | |
| UNIV S101 | 1.0 PSY 101 | 3.0 Foreign Language | 4.0 | |
| | Foreign Language | 4.0 Free elective | 3.0 | |
| | 16 | 15 | 17 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|----------|--------------------------|---------------------|-----------------|----------|
| ENSS 283 | 3.0 ENSS 244 | 4.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| ENVS 260 | 3.0 ENSS 275 or ENVS 289 | 3.0 | | |
| PBHL 101 | 3.0 ENVS 230 | 3.0 | | |
| PSCI 110 | 4.0 ENVS 308 | 3.0 | | |
| | Free Elective | 3.0 | | |
| | 13 | 16 | 0 | 0 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|---------------|-----------------------------------|---------------------|-----------------|----------|
| COM 317 | 3.0 ECON 202 | 4.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| ECON 201 | 4.0 GEO 201 | 3.0 | | |
| ENSS 285 | 3.0 PSCI 284 | 4.0 | | |
| UNIV H201 | 1.0 Major Elective | 3.0 | | |
| Free Elective | 3.0 Humanities/Fine Arts Elective | 3.0 | | |
| | 14 | 17 | 0 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-------------------------------|------------------------|---------------------|-----------------|----------|
| PHIL 340 or 341 | 3.0 ENSS 326 | 3.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| SOC 241 | 4.0 SOC 242 | 4.0 | | |
| Major Elective | 3.0 Major Electives | 6.0 | | |
| Humanities/Fine Arts Elective | 3.0 Diversity Elective | 3.0 | | |
| Free Elective | 3.0 | | | |
| | 16 | 16 | 0 | 0 |

Fifth Year

| Fall | Credits Winter | Credits Spring | Credits |
|-----------------------|----------------------------|----------------------------|-----------|
| ENSS 346 | 4.0 ENVS 442 | 2.0 ENVS 443 | 2.0 |
| ENVS 441 | 2.0 Major Elective | 3.0 Major Elective | 3.0 |
| Major Elective | 3.0 Diversity Elective | 3.0 International Elective | 3.0 |
| SOC/Behavior Elective | 3.0 International Elective | 3.0 Free Electives | 6.0 |
| Free Elective | 3.0 Free Elective | 3.0 | |
| | 15 | 14 | 14 |

Total Credits 183

Career Opportunities

The largest job opportunities exist in the areas of environmental communication, sustainability, environmental policy, community action, water quality, parks and outdoor recreation, ecotourism, natural resources and conservation, international environmental policy, renewable energy, and climate change.

This major will educate individuals who seek careers and/or additional academic training in the following fields:

- Sustainability planning and implementation
- Urban, regional, and community planning
- Geographic information systems
- Environmental communications
- Environmental journalism
- Environmental law
- Park management and outdoor recreation
- Environmental consulting
- Environmental policy analysis
- Natural resource management

Environmental Studies and Sustainability Faculty

Mariangeles Arce H., PhD (*Pontificia Universidade Católica do Rio Grande do Sul*) *Collections Manager at the Academy of Natural Sciences*. Adjunct Professor. Biodiversity and evolution. Phylogenetics, taxonomy, molecular and morphological studies of Neotropical freshwater fishes. Global warming and conservation efforts.

Richardson Dilworth, PhD (*Johns Hopkins University*) *Director, Center for Public Policy*. Professor. American political development, urban politics, public policy.

Erin R. Graham, PhD (*Ohio State University*). Associate Professor. International institutions, international relations theory, global environmental politics.

Amanda McMillan Lequieu, PhD (*University of Wisconsin-Madison*). Assistant Professor. Environmental sociology, political economy, place and space, rural-urban interface, qualitative and historical methodologies.

Gwen Ottinger, PhD (*University of California, Berkeley*). Associate Professor. Social studies of science and technology, environmental justice, environmental political theory, citizen science, science and engineering ethics.

Jaclyn Rhoads, PhD (*Drexel University*) *Assistant Executive Director at Pinelands Preservation Alliance*. Lead on environmental policy and lobbying, sustainability planning and development, and watershed restoration and climate resilience.

Alexis Schulman, PhD (*Massachusetts Institute of Technology*) *Director of the Environmental Studies and Sustainability Program*. Assistant Research Professor. Environmental policy and politics; urban planning; sustainability and resilience transitions; local knowledge and community science

Diane Sicotte, PhD (*Arizona State University*). Associate Professor. Sociology of environmental justice; inequalities in the citing of environmental hazards; community-based research in neighborhoods dealing with industrial hazards; sociology of the environment; urban sociology; social inequalities.

Andrew Smith, PhD (*SUNY, Stony Brook*). Associate Professor. Philosophy, social and political philosophy, American philosophy.

Dane Ward, PhD (*Drexel University*). Assistant Teaching Professor. Urban agriculture and sustainability both in Philadelphia and Cienfuegos, Cuba, as well as insect community structure and population ecology of reptiles and amphibians in the New Jersey Pine Barrens.

Elizabeth B. Watson, PhD (*University of California, Berkeley*). Associate Professor. The implications of global and regional environmental change and unraveling the interacting effects of multiple anthropogenic stressors on coastal ecosystems to promote more informed management, conservation, and restoration.

Jason Weckstein, PhD (*Louisiana State University*) *Associate Curator of Ornithology*. Associate Professor. Avian phylogenetics, comparative biology and evolutionary history; biodiversity surveys of birds and their parasites and pathogens; coevolutionary history of birds and their parasites.

Geoscience

Major: Geoscience

Degree Awarded: Bachelor of Science (BS)

Calendar Type: Quarter

Minimum Required Credits: 182.5

Co-op Options: Three Co-op (Five years)

Classification of Instructional Programs (CIP) code: 40.0699

Standard Occupational Classification (SOC) code: 11-9121

About the Program

From energy to climate change to environmental degradation, many of the most pressing societal issues of the coming century will pertain to geoscience. The study of the Earth is central to maintaining clean drinking water, mitigating environmental contamination, providing ores and rare elements necessary for industry, and locating new sources of energy.

The Biodiversity, Earth and Environmental Science (BEES) Department offers a major in geoscience designed to meet the needs of students wishing to pursue graduate school or immediate employment in the geosciences.

The core requirements encompass foundational courses in science, writing, and math, and traditional courses that form the backbone of the geosciences. Building upon these are innovative courses focused on Earth systems processes, key environmental issues, practical field experiences, and advanced geological study.

In addition to nourishing and honing the passions of students studying the Earth, the core curriculum is designed to:

- Instill key technical skills early on as a pathway to high-quality co-op opportunities
- Lay the groundwork for our students to pursue advanced graduate study in the geosciences and other disciplines
- Enable our graduates to translate marketable skills and knowledge into high-quality jobs in industry and government

Geoscience majors will begin their field experiences during the first term of their freshmen year. Most courses include a laboratory section or a hands-on recitation section ("dry lab"), plus at least three field trips to relevant regional geological sites. These courses, combined with the co-op experience and summer geological field camp, provide students real-world experience in the field.

Additional Information

For more information about this program, visit the Biodiversity, Earth and Environmental Science (BEES) Department website.

Degree Requirements

General Education Requirements

| | | |
|----------|----------------------------------|-----|
| CIVC 101 | Introduction to Civic Engagement | 1.0 |
| COM 230 | Techniques of Speaking | 3.0 |

| | | |
|--|---|------|
| COM 310 [WI] | Technical Communication | 3.0 |
| COOP 101 | Career Management and Professional Development * | 1.0 |
| ENGL 101 or ENGL 111 | Composition and Rhetoric I: Inquiry and Exploratory Research English Composition I | 3.0 |
| ENGL 102 or ENGL 112 | Composition and Rhetoric II: Advanced Research and Evidence-Based Writing English Composition II | 3.0 |
| ENGL 103 or ENGL 113 | Composition and Rhetoric III: Themes and Genres English Composition III | 3.0 |
| PHIL 340 or PHIL 341 | Environmental Ethics Environmental Philosophy | 3.0 |
| UNIV S101 | The Drexel Experience | 1.0 |
| UNIV S201 | Looking Forward: Academics and Careers | 1.0 |
| Humanities or Social Science electives | | 6.0 |
| Free electives | | 24.0 |
| Mathematics and Statistics | | |
| MATH 121 | Calculus I | 4.0 |
| MATH 122 | Calculus II | 4.0 |
| MATH 123 | Calculus III | 4.0 |
| MATH 410 | Scientific Data Analysis I | 3.0 |
| MATH 411 | Scientific Data Analysis II | 3.0 |
| Computer Science | | |
| CS 150 | Computer Science Principles | 3.0 |
| CS 171 | Computer Programming I | 3.0 |
| Physical Sciences | | |
| CHEM 101 | General Chemistry I | 3.5 |
| CHEM 102 | General Chemistry II | 4.5 |
| CHEM 103 | General Chemistry III | 4.5 |
| Complete one of the following Physics sequences: | | 12.0 |
| PHYS 101 & PHYS 102 & PHYS 201 | Fundamentals of Physics I and Fundamentals of Physics II and Fundamentals of Physics III | |
| PHYS 152 & PHYS 153 & PHYS 154 | Introductory Physics I and Introductory Physics II and Introductory Physics III | |
| Environmental Science | | |
| ENVS 101 | Introduction to Environmental Science | 5.0 |
| ENVS 102 | Natural History, Research and Collections | 2.0 |
| ENVS 441 [WI] | Issues in Global Change I: Seminar | 2.0 |
| ENVS 442 | Issues in Global Change II: Research | 2.0 |
| ENVS 443 | Issues in Global Change III: Synthesis | 2.0 |
| Geoscience Core Courses | | |
| GEO 101 | Physical Geology | 4.0 |
| GEO 102 | History of the Earth | 4.0 |
| GEO 103 | Introduction to Field Methods in Earth Science | 2.0 |
| GEO 201 [WI] | Earth Systems Processes | 3.0 |
| GEO 215 | Mineralogy | 4.0 |
| GEO 301 | Advanced Field Methods in Earth Science | 3.0 |
| GEO 309 | Geochemistry | 4.0 |
| GEO 312 | Sedimentology and Stratigraphy | 3.5 |
| GEO 320 | Invertebrate Paleobiology and Paleoeology | 3.5 |
| GEO 325 | Structural Geology | 5.0 |
| GEO 401 | Igneous and Metamorphic Petrology | 5.0 |
| GEO 375 | Field Camp | 6.0 |
| GEO Electives | | |
| Select 22.0 credits from the list below: | | 22.0 |
| BIO 132 | Genetics and Evolution | |
| BIO 133 | Physiology and Ecology | |
| BIO 135 | Genetics and Evolution Lab | |
| BIO 136 | Anatomy and Ecology Lab | |
| BIO 224 | Form, Function & Evolution of Vertebrates | |
| BIO 225 | Vertebrate Biology and Evolution Laboratory | |
| BIO 256 | Vertebrate Morphology and Physiology | |

| | |
|--------------|--|
| BIO 257 | Vertebrate Morphology & Physiology Lab |
| COM 317 [WI] | Environmental Communication |
| ENVS 202 | Tree of Life |
| ENVS 212 | Evolution |
| ENVS 254 | Invertebrate Morphology and Physiology |
| ENVS 255 | Invertebrate Morphology and Physiology Lab |
| ENVS 275 | Global Climate Change |
| ENVS 302 | Environmental Chemistry Laboratory |
| ENVS 308 | GIS and Environmental Modeling |
| ENVS 310 | Introduction to Environmental Chemistry |
| ENVS 312 | Systematic Biology |
| ENVS 355 | Biogeography |
| ENVS 401 | Chemistry of the Environment |
| ENVS 405 | Atmospheric Chemistry |
| ENVS 418 | Coastal Biogeochemistry |
| ENVS 470 | Advanced Topics in Evolution |
| HIST 320 | Disaster in Global History |
| GEO 207 | Introduction to Oceanography |
| GEO 306 | Environmental Geology |
| GEO 322 | Vertebrate Paleontology |
| GEO 342 | Geomorphology |
| GEO 346 | Coastal Geology |
| GEO 348 | Oceanography |
| GEO 350 | Volcanology |
| GEO 412 | Geology of Groundwater |
| GEO 418 | Geophysics |
| GEO 444 | Plate Tectonics |
| PHEV 145 | Weather I: Climate and Global Change |
| PHEV 146 | Weather II: Analysis and Forecasting |
| SOC 349 | Sociology of Disasters |

Total Credits

182.5

* Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

The sample plan of study is a general guideline that can be used for each of the three concentrations depending on course selections in certain terms.

5 year, 3 co-op

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|---------------------|---------------------|----------------|---------|
| ENGL 101 or 111 | 3.0 CHEM 101 | 3.5 CHEM 102 | 4.5 VACATION | |
| ENVS 101 | 5.0 CIVC 101 | 1.0 COOP 101 | 1.0 | |
| GEO 101 | 4.0 ENGL 102 or 112 | 3.0 ENGL 103 or 113 | 3.0 | |

| | | | | |
|---------------------------------------|---|-----------------------|-----------------------|----------------|
| MATH 121 | 4.0 GEO 102 | 4.0 ENVS 102 | 2.0 | |
| UNIV S101 | 1.0 MATH 122 | 4.0 GEO 103 | 2.0 | |
| | | MATH 123 | 4.0 | |
| | 17 | 15.5 | 16.5 | 0 |
| Second Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| CHEM 103 or 101 | 4.5 COM 230 | 3.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| CS 150 | 3.0 CS 171 | 3.0 | | |
| PHYS 101 or 152 | 4.0 GEO 201 | 3.0 | | |
| GEO or Free elective | 3.0 PHYS 102 or 153 | 4.0 | | |
| | GEO or Free elective | 3.0 | | |
| | 14.5 | 16 | 0 | 0 |
| Third Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| GEO 312 | 3.5 GEO 215 | 4.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| MATH 410 | 3.0 MATH 411 | 3.0 | GEO 375 | 3.0 |
| PHYS 201 or 154 | 4.0 UNIV S201 | 1.0 | | |
| PHIL 340 or 341 | 3.0 GEO elective | 3.0 | | |
| | Free elective | 3.0 | | |
| | 13.5 | 14 | 0 | 3 |
| Fourth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| COM 310 | 3.0 GEO 309 | 4.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| GEO 320 | 3.5 GEO 325 | 5.0 | GEO 375 | 3.0 |
| GEO 401 | 5.0 Humanities/Social Science elective | 3.0 | | |
| Humanities/Social Science elective | 3.0 Free elective | 3.0 | | |
| | 14.5 | 15 | 0 | 3 |
| Fifth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits | |
| ENVS 441 | 2.0 ENVS 442 | 2.0 ENVS 443 | 2.0 | |
| GEO 301 | 3.0 GEO electives | 4.0 GEO electives | 6.0 | |
| GEO electives | 6.0 Free electives | 6.0 Free electives | 6.0 | |
| Free Elective | 3.0 | | | |
| | 14 | 12 | 14 | |

Total Credits 182.5

Co-Op/Career Opportunities

Co-Op Opportunities

There are over one hundred environmental, geophysical, and geotechnical firms within the greater Philadelphia region. Additionally, there are opportunities with federal, state, and municipal agencies, jobs in central Pennsylvania related to the Marcellus Shale, and research opportunities between Drexel and the Academy of Natural Sciences.

All geoscience majors follow the five-year, three co-op plan of study program. Transfer students may be granted an exception for a two co-op plan of study so that they may remain on schedule. The summer geological field camp will occur during the third co-op cycle. In this third co-op, geoscience students attend field camp and also partake in an abbreviated co-op work experience.

Career Opportunities

According to the US Bureau of Labor Statistics (BLS), employment for geoscientists through 2020 is expected to grow faster than the average for all occupations. In addition, the geosciences are expected to outpace life, physical, and social sciences in job creation. The employment outlook for geoscientists in Drexel's surrounding area is particularly bright, with a robust environmental consulting industry and exploding demand related to Marcellus Shale drilling.

The geoscience major, with its three concentrations, prepares students who are interested in entering the workforce immediately as well as those who are interested in pursuing related research in graduate schools.

Facilities and Field Sites

Facilities

The Geoscience major leverages resources at Drexel University and the Academy of Natural Sciences (<https://ansp.org/>) such as a mineral collection with 9,000 specimens, over a million fossil specimens, Dinosaur Hall, The Patrick Center for Environmental Research, a state-of-the-art fossil preparation lab, notable research programs, and faculty with expertise in geology, paleontology, and related disciplines.

Summer Geological Field Camp

Summer geological field camp is the quintessential undergraduate experience for geosciences students. It is a long-held tradition in geology departments that students head out West, during the summer before graduation, to apply their knowledge to real-world situations and to acquire field skills that will serve them throughout their careers. This is particularly important for students in eastern schools where the mountains are small and outcrops are scarce. Field camp also provides networking and bonding opportunities for students. Friends made at field camp often become colleagues for life. At the Geological Society of America meeting, reunions are organized by the university *and* by field camp.

The summer geological field camp for Geoscience students will occur during the third co-op cycle.

Barnegat Bay Coastal Field Station

The BEES field station on Barnegat Bay in Waretown, NJ provides Geoscience students with opportunities to engage in hands-on research in coastal geology, barrier island morphology, oceanography, and sedimentology. The facility includes a lodge, two classrooms/meeting rooms, dining hall, dormitories, and rustic cabins. The field station is located on 194 acres of diverse coastal habitat, including a maritime forest, tidal creek, salt marsh, fresh water pond, brackish impoundment, and bayshore environments. The department's research vessel gives students access to back-bay and near-shore marine environments.

The department holds its introductory field session for incoming freshmen and other events at the field station. The facility may also serve as a base for excursions into the Pine Barrens, a heavily forested area containing a number of interesting deposits related to the last glacial period.

Red Hill Fossil Site

The Red Hill fossil site in Tioga County, PA, exposes Devonian coastal sedimentary rocks that preserve a rich fossil fauna. Of particular importance is a fossil fish species, studied by Dr. Ted Daeschler, representing a critical transition between fish and tetrapods (land animals). This site offers opportunities for studying vertebrate paleontology, stratigraphy, and sedimentology and provides students with a window into an important moment in the history of life on Earth.

Inversand Fossil Site: Local Training Ground for Geoscience Majors

The Inversand fossil site is a unique resource for geological education, research, and STEM outreach. The quarry is located in Gloucester County, NJ, only 20 minutes from Drexel's campus, making it possible to conduct field exercises there within a three-hour class period. The geological formations that outcrop in the Inversand Quarry have yielded many new fossil species. The site has significance beyond vertebrate paleontology however, and will provide a local laboratory for classes in geochemistry, geophysics, stratigraphy, sedimentology, hydrogeology, and environmental geology. As such, it will provide a valuable training ground only a short distance from campus for all Drexel Geoscience majors.

Geoscience Faculty

Ted Daeschler, PhD (*University of Pennsylvania*) *Curator of Vertebrate Zoology; Vice President for Systematic Biology and the Library: Academy of Natural Sciences.* Associate Professor. Fossil vertebrate faunas from the Late Devonian Period in eastern North America; systematic work focusing on freshwater vertebrates; nature of early non-marine ecosystems; fossil collecting and care of museum collections.

Marie J. Kurz, PhD (*University of Florida*) *Biogeochemistry Section Leader, Academy of Natural Sciences.* Assistant Research Professor. Interactions between geochemical, ecological & hydrologic processes in freshwater systems. Availability, transport and cycling of stream solutes; Stream ecosystem structure & function; Groundwater-surface water interactions; Adaptive management & restoration of water resources & aquatic ecosystems.

Amanda Lough, PhD (*Washington University in St. Louis*). Assistant Professor. Volcanic seismicity and the relation to magma plumbing systems; glacial seismicity and the seismicity of Antarctica; intraplate seismicity.

Gary Rosenberg, PhD (*Harvard University*) *Pilsbry Chair of Malacology.* Professor. Magnitude and origin of species-level diversity in the Mollusca. Biodiversity informatics

Jocelyn A. Sessa, PhD (*Penn State University*) *Assistant Curator of Invertebrate Paleontology: Academy of Natural Sciences.* Assistant Professor. Paleocology; paleobiology; extinction recovery dynamics; climate change; isotope geochemistry; fossil and modern mollusks

Loyc Vanderkluysen, PhD (*University of Hawaii*). Associate Professor. Lava flow emplacement; cyclicity of volcanic eruptions, volcanic degassing processes, and large igneous provinces.

David J. Velinsky, PhD (*Old Dominion University*) *Department Head, Biodiversity, Earth and Environmental Science*. Professor. Geochemical cycling of organic and inorganic constituents of sediments and waters; Sedimentary diagenesis of major and minor elements; Isotope biogeochemistry of carbon, nitrogen and sulfur in marine and freshwater systems.

Global Studies

Major: Global Studies

Degree Awarded: Bachelor of Arts (BA)

Calendar Type: Quarter

Minimum Required Credits: 180.0

Co-op Options: Three Co-op (Five years); One Co-op (Four years); No Co-op (Four years)

Classification of Instructional Programs (CIP) code: 30.2001

Standard Occupational Classification (SOC) code: 19-3094

About the Program

Global Studies practices socially-responsible global citizenship through a unique combination of research-oriented and multilingual instruction, professional experience, and meaningful engagement with communities both here in Philadelphia and abroad.

Our students experience Global Studies by:

- Examining the movement of peoples, goods, and cultures across countries and regions
- Studying global issues in concrete socio-economic, cultural, and geographical contexts
- Tackling structural inequalities from a variety of perspectives and disciplines
- Developing intercultural and language skills through unique pedagogical models
- Working with employers and communities in Philadelphia and around the world through Drexel's Co-Op opportunities

Degree Requirements

General Requirements

| | | |
|---|---|--------------------|
| CIVC 101 | Introduction to Civic Engagement | 1.0 |
| COOP 101 | Career Management and Professional Development * | 1.0 |
| ECON 201 | Principles of Microeconomics | 4.0 |
| ECON 202 | Principles of Macroeconomics | 4.0 |
| ENGL 101 | Composition and Rhetoric I: Inquiry and Exploratory Research | 3.0 |
| or ENGL 111 | English Composition I | |
| ENGL 102 | Composition and Rhetoric II: Advanced Research and Evidence-Based Writing | 3.0 |
| or ENGL 112 | English Composition II | |
| ENGL 103 | Composition and Rhetoric III: Themes and Genres | 3.0 |
| or ENGL 113 | English Composition III | |
| PSCI 150 | International Politics | 4.0 |
| UNIV H101 | The Drexel Experience | 1.0 |
| UNIV H201 | Looking Forward: Academics and Careers | 1.0 |
| Two mathematics (MATH 100-499) courses | | 6.0-8.0 |
| Two science courses: BIO, CHEM, ENSS, ENVS, FDSC, GEO, NFS, PHEV, PHYS (100-499) | | 6.0-8.0 |
| Global Studies Core Requirements | | |
| GST 101 | Becoming Global: Language and Cultural Context | 4.0 |
| GST 102 | Understanding Global: Markets and Governance | 4.0 |
| Three 200+ level GST courses | | 12.0 |
| GST 400 | Senior Project in Global Studies | 4.0 |
| Language minor in Spanish, French, or Japanese, or minor in Asian Studies, or Middle East and North Africa Studies ** | | 24.0-26.0 |
| Concentration (Select One) | | 95.0-91.0 |
| Total Credits | | 180.0-182.0 |

* Students not participating in co-op will take one additional credit of Free Elective instead of COOP 101.

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

** Students must complete at least 24.0 credits above the 103 language level to earn a language minor. Language courses could count towards free electives in some instances; consult with an advisor.

Global Media, Arts, and Cultures Concentration

Media, Arts, and Cultures Distribution Requirements

| | | |
|-------------|--------------------------------------|-----|
| ANTH 330 | Media Anthropology | 3.0 |
| ENGL 325 | Topics in World Literature | 3.0 |
| LING 102 | Language and Society | 3.0 |
| or ENGL 323 | Literature and Other Arts | |
| PHIL 305 | Ethics and the Media | 3.0 |
| WEST 100 | Introduction to Digital Design Tools | 3.0 |

Select one of the following:

| | | |
|----------|------------------------|--|
| ARTH 301 | Asian Art and Culture | |
| ARTH 302 | Art of India | |
| ARTH 303 | Art of China | |
| ARTH 304 | Art of Japan | |
| ARTH 312 | Nineteenth Century Art | |
| ARTH 313 | 20th Century Art | |
| ARTH 314 | Contemporary Art | |
| ARTH 315 | African-American Art | |
| ARTH 316 | African Art | |
| ARTH 318 | Latin American Art | |

Media, Arts, and Cultures Distribution Options

24.0

Students must complete at least 24.0 distribution credits from the approved list

| | | |
|---------------|--|--|
| ANTH 375 | Digital Ethnography | |
| ARCH 141 | Architecture and Society I | |
| ARTH 331 [WI] | Global Material Culture | |
| COM 200 | Current Events in Media and Communication | |
| COM 210 | Theory and Models of Communication | |
| COM 246 | Media and Identity | |
| COM 250 | Diversity in Media | |
| COM 342 | English Worldwide | |
| COM 345 | Intercultural Communication | |
| COM 355 | Ethnography of Communication | |
| COM 360 | Strategic International Communication | |
| COM 375 [WI] | Grant Writing | |
| COM 376 | Nonprofit Communication | |
| COM 377 | Communication for Civic Engagement | |
| COM 385 | Media Effects | |
| CULA 405 [WI] | Culture and Gastronomy I | |
| ENGL 200 [WI] | Classical to Medieval Literature | |
| ENGL 201 | Renaissance to the Enlightenment | |
| ENGL 203 [WI] | Survey of World Literature | |
| ENGL 204 | Post-Colonial Literature | |
| ENGL 300 [WI] | Literature & Science | |
| ENGL 323 | Literature and Other Arts | |
| ENGL 325 | Topics in World Literature | |
| ENGL 335 | Mythology | |
| ENGL 355 [WI] | Women and Literature | |
| ENGL 360 [WI] | Literature and Society | |
| FMST T280 | Special Topics in Film Studies | |
| GST 221 | Introduction to Global Capital and Development | |
| GST 231 | Introduction to Identities and Communities | |
| GST 241 | Introduction to Power and Resistance | |
| GST 251 | Introduction to Global Media, Arts, and Cultures | |
| GST 261 | Introduction to Global Health and Sustainability | |
| GST 321 | Advanced Studies in Global Capital and Development | |
| GST 331 | Advanced Studies in Identities and Communities | |
| GST 341 | Advanced Studies in Power and Resistance | |
| GST 351 | Advanced Studies in Global Media, Arts, and Cultures | |
| GST 361 | Advanced Studies in Global Health and Sustainability | |

| | | |
|----------|---------------------------------------|--|
| GST T280 | Special Topics in Global Studies | |
| GST T380 | Special Topics in Global Studies | |
| MUSC 130 | Introduction to Music | |
| MUSC 331 | World Musics | |
| MUSC 333 | Afro-American Music USA | |
| NFS 446 | Perspectives in World Nutrition | |
| PHIL 211 | Metaphysics: Philosophy of Reality | |
| PHIL 231 | Aesthetics: Philosophy of Art | |
| PHIL 241 | Social & Political Philosophy | |
| PHIL 335 | Global Ethical Issues | |
| PHIL 391 | Philosophy of Religion | |
| PSCI 120 | History of Political Thought | |
| PSCI 330 | Public Opinion & Propaganda | |
| PSCI 335 | Political Communication | |
| SOC 210 | Race, Ethnicity and Social Inequality | |
| SOC 340 | Globalization | |
| WGST 240 | Women and Society in a Global Context | |
| WRIT 310 | Literary Editing & Publication | |

Electives **53.0-49.0**

Total Credits **95.0-91.0**

Global Business, Economics, and Development Concentration

| | | |
|---------------|---------------------------------|-----|
| BLAW 340 | International Business Law | 4.0 |
| ECON 342 | Economic Development | 4.0 |
| ENGL 308 [WI] | The Literature of Business | 3.0 |
| PHIL 301 | Business Ethics | 3.0 |
| PSCI 255 | International Political Economy | 4.0 |

Select one of the following **4.0**

| | | |
|----------|---------------------------------|--|
| INTB 332 | Multinational Corporations | |
| INTB 334 | International Trade | |
| INTB 336 | International Money and Finance | |

Global Business, Economics, and Development Distribution Options **24.0**

Students must complete at least 24.0 distribution credits from the approved list

| | | |
|---------------|--|--|
| COM 270 [WI] | Business Communication | |
| COM 345 | Intercultural Communication | |
| COM 360 | Strategic International Communication | |
| COM 362 | International Negotiations | |
| COM 375 [WI] | Grant Writing | |
| ECON 270 | Using Big Data to Solve Economic and Social Problems | |
| ECON 301 | Microeconomics | |
| ECON 321 | Macroeconomics | |
| ECON 326 [WI] | Economic Ideas | |
| ECON 331 | International Macroeconomics | |
| ECON 351 | Resource and Environmental Economics | |
| ENGL 325 | Topics in World Literature | |
| ENGL 360 [WI] | Literature and Society | |
| ENTP 270 | Social Entrepreneurship | |
| ENTP 370 | Global Entrepreneurship | |
| ENTP 375 | 3BL - Triple Bottom Line | |
| ENTP 390 | Energy Entrepreneurship | |
| FIN 301 | Introduction to Finance | |
| FIN 346 | Global Financial Management | |
| GST 221 | Introduction to Global Capital and Development | |
| GST 231 | Introduction to Identities and Communities | |
| GST 241 | Introduction to Power and Resistance | |
| GST 251 | Introduction to Global Media, Arts, and Cultures | |
| GST 261 | Introduction to Global Health and Sustainability | |
| GST 321 | Advanced Studies in Global Capital and Development | |
| GST 331 | Advanced Studies in Identities and Communities | |
| GST 341 | Advanced Studies in Power and Resistance | |
| GST 351 | Advanced Studies in Global Media, Arts, and Cultures | |
| GST 361 | Advanced Studies in Global Health and Sustainability | |

| | |
|--------------|--|
| GST T280 | Special Topics in Global Studies |
| GST T380 | Special Topics in Global Studies |
| HIST 315 | History of Capitalism |
| INTB 332 | Multinational Corporations |
| INTB 334 | International Trade |
| INTB 336 | International Money and Finance |
| INTB 338 | Regional Studies in Economic Policies and International Business |
| MGMT 370 | For-Profit Business Consulting |
| MGMT 371 | Nonprofit Business Consulting |
| MGMT 380 | International Business Consulting |
| MKTG 201 | Introduction to Marketing Management |
| MKTG 322 | Advertising & Integrated Marketing Communications |
| MKTG 351 | Marketing for Non-Profit Organizations |
| MKTG 357 | Global Marketing |
| PSCI 336 | Political Economy of Climate Change |
| PSCI 351 | The United Nations in World Politics |
| PSCI 352 | Ethics and International Relations |
| SOC 220 | Wealth and Power |
| SOC 330 | Development and Underdevelopment in the Global South |
| SOC 340 | Globalization |
| SOC 355 [WI] | Classical Social Theory |
| SOC 410 | Imagining Multiple Democracies |
| STAT 201 | Introduction to Business Statistics |
| STAT 202 | Business Statistics II |
| WGST 240 | Women and Society in a Global Context |

Electives **49.0-45.0**

Total Credits **95.0-91.0**

Global Health and Sustainability Concentration Requirements

| | | |
|------------|-------------------------------------|-----|
| PBHL 101 | Public Health 101 | 3.0 |
| PBHL 303 | Overview of Issues in Global Health | 3.0 |
| PSCI 334 | Politics of Environment and Health | 4.0 |
| or SOC 346 | Environmental Justice | |
| SOC 244 | Sociology of the Environment | 4.0 |
| or SOC 340 | Globalization | |

Choose one of the following English classes **3.0**

| | |
|---------------|-----------------------------------|
| ENGL 300 [WI] | Literature & Science |
| ENGL 302 | Environmental Literature |
| ENGL 370 | Topics in Literature and Medicine |

Choose one of the following Ethics courses **3.0**

| | |
|----------|----------------------|
| PBHL 309 | Public Health Ethics |
| PHIL 321 | Biomedical Ethics |
| PHIL 340 | Environmental Ethics |

Global Health and Sustainability Distribution Options **24.0**

Students must complete at least 24.0 distribution credits from the approved list

| | |
|---------------|---|
| BIO 109 | Biological Diversity, Ecology & Evolution |
| BIO 264 | Ethnobotany |
| CJS 373 | Environmental Crime |
| COM 316 | Campaigns for Health & Environment |
| COM 317 [WI] | Environmental Communication |
| COM 320 [WI] | Science Writing |
| COM 375 [WI] | Grant Writing |
| CULA 426 | The Kitchen Garden: Summer |
| CULA 427 | The Kitchen Garden: Fall |
| ECON 301 | Microeconomics |
| ECON 321 | Macroeconomics |
| ECON 351 | Resource and Environmental Economics |
| ENGL 300 [WI] | Literature & Science |
| ENGL 302 | Environmental Literature |
| ENGL 370 | Topics in Literature and Medicine |
| ENSS 285 | Introduction to Urban Planning |
| ENSS 326 | Cities and Sustainability |

| | |
|----------|---|
| ENTP 390 | Energy Entrepreneurship |
| ENVS 169 | Environmental Science |
| ENVS 247 | Native Plants and Sustainability |
| ENVS 275 | Global Climate Change |
| ENVS 289 | Global Warming, Biodiversity and Your Future |
| ENVS 328 | Conservation Biology |
| GST 221 | Introduction to Global Capital and Development |
| GST 231 | Introduction to Identities and Communities |
| GST 241 | Introduction to Power and Resistance |
| GST 251 | Introduction to Global Media, Arts, and Cultures |
| GST 261 | Introduction to Global Health and Sustainability |
| GST 321 | Advanced Studies in Global Capital and Development |
| GST 331 | Advanced Studies in Identities and Communities |
| GST 341 | Advanced Studies in Power and Resistance |
| GST 351 | Advanced Studies in Global Media, Arts, and Cultures |
| GST 361 | Advanced Studies in Global Health and Sustainability |
| GST T280 | Special Topics in Global Studies |
| GST T380 | Special Topics in Global Studies |
| HIST 287 | History of Science: Ancient to Medieval |
| HIST 288 | History of Science: Medieval to Enlightenment |
| HIST 289 | History of Science: Enlightenment to Modernity |
| HIST 321 | Themes in Global Environmental History |
| HIST 322 | Empire and Environment |
| HIST 385 | Transnational History of Science, Technology and Environment |
| HSAD 312 | Development of World Health Care |
| HSAD 316 | Health Care across Cultures |
| NFS 345 | Foods and Nutrition of World Cultures |
| NFS 446 | Perspectives in World Nutrition |
| PBHL 301 | Epidemiology in Public Health |
| PBHL 302 | Introduction to the History of Public Health |
| PBHL 304 | Introduction to Health & Human Rights |
| PBHL 305 | Women and Children: Health & Society |
| PBHL 306 | Introduction to Community Health |
| PBHL 317 | The World's Water |
| PBHL 320 | Exploring the HIV/AIDS Pandemic |
| PBHL 321 | Disease Outbreak Investigations |
| PBHL 333 | Health Inequality |
| PHIL 321 | Biomedical Ethics |
| PBHL 457 | Adapting to a Hotter Climate: Protecting Health of Vulnerable Populations |
| PHIL 335 | Global Ethical Issues |
| PHIL 340 | Environmental Ethics |
| PHIL 341 | Environmental Philosophy |
| PHIL 351 | Philosophy of Technology |
| PHIL 361 | Philosophy of Science |
| PSCI 252 | Global Governance |
| PSCI 284 | Environmental Politics |
| PSCI 305 | Social Development: A Global Approach |
| PSCI 334 | Politics of Environment and Health |
| PSCI 336 | Political Economy of Climate Change |
| PSCI 338 | Cities and Climate Change |
| PSCI 351 | The United Nations in World Politics |
| PSCI 352 | Ethics and International Relations |
| PSCI 353 | International Human Rights |
| PSY 352 | Psychology of Sustainability |
| SCTS 202 | Innovation and Social Justice |
| SOC 235 | Sociology of Health and Illness |
| SOC 313 | Sociology of Global Health |
| SOC 330 | Development and Underdevelopment in the Global South |
| SOC 340 | Globalization |
| WGST 240 | Women and Society in a Global Context |
| WGST 275 | Women's Health and Human Rights |

| | |
|----------------------|------------------|
| Electives | 47.0-51.0 |
| Total Credits | 91.0-95.0 |

Global Justice and Human Rights Concentration Requirements

| | | |
|---------------|--|---------|
| ENGL 360 [WI] | Literature and Society | 3.0 |
| PHIL 335 | Global Ethical Issues | 3.0-4.0 |
| or PSCI 352 | Ethics and International Relations | |
| PSCI 120 | History of Political Thought | 4.0 |
| or PSCI 229 | Theories of Justice | |
| PSCI 351 | The United Nations in World Politics | 4.0 |
| PSCI 353 | International Human Rights | 4.0 |
| SOC 330 | Development and Underdevelopment in the Global South | 4.0 |
| or SOC 340 | Globalization | |

Global Justice and Human Rights Distribution Options**24.0**

Students must complete at least 24.0 distribution credits from the approved list

| | |
|---------------|--|
| AFAS T280 | Special Topics in Africana Studies (Course must have a global theme) |
| CJS 210 | Race, Crime, and Justice |
| CJS 260 | Justice in Our Community |
| CJS 261 | Prison, Society and You |
| CJS 262 | Places of Justice |
| CJS 289 | Terrorism |
| CJS 320 | Comparative Justice Systems |
| COM 360 | Strategic International Communication |
| COM 362 | International Negotiations |
| COM 375 [WI] | Grant Writing |
| CULA 426 | The Kitchen Garden: Summer |
| or CULA 427 | The Kitchen Garden: Fall |
| ECON 301 | Microeconomics |
| ECON 321 | Macroeconomics |
| ECON 342 | Economic Development |
| ECON 351 | Resource and Environmental Economics |
| ENGL 325 | Topics in World Literature |
| GST 221 | Introduction to Global Capital and Development |
| GST 231 | Introduction to Identities and Communities |
| GST 241 | Introduction to Power and Resistance |
| GST 251 | Introduction to Global Media, Arts, and Cultures |
| GST 261 | Introduction to Global Health and Sustainability |
| GST 321 | Advanced Studies in Global Capital and Development |
| GST 331 | Advanced Studies in Identities and Communities |
| GST 341 | Advanced Studies in Power and Resistance ((Model Organization of American States)) |
| GST 351 | Advanced Studies in Global Media, Arts, and Cultures |
| GST 361 | Advanced Studies in Global Health and Sustainability |
| GST T280 | Special Topics in Global Studies |
| GST T380 | Special Topics in Global Studies |
| HIST 385 | Transnational History of Science, Technology and Environment |
| LAW 304 | Comparative Legal Institutions |
| LAW 312 | Immigration Law |
| PBHL 303 | Overview of Issues in Global Health |
| PBHL 304 | Introduction to Health & Human Rights |
| PHIL 241 | Social & Political Philosophy |
| PHIL 335 | Global Ethical Issues |
| PHIL 341 | Environmental Philosophy |
| PHIL 385 | Philosophy of Law |
| PHIL 391 | Philosophy of Religion |
| PSCI 229 | Theories of Justice |
| PSCI 240 | Comparative Politics II |
| PSCI 250 | American Foreign Policy |
| PSCI 252 | Global Governance |
| PSCI 255 | International Political Economy |
| PSCI 260 [WI] | Power in Protest: Social Movements in Comparative Perspective |
| PSCI 305 | Social Development: A Global Approach |
| PSCI 310 | Civilians in Armed Conflict |

| | |
|----------------------|--|
| PSCI 351 | The United Nations in World Politics |
| PSCI 352 | Ethics and International Relations |
| PSCI 361 | The Politics of LGBT Movements and Rights |
| SCTS 202 | Innovation and Social Justice |
| SOC 210 | Race, Ethnicity and Social Inequality |
| SOC 220 | Wealth and Power |
| SOC 340 | Globalization |
| SOC 346 | Environmental Justice |
| SOC 355 [WI] | Classical Social Theory |
| SOC 444 | Social Movements |
| WGST 240 | Women and Society in a Global Context |
| WGST T280 | Special Topics in Women's and Gender Studies (Course must have a global theme) |
| Electives | 44.0-49.0 |
| Total Credits | 90.0-96.0 |

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

Global Media, Arts, and Cultures Concentration

4 year, 1 co-op

| First Year | | | | |
|-------------------------------|-----------------------------|---------------------------------------|---------------------------------------|-----------|
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| ENGL 101 or 111 | 3.0 ENGL 102 or 112 | 3.0 CIVC 101 | 1.0 VACATION | |
| GST 101 | 4.0 GST 102 | 4.0 COOP 101* | 1.0 | |
| UNIV H101 | 1.0 Language course | 4.0 ENGL 103 or 113 | 3.0 | |
| Language course | 4.0 MATH Course 2 | 3.0-4.0 PSCI 150 | 4.0 | |
| MATH course 1 | 3.0-4.0 | Free elective | 3.0 | |
| | | Language course | 4.0 | |
| | 15-16 | 14-15 | 16 | 0 |
| Second Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| ECON 201 | 4.0 ECON 202 | 4.0 Free elective | 3.0 Free electives | 6.0 |
| GST 200+ level course | 4.0 Free elective | 3.0 GST 200+ level course | 4.0 MAC Concentration required course | 3.0 |
| Language course | 4.0 Language course | 4.0 Language course | 4.0 MAC Distribution course | 3.0 |
| MAC Concentration requirement | 3.0 MAC Distribution course | 3.0 MAC Concentration required course | 3.0 Science elective | 3.0 |
| | Science elective | 3.0 MAC Distribution course | 3.0 | |
| | 15 | 17 | 17 | 15 |
| Third Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| COOP EXPERIENCE** | COOP EXPERIENCE** | Free electives | 6.0 Free elective | 4.0 |
| | | Language course | 4.0 Language course | 4.0 |
| | | MAC Distribution courses | 6.0 MAC Concentration required course | 3.0 |
| | | | MAC Distribution course | 3.0 |
| | 0 | 0 | 16 | 14 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits |
|-----------------------------------|------------------------------|-----------------------------|-----------|
| UNIV H201 | 1.0 GST 400 | 4.0 Free electives | 10.0 |
| Free elective | 3.0 Free elective | 3.0 MAC Distribution course | 3.0 |
| GST 200+ level course | 4.0 MAC Concentration course | 3.0 | |
| Language course | 4.0 MAC Distribution course | 3.0 | |
| MAC Concentration required course | 3.0 | | |
| | 15 | 13 | 13 |

Total Credits 180-182

* COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

** Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

5 year, 3 co-ops**First Year**

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|---------------------|------------------|----------------|----------|
| ENGL 101 or 111 | 3.0 ENGL 102 or 112 | 3.0 CIVC 101 | 1.0 VACATION | |
| GST 101 | 4.0 GST 102 | 4.0 COOP 101* | 1.0 | |
| UNIV H101 | 1.0 Language course | 4.0 ENGL 103 | 3.0 | |
| Language course | 4.0 MATH Course 2 | 3.0-4.0 PSCI 150 | 4.0 | |
| MATH Course 1 | 3.0-4.0 | Free elective | 3.0 | |
| | | Language course | 4.0 | |
| | 15-16 | 14-15 | 16 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-------------------|-------------------|-------------------------------|-----------------------------|-----------|
| COOP EXPERIENCE** | COOP EXPERIENCE** | ECON 201 | 4.0 ECON 202 | 4.0 |
| | | Free elective | 3.0 Language course | 4.0 |
| | | Language course | 4.0 MAC Distribution course | 3.0 |
| | | MAC Concentration requirement | 3.0 Science elective | 3.0 |
| | 0 | 0 | 14 | 14 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-------------------|-------------------|-----------------------------------|---------------------------------------|-----------|
| COOP EXPERIENCE** | COOP EXPERIENCE** | Free elective | 3.0 Free elective | 3.0 |
| | | GST 200+ level course | 4.0 Language course | 4.0 |
| | | Language course | 4.0 MAC Concentration required course | 3.0 |
| | | MAC Concentration required course | 3.0 MAC Distribution course | 3.0 |
| | | MAC Distribution course | 3.0 Science elective | 3.0 |
| | 0 | 0 | 17 | 16 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-------------------|-------------------|-------------------------|---------------------------------------|-----------|
| COOP EXPERIENCE** | COOP EXPERIENCE** | Free electives | 4.0 Free electives | 6.0 |
| | | GST 200+ level course | 4.0 MAC Concentration required course | 3.0 |
| | | Language course | 4.0 MAC Distribution courses | 6.0 |
| | | MAC Distribution course | 3.0 | |
| | 0 | 0 | 15 | 15 |

Fifth Year

| Fall | Credits Winter | Credits Spring | Credits |
|-----------------------|---------------------------------------|-----------------------------|---------|
| UNIV H201 | 1.0 GST 400 | 4.0 Free electives | 10.0 |
| Free elective | 3.0 Free electives | 6.0 MAC Distribution course | 3.0 |
| GST 200+ level course | 4.0 MAC Concentration required course | 3.0 | |

| | | | |
|-----------------------------------|-----------|-------------------------|-----------|
| Language course | 4.0 | MAC Distribution course | 3.0 |
| MAC Concentration required course | 3.0 | | |
| | 15 | | 16 |
| | | | 13 |

Total Credits 180-182

* COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

** Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

4 year, no co-op**First Year**

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|---------------------|---------------------|----------------|----------|
| ENGL 101 or 111 | 3.0 ENGL 102 or 112 | 3.0 CIVC 101 | 1.0 VACATION | |
| GST 101 | 4.0 GST 102 | 4.0 ECON 201 | 4.0 | |
| UNIV H101 | 1.0 Language course | 4.0 ENGL 103 or 113 | 3.0 | |
| Language course | 4.0 MATH Course 2 | 3.0-4.0 PSCI 150 | 4.0 | |
| MATH course 1 | 3.0-4.0 | Language course | 4.0 | |
| | 15-16 | 14-15 | 16 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-------------------------------|-----------------------------|-----------------------------------|----------------|----------|
| ECON 202 | 4.0 Free electives | 6.0 Free elective | 3.0 VACATION | |
| GST 200+ level course | 4.0 Language course | 4.0 GST 200+ level course | 4.0 | |
| Language course | 4.0 MAC Distribution course | 3.0 Language course | 4.0 | |
| MAC Concentration Requirement | 3.0 Science elective | 3.0 MAC Concentration requirement | 3.0 | |
| | | MAC Distribution course | 3.0 | |
| | 15 | 16 | 17 | 0 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-------------------------------|-----------------------------------|-----------------------------|----------------|----------|
| Free electives | 6.0 Free elective | 3.0 Free electives | 7.0 VACATION | |
| Language course | 4.0 Language course | 4.0 Language course | 4.0 | |
| MAC Concentration requirement | 3.0 MAC Concentration requirement | 3.0 MAC Distribution course | 3.0 | |
| MAC Distribution course | 3.0 MAC Distribution course | 3.0 | | |
| | Science elective | 3.0 | | |
| | 16 | 16 | 14 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits |
|-------------------------|-----------------------------------|-----------------------------------|-----------|
| UNIV H201 | 1.0 GST 400 | 4.0 Free electives | 7.0 |
| Free electives | 6.0 Free elective | 3.0 MAC Concentration requirement | 3.0 |
| GST 200+ level course | 4.0 MAC Concentration requirement | 4.0 MAC Distribution course | 3.0 |
| MAC Distribution course | 3.0 MAC Distribution course | 3.0 | |
| | 14 | 14 | 13 |

Total Credits 180-182**Global Business, Economics and Development Concentration****4 year, 1 co-op****First Year**

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|---------------------|---------------------|----------------|---------|
| ENGL 101 or 111 | 3.0 ENGL 102 or 112 | 3.0 CIVC 101 | 1.0 VACATION | |
| GST 101 | 4.0 GST 102 | 4.0 COOP 101* | 1.0 | |
| UNIV H101 | 1.0 Language course | 4.0 ENGL 103 or 113 | 3.0 | |
| Language course | 4.0 MATH Course 2 | 3.0-4.0 PSCI 150 | 4.0 | |
| MATH course 1 | 3.0-4.0 | Free elective | 3.0 | |

| | | Language course | | 4.0 | |
|-----------------------------------|---------------------------------------|-----------------|---------------------------------------|---------------------------------------|----------------|
| | | 15-16 | 14-15 | 16 | 0 |
| Second Year | | | | | |
| Fall | Credits Winter | | Credits Spring | Credits Summer | Credits |
| ECON 201 | 4.0 ECON 202 | | 4.0 BED concentration required course | 4.0 BED concentration required course | 4.0 |
| Language course | 4.0 BED concentration required course | | 3.0 Free elective | 3.0 BED Distribution course | 3.0 |
| BED Distribution course | 3.0 Free elective | | 3.0 GST 200+ level course | 4.0 Free elective | 4.0 |
| Free elective | 3.0 Language course | | 4.0 Language course | 4.0 Science elective | 3.0 |
| GST 200+ level course | 4.0 Science elective | | 3.0 | | |
| | | 18 | 17 | 15 | 14 |
| Third Year | | | | | |
| Fall | Credits Winter | | Credits Spring | Credits Summer | Credits |
| COOP EXPERIENCE** | COOP EXPERIENCE** | | BED Concentration required course | 4.0 BED Concentration required course | 3.0 |
| | | | BED Distribution course | 3.0 BED Distribution courses | 6.0 |
| | | | GST 200+ level course | 4.0 Free elective | 3.0 |
| | | | Language course | 4.0 Language course | 4.0 |
| | | 0 | 0 | 15 | 16 |
| Fourth Year | | | | | |
| Fall | Credits Winter | | Credits Spring | Credits | |
| UNIV H201 | 1.0 GST 400 | | 4.0 BED Distribution course | 3.0 | |
| BED Concentration required course | 3.0 BED Distribution course | | 3.0 Free electives | 10.0 | |
| BED Distribution option | 3.0 Free electives | | 6.0 | | |
| Free elective | 3.0 | | | | |
| Language course | 4.0 | | | | |
| | | 14 | 13 | 13 | |

Total Credits 180-182

* COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

** Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

5 year, 3 co-ops

| First Year | | | | | |
|--------------------|-----------------------|--------------|-----------------------------------|---------------------------------------|----------------|
| Fall | Credits Winter | | Credits Spring | Credits Summer | Credits |
| ENGL 101 or 111 | 3.0 ENGL 102 or 112 | | 3.0 CIVC 101 | 1.0 VACATION | |
| GST 101 | 4.0 GST 102 | | 4.0 COOP 101* | 1.0 | |
| UNIV H101 | 1.0 Language course | | 4.0 ENGL 103 or 113 | 3.0 | |
| Language course | 4.0 MATH Course 2 | | 3.0-4.0 PSCI 150 | 4.0 | |
| MATH Course 1 | 3.0-4.0 | | Free elective | 3.0 | |
| | | | Language course | 4.0 | |
| | | 15-16 | 14-15 | 16 | 0 |
| Second Year | | | | | |
| Fall | Credits Winter | | Credits Spring | Credits Summer | Credits |
| COOP EXPERIENCE** | COOP EXPERIENCE** | | ECON 201 | 4.0 ECON 202 | 4.0 |
| | | | BED Distribution course | 3.0 BED Concentration required course | 3.0 |
| | | | Free elective | 3.0 Free elective | 3.0 |
| | | | GST 200+ level course | 3.0 Language course | 4.0 |
| | | | Language course | 4.0 Science elective | 3.0 |
| | | 0 | 0 | 17 | 17 |
| Third Year | | | | | |
| Fall | Credits Winter | | Credits Spring | Credits Summer | Credits |
| COOP EXPERIENCE** | COOP EXPERIENCE** | | BED Concentration required course | 4.0 BED Concentration required course | 4.0 |

| | | | | |
|-----------------------------------|-----------------------------|-----------------------------------|---------------------------------------|----------------|
| | | Free elective | 3.0 BED Distribution course | 3.0 |
| | | GST 200+ level course | 4.0 Free elective | 4.0 |
| | | Language course | 4.0 Science elective | 3.0 |
| | 0 | 0 | 15 | 14 |
| Fourth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| COOP EXPERIENCE** | COOP EXPERIENCE** | BED Concentration required course | 4.0 BED Concentration required course | 3.0 |
| | | BED Distribution course | 4.0 BED Distribution courses | 6.0 |
| | | GST 200+ level course | 4.0 Free elective | 3.0 |
| | | Language course | 3.0 Language course | 4.0 |
| | 0 | 0 | 15 | 16 |
| Fifth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits | |
| UNIV H201 | 1.0 GST 400 | 4.0 BED Distribution course | 4.0 | |
| BED Concentration required course | 3.0 BED Distribution course | 3.0 Free electives | 10.0 | |
| BED Distribution option | 3.0 Free electives | 6.0 | | |
| Free elective | 3.0 | | | |
| Language course | 4.0 | | | |
| | 14 | 13 | 14 | |

Total Credits 180-182

* COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

** Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

4 year, no co-op

| | | | | |
|-------------------------------|-----------------------------------|-----------------------------------|-----------------------|----------------|
| First Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| ENGL 101 or 111 | 3.0 ENGL 102 or 112 | 3.0 CIVC 101 | 1.0 VACATION | |
| GST 101 | 4.0 GST 102 | 4.0 ECON 201 | 4.0 | |
| UNIV H101 | 1.0 Language course | 4.0 ENGL 103 or 113 | 3.0 | |
| Language course | 4.0 MATH Course 2 | 3.0-4.0 PSCI 150 | 4.0 | |
| MATH Course 1 | 3.0-4.0 | Language course | 4.0 | |
| | 15-16 | 14-15 | 16 | 0 |
| Second Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| ECON 202 | 4.0 BED Distribution Course | 3.0 BED Concentration Requirement | 3.0 VACATION | |
| BED Concentration Requirement | 4.0 Free elective | 3.0 BED Distribution Course | 3.0 | |
| GST 200+ level course | 4.0 Language course | 4.0 Free electives | 6.0 | |
| Language course | 4.0 Science elective | 3.0 Language course | 4.0 | |
| | 16 | 13 | 16 | 0 |
| Third Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| BED Concentration Requirement | 3.0 BED Concentration Requirement | 3.0 BED Distribution Course | 3.0 VACATION | |
| BED Distribution Course | 3.0 BED Distribution Course | 3.0 Free electives | 6.0 | |
| Free electives | 6.0 Free elective | 3.0 GST 200+ level course | 4.0 | |
| Language course | 4.0 Language course | 4.0 Language Course | 4.0 | |
| | Science elective | 3.0 | | |
| | 16 | 16 | 17 | 0 |
| Fourth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits | |
| UNIV H201 | 1.0 GST 400 | 4.0 BED Concentration Requirement | 3.0 | |

| | | | |
|-------------------------|-----------------------------------|-------------------------|-----------|
| BED Distribution Course | 3.0 BED Concentration Requirement | BED Distribution Course | 3.0 |
| Free electives | 6.0 BED Distribution Course | 3.0 Free electives | 7.0 |
| GST 200+ level course | 4.0 Free electives | 7.0 | |
| | 14 | 14 | 13 |

Total Credits 180-182

Global Health & Sustainability Concentration

4 year, 1 co-op

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|---------------------|---------------------|----------------|----------|
| ENGL 101 or 111 | 3.0 ENGL 102 or 112 | 3.0 CIVC 101 | 1.0 VACATION | |
| GST 101 | 4.0 GST 102 | 4.0 COOP 101* | 1.0 | |
| UNIV H101 | 1.0 Language course | 4.0 ENGL 103 or 113 | 3.0 | |
| Language course | 4.0 MATH Course 2 | 3.0-4.0 PBHL 101 | 3.0 | |
| MATH Course 1 | 3.0-4.0 | PSCI 150 | 4.0 | |
| | | Language course | 4.0 | |
| | 15-16 | 14-15 | 16 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------------------------|---------------------------------------|---------------------------------------|-----------------------------|-----------|
| ECON 201 | 4.0 ECON 202 | 4.0 Free elective | 3.0 Free elective | 3.0 |
| GHS Concentration required course | 3.0 GHS Concentration required course | 3.0 GHS Concentration required course | 3.0 GHS Distribution option | 6.0 |
| GST 200+ level course | 4.0 GHS Distribution option | 3.0 GHS Distribution option | 3.0 Science elective | 3.0 |
| Language course | 4.0 Language course | 4.0 GST 200+ level course | 4.0 | |
| | Science elective | 3.0 Language course | 4.0 | |
| | 15 | 17 | 17 | 12 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-------------------|-------------------|-------------------------|---------------------------------------|-----------|
| COOP EXPERIENCE** | COOP EXPERIENCE** | 0.0 Free electives | 6.0 Free electives | 7.0 |
| | | GHS Distribution option | 3.0 GHS Concentration required course | 3.0 |
| | | GST 200+ level course | 4.0 GHS Distribution option | 3.0 |
| | | Language course | 4.0 Language course | 4.0 |
| | 0 | 0 | 17 | 17 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits |
|-----------------------------------|-----------------------------|-----------------------------|-----------|
| UNIV H201 | 1.0 GST 400 | 4.0 Free electives | 10.0 |
| Free elective | 3.0 Free electives | 6.0 GHS Distribution option | 3.0 |
| GHS Concentration required course | 3.0 GHS Distribution option | 3.0 | |
| GHS Distribution option | 3.0 | | |
| Language course | 4.0 | | |
| | 14 | 13 | 13 |

Total Credits 180-182

* COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

** Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

5 year, 3 co-ops

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|---------------------|---------------------|----------------|---------|
| ENGL 101 or 111 | 3.0 ENGL 102 or 112 | 3.0 CIVC 101 | 1.0 VACATION | |
| GST 101 | 4.0 GST 102 | 4.0 COOP 101* | 1.0 | |
| UNIV H101 | 1.0 Language course | 4.0 ENGL 103 or 113 | 3.0 | |
| Language course | 4.0 MATH Course 2 | 3.0-4.0 PBHL 101 | 3.0 | |

| | | | | |
|-----------------------------------|-----------------------------|-----------------------------------|---------------------------------------|----------------|
| MATH Course 1 | 3.0-4.0 | PSCI 150 | 4.0 | |
| | | Language course | 4.0 | |
| | 15-16 | 14-15 | 16 | 0 |
| Second Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| COOP EXPERIENCE** | COOP EXPERIENCE** | ECON 201 | 4.0 ECON 202 | 4.0 |
| | | GHS Concentration required course | 3.0 GHS Concentration required course | 3.0 |
| | | GHS Distribution option | 3.0 GHS Distribution option | 3.0 |
| | | GST 200+ level course | 3.0 Language course | 4.0 |
| | | Language course | 4.0 Science elective | 3.0 |
| | 0 | 0 | 17 | 17 |
| Third Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| COOP EXPERIENCE** | COOP EXPERIENCE** | Free elective | 3.0 Free elective | 4.0 |
| | | GHS Concentration required course | 3.0 GHS Concentration required course | 3.0 |
| | | GHS Distribution option | 3.0 GHS Distribution option | 3.0 |
| | | GST 200+ level course | 4.0 Science elective | 3.0 |
| | | Language course | 4.0 | |
| | 0 | 0 | 17 | 13 |
| Fourth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| COOP EXPERIENCE** | COOP EXPERIENCE** | Free elective | 3.0 Free electives | 6.0 |
| | | GHS Distribution option | 3.0 GHS Concentration required course | 3.0 |
| | | GST 200+ level course | 4.0 GHS Distribution option | 3.0 |
| | | Language course | 4.0 Language course | 4.0 |
| | 0 | 0 | 14 | 16 |
| Fifth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits | |
| UNIV H201 | 1.0 GST 400 | 4.0 Free electives | 10.0 | |
| Free elective | 3.0 Free electives | 6.0 GHS Distribution option | 3.0 | |
| GHS Concentration required course | 4.0 GHS Distribution option | 3.0 | | |
| GHS Distribution option | 3.0 | | | |
| Language course | 4.0 | | | |
| | 15 | 13 | 13 | |

Total Credits 180-182

* COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

** Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

4 year, no co-op

| | | | | |
|-------------------------------|-----------------------------|-----------------------------------|-----------------------|----------------|
| First Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| ENGL 101 or 111 | 3.0 ENGL 102 or 112 | 3.0 CIVC 101 | 1.0 VACATION | |
| GST 101 | 4.0 GST 102 | 4.0 ECON 201 | 4.0 | |
| UNIV H101 | 1.0 Language course | 4.0 ENGL 103 or 113 | 3.0 | |
| Language course | 4.0 MATH Course 2 | 3.0-4.0 PSCI 150 | 4.0 | |
| MATH Course 1 | 3.0-4.0 | Language course | 4.0 | |
| | 15-16 | 14-15 | 16 | 0 |
| Second Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| ECON 202 | 4.0 Free electives | 6.0 GHS Concentration Requirement | 3.0 VACATION | |
| GHS Concentration Requirement | 4.0 GHS Distribution Course | 3.0 GHS Distribution Course | 3.0 | |

| | | | | |
|-----------------------|----------------------|---------------------------|-----------|----------|
| GST 200+ level course | 4.0 Language course | 4.0 GST 200+ level course | 4.0 | |
| Language course | 4.0 Science elective | 3.0 Language course | 4.0 | |
| | 16 | 16 | 14 | 0 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-------------------------------|-----------------------------------|-----------------------------|----------------|----------|
| Free electives | 6.0 Free elective | 3.0 Free electives | 7.0 VACATION | |
| GHS Concentration Requirement | 3.0 GHS Concentration Requirement | 3.0 GHS Distribution course | 3.0 | |
| GHS Distribution Course | 3.0 GHS Distribution Course | 3.0 Language course | 4.0 | |
| Language course | 4.0 Language course | 4.0 | | |
| | Science elective | 3.0 | | |
| | 16 | 16 | 14 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits |
|-------------------------|-----------------------------------|-----------------------------------|-----------|
| UNIV H201 | 1.0 GST 400 | 4.0 Free electives | 9.0 |
| Free electives | 6.0 Free electives | 4.0 GHS Concentration Requirement | 3.0 |
| GHS Distribution course | 3.0 GHS Concentration Requirement | 3.0 GHS Distribution Course | 3.0 |
| GST 200+ level course | 4.0 GHS Distribution Course | 3.0 | |
| | 14 | 14 | 15 |

Total Credits 180-182

Global Justice and Human Rights Concentration**4 year, 1 co-op****First Year**

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|---------------------|---------------------|----------------|----------|
| ENGL 101 or 111 | 3.0 ENGL 102 or 112 | 3.0 CIVC 101 | 1.0 VACATION | |
| GST 101 | 4.0 GST 102 | 4.0 COOP 101* | 1.0 | |
| UNIV H101 | 1.0 Language course | 4.0 ENGL 103 or 113 | 3.0 | |
| Language course | 4.0 MATH Course 2 | 3.0-4.0 PSCI 150 | 4.0 | |
| MATH Course 1 | 3.0-4.0 | Free elective | 3.0 | |
| | | Language course | 4.0 | |
| | 15-16 | 14-15 | 16 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------------------------|-----------------------------|---------------------------------------|---------------------------------------|-----------|
| ECON 201 | 4.0 ECON 202 | 4.0 Free elective | 3.0 Free elective | 4.0 |
| GST 200+ level course | 4.0 JHR Distribution course | 4.0 GST 200+ level course | 4.0 JHR concentration required course | 4.0 |
| JHR concentration required course | 3.0 Language course | 4.0 JHR concentration required course | 3.0 JHR Distribution course | 3.0 |
| Language course | 4.0 Science elective | 3.0 JHR Distribution course | 3.0 Science elective | 3.0 |
| | | Language course | 4.0 | |
| | 15 | 15 | 17 | 14 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-------------------|-------------------|-----------------------------------|---------------------------------------|-----------|
| COOP EXPERIENCE** | COOP EXPERIENCE** | Free elective | 3.0 Free electives | 6.0 |
| | | GST 200+ level course | 4.0 JHR concentration required course | 4.0 |
| | | JHR concentration required course | 3.0 JHR Distribution course | 3.0 |
| | | JHR Distribution course | 3.0 Language course | 4.0 |
| | | Language course | 4.0 | |
| | 0 | 0 | 17 | 17 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits |
|-----------------------------------|-----------------------------|-----------------------------|---------|
| UNIV H201 | 1.0 GST 400 | 4.0 Free electives | 10.0 |
| Free elective | 3.0 Free electives | 6.0 JHR Distribution course | 3.0 |
| JHR concentration required course | 3.0 JHR Distribution course | 3.0 | |

| | | | |
|-------------------------|-----------|-----------|-----------|
| JHR Distribution course | 3.0 | | |
| Language course | 4.0 | | |
| | 14 | 13 | 13 |

Total Credits 180-182

* COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

** Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

5 year, 3 co-ops

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|---------------------|---------------------|----------------|----------|
| ENGL 101 or 111 | 3.0 ENGL 102 or 112 | 3.0 CIVC 101 | 1.0 VACATION | |
| GST 101 | 4.0 GST 102 | 4.0 COOP 101* | 1.0 | |
| UNIV H101 | 1.0 Language course | 4.0 ENGL 103 or 113 | 3.0 | |
| Language course | 4.0 MATH Course 2 | 3.0-4.0 PSCI 150 | 4.0 | |
| MATH Course 1 | 3.0-4.0 | Free elective | 3.0 | |
| | | Language course | 4.0 | |
| | 15-16 | 14-15 | 16 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-------------------|-------------------|-----------------------------------|---------------------------------------|-----------|
| COOP EXPERIENCE** | COOP EXPERIENCE** | ECON 201 | 4.0 ECON 202 | 4.0 |
| | | GST 200+ level course | 4.0 JHR concentration required course | 3.0 |
| | | JHR concentration required course | 3.0 JHR Distribution course | 4.0 |
| | | Language course | 4.0 Science elective | 3.0 |
| | 0 | 0 | 15 | 14 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-------------------|-------------------|-----------------------------------|---------------------------------------|-----------|
| COOP EXPERIENCE** | COOP EXPERIENCE** | Free elective | 3.0 Free elective | 4.0 |
| | | GST 200+ level course | 4.0 JHR concentration required course | 4.0 |
| | | JHR concentration required course | 3.0 JHR Distribution course | 3.0 |
| | | JHR Distribution course | 3.0 Language course | 4.0 |
| | | Language course | 4.0 Science elective | 3.0 |
| | 0 | 0 | 17 | 18 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-------------------|-------------------|-------------------------|---------------------------------------|-----------|
| COOP EXPERIENCE** | COOP EXPERIENCE** | Free electives | 6.0 Free elective | 3.0 |
| | | GST 200+ level course | 4.0 JHR concentration required course | 4.0 |
| | | JHR Distribution course | 3.0 JHR Distribution course | 3.0 |
| | | Language course | 4.0 Language course | 4.0 |
| | 0 | 0 | 17 | 14 |

Fifth Year

| Fall | Credits Winter | Credits Spring | Credits |
|-----------------------------------|-----------------------------|-----------------------------|-----------|
| UNIV H201 | 1.0 GST 400 | 4.0 Free electives | 10.0 |
| Free elective | 3.0 Free electives | 6.0 JHR Distribution course | 3.0 |
| JHR concentration required course | 3.0 JHR Distribution course | 3.0 | |
| JHR Distribution course | 3.0 | | |
| Language course | 4.0 | | |
| | 14 | 13 | 13 |

Total Credits 180-182

* COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

** Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

4 year, no co-op

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|---------------------|-----------------------|----------------|----------|
| ENGL 101 or 111 | 3.0 ENGL 102 or 112 | 3.0 CIVC 101 | 1.0 VACATION | |
| GST 101 | 4.0 GST 102 | 4.0 ENGL 103 or 113 | 3.0 | |
| UNIV H101 | 1.0 Language Course | 4.0 PSCI 150 | 4.0 | |
| Language course | 4.0 MATH Course 2 | 3.0-4.0 Free elective | 3.0 | |
| MATH Course 1 | 3.0-4.0 | Language course | 4.0 | |
| | 15-16 | 14-15 | 15 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-------------------------------|-----------------------------|-----------------------------------|----------------|----------|
| ECON 201 | 4.0 ECON 202 | 4.0 Free electives | 7.0 VACATION | |
| GST 200+ level course | 4.0 JHR Distribution Course | 3.0 GST 200+ level course | 4.0 | |
| JHR Concentration Requirement | 4.0 Language course | 4.0 JHR Concentration Requirement | 3.0 | |
| Language course | 4.0 Science elective | 3.0 Language course | 4.0 | |
| | 16 | 14 | 18 | 0 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-------------------------------|-----------------------------------|-----------------------------|----------------|----------|
| Free electives | 6.0 Free elective | 3.0 Free electives | 6.0 VACATION | |
| JHR Concentration Requirement | 3.0 JHR Concentration Requirement | 3.0 GST 200+ level course | 4.0 | |
| JHR Distribution Course | 3.0 JHR Distribution Course | 3.0 JHR Distribution Course | 3.0 | |
| Language course | 4.0 Language course | 4.0 Language Course | 4.0 | |
| | Science elective | 3.0 | | |
| | 16 | 16 | 17 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits |
|-----------------------------------|-----------------------------|-----------------------------------|-----------|
| UNIV H201 | 1.0 GST 400 | 4.0 Free electives | 7.0 |
| Free electives | 6.0 Free electives | 6.0 JHR Concentration Requirement | 3.0 |
| JHR concentration required course | 3.0 JHR Distribution Course | 3.0 JHR Distribution Course | 3.0 |
| JHR Distribution Course | 3.0 | | |
| | 13 | 13 | 13 |

Total Credits 180-182

Global Studies Faculty

Octavio Borges-Delgado, PhD (*Michigan State University*). Assistant Teaching Professor. Caribbean Literature and cultures, Latino/a studies, migration studies, Latin American diaspora, Critical race theory, Gender and sexuality in a global context.

Rebecca Clothey, PhD (*University of Pittsburgh*) Associate Department Head. Associate Professor. Comparative and international education, education of ethnic and linguistic minorities, sociology of education.

Steve Vásquez Dolph, PhD (*University of Pennsylvania*). Assistant Teaching Professor. Early modern cultural production; ecology and representation; history and sociology of science; historical bibliography; politics and poetics of translation

Brenda Dyer, MA (*University of Pennsylvania*). Associate Teaching Professor. Language acquisition pedagogy, teaching writing, seventeenth and eighteenth century French literature, women writers, translation.

Natalie N. Hiratsuka Marley, MA (*University of Hawaii*). Assistant Teaching Professor. Japanese Linguistics with an emphasis on pedagogy and topics concerning second language acquisition and teaching

Parfait Kouacou, PhD (*City University of New York*). Assistant Teaching Professor. Francophone African Literature and Cinema, Human Rights in Literary Studies, Childhood in Literature, Postcolonial Studies, Oral Literature.

Hiroimi Koyama, MA (*Okayama University, Japan*). Instructor.

Brent Luvaas, PhD (*UCLA*). Associate Professor. DIY and independent media production; transnational consumer culture; popular music; new media and mediated subjectivities; youth culture in the US and Indonesia.

Celeste Dolores Mann, MA (*University of Iowa*). Assistant Teaching Professor. Second Language Acquisition, Language Pedagogy, Colonial Latin American Literature and Early Modern Spanish Literature

Monserrat Bores Martínez, MA (*University of Western Ontario, Canada*). Assistant Teaching Professor. Second Language Acquisition Language Pedagogy Colonial Latin American Literature Early Modern Spanish Literature

Nada Matta, PhD (*New York University*). Assistant Professor. Political Economy, Social Movements, Middle East Studies, Gender Studies, Revolutions, Inequality.

Maria delaluz Matus-Mendoza, PhD (*Temple University*) *Language Program Coordinator*. Associate Professor. Spanish Linguistic variation in the US; the relationship between language variation and mobility (social and geographical) among the Mexican communities in Mexico and in the United States; second language acquisition; language variation in media.

Usha Menon, PhD (*University of Chicago*). Professor. Self, identity & personhood, emotional functioning, Hindu morality, gender relations in Hindu society, adult development, popular Hinduism, post-colonial feminism, Hindu religious nationalism and Islamic radicalism.

Amel Mili, PhD (*Rutgers University*). Assistant Teaching Professor. The intersection between religion and law Gender politics Constitutional transition Language education

Rogelio Minana, PhD (*Penn State*) *Department Head, Global Studies and Modern Languages*. Professor. The role of classic cultural icons, particularly Don Quixote, in 21st century political and social justice discourse; the interplay between the traditional humanities, youth organizations, and digital storytelling.

Joel E. Oestreich, PhD (*Brown University*) *Director of the Global Studies major*. Professor. International organizations, international finance, development, and human rights.

Sunmi Oh, MA (*Daegu Catholic University, S. Korea*).

Ni Ou, MA (*University of Pennsylvania*). Assistant Teaching Professor.

Simone Schlichting-Artur, EdD (*University of Pennsylvania*) *Senior Assistant Dean of Global Initiatives*. Teaching Professor. International business communication (Germany and the U.S.), public health policy and languages, German post-war history through film and literature, development of writing assessment tools for German minor.

Emeritus Faculty

Barbara Hornum, PhD (*Bryn Mawr College*) *Director of Center for Academic Excellence (DCAE)*. Associate Professor Emeritus. Comparative gerontology, planned communities, continuing care communities, retirement, faculty development.

Julie Mostov, PhD (*New York University*). Professor Emeritus. Modern political thought, democratic theory, nationalism, gender studies, South Eastern Europe and the Balkans.

History

Major: History

Degree Awarded: Bachelor of Arts (BA)

Calendar Type: Quarter

Minimum Required Credits: 181.0

Co-op Options: Three Co-op (Five years); One Co-op (Four years); No Co-op (Four years)

Classification of Instructional Programs (CIP) code: 54.0101

Standard Occupational Classification (SOC) code: 19-3093

About the Program

The history program reflects the strengths of Drexel University, including specialization in transnational history and in the history of science, technology and the environment. A series of required courses in history build skills in research and interpretation of the past while elective courses within and outside the history program allow students to shape their curriculum to meet their needs and interests. Our history graduates go to graduate school in history, to professional schools in law, medicine, and business, and to work in business, government agencies, and non-profit organizations.

We apply Drexel's experiential, research-intensive approach to the discipline of history. Using the extensive historical resources of Philadelphia, the region, and the digital world, students develop a profound understanding of history and the ways it is made. We also encourage students to enrich their education through co-op, study abroad, and summer research projects working alongside department faculty.

Degree Offered

The **Bachelor of Arts (BA)** provides a course of study that includes foreign language courses and a broad grounding in the liberal arts, with flexibility for students to choose courses to fulfill humanities, social science, math, and science requirements that will contribute to their overall educational and career plans.

The Minor in History (p. 283) allows students in other majors to explore the historical background of their discipline, to better understand the origins of the contemporary world, and to build the knowledge and skills needed to understand the development of human societies over time and to understand historical episodes into their proper contexts. The minor in History is highly flexible and allows students to choose those History courses which appeal to them and which will contribute to their broader education. To complete the minor, students must take a total of six History courses (24.0 credits), five of which must be at the 200-level or above.

The Minor in War and Society (p. 300) is an interdisciplinary minor offered by history in which students examine the history and politics of warfare, the military, and related institutions. In the Minor in the History of Capitalism (p. 284), students explore capitalism and the emergence of the modern world economy from a global, historical perspective.

Additional Information

For more information about this program, please visit the Department of History (<http://drexel.edu/history/>) website or contact:

Jonathan Seitz, PhD
Assistant Department Head
Teaching Professor of History
jwseitz@drexel.edu

Degree Requirements (BA)

General Education Requirements

| | | |
|-------------------------|---|---------|
| ENGL 101 or ENGL 111 | Composition and Rhetoric I: Inquiry and Exploratory Research English Composition I | 3.0 |
| ENGL 102 or ENGL 112 | Composition and Rhetoric II: Advanced Research and Evidence-Based Writing English Composition II | 3.0 |
| ENGL 103 or ENGL 113 | Composition and Rhetoric III: Themes and Genres English Composition III | 3.0 |
| UNIV H101 | The Drexel Experience | 1.0 |
| COOP 101 | Career Management and Professional Development | 1.0 |
| CIVC 101 | Introduction to Civic Engagement | 1.0 |
| UNIV H201 | Looking Forward: Academics and Careers | 1.0 |
| Math courses | | 6.0-8.0 |
| Science courses * | | 6.0-8.0 |

Foundation Requirements

| | | |
|--|--|---------|
| Diversity electives | | 6.0 |
| Two Consecutive Foreign Language courses (must complete level 201) | | 7.0-8.0 |
| Humanities/Fine Arts electives | | 12.0 |
| Social Science electives | | 12.0 |
| International Studies electives | | 6.0 |

Core History Requirements

| | | |
|---|---------------------------------------|------|
| HIST 101 | Introductory Seminar in History I ** | |
| HIST 102 | Introductory Seminar in History II ** | |
| HIST 296 | Research Methods in History I ** | |
| HIST 301 | The Study of History ** | |
| HIST 396 | Research Methods in History II ** | |
| HIST 490 [WI] | Senior Seminar I ** | |
| HIST 491 [WI] | Senior Seminar II ** | |
| Any 1 Advanced History Seminar (Topics will vary) | | |
| HIST 380 | Advanced History Seminar | |
| History Distribution Courses*** | | 20.0 |
| Any 2 non-U.S. History courses | | |
| Any 1 U.S. History Course | | |
| Any 1 History courses covering pre-1700 history (May not be HIST 201) | | |

| | | |
|--|--|--------------------|
| Any 1 History of Science, Technology, and Environment course | | |
| History Concentration courses or any 7 History courses (at least four must be 200-level and above) | | 28.0 |
| Free electives † | | 33.0 |
| Total Credits | | 181.0-186.0 |

- * Any Biology (BIO), Chemistry (CHEM), Nutrition (NFS), Physics (PHYS), Geoscience (GEO), Environmental Science (ENVS), or Physics-Environmental Science (PHEV).
- ** These courses must be taken in sequence.
- *** Only 200-level and above HIST courses will fulfill this requirement.
- † Thirty-three (33.0) credits is the minimum allowed. Variations in concentration requirements and actual elective choices may result in earning more free elective credits.

Optional History Concentrations

Students may select one of the two following concentrations in the History BA, or they may elect not to undertake a concentration. The courses in the required history distribution list may count toward the 28.0 credits in a concentration; the courses in the required core sequence may not count toward the 28.0 credits in the concentration.

History of Science, Technology, and Environment Concentration

| | | |
|--|--|-------------|
| HIST 302 | The Study of Science, Technology, and Environment in History | 4.0 |
| Select 1 Environmental History course from the following list: | | 4.0 |
| HIST 320 | Disaster in Global History | |
| HIST 321 | Themes in Global Environmental History | |
| HIST T280 | Special Topics in History (with approval when appropriate topic offered) | |
| HIST T380 | Special Topics in History (with approval when appropriate topic offered) | |
| Select 1 Transnational Histories of Science and Technology course from the following list: | | 4.0 |
| HIST 290 | Technology and the World Community | |
| HIST 385 | Transnational History of Science, Technology and Environment | |
| HIST T280 | Special Topics in History (with approval when appropriate topic offered) | |
| HIST T380 | Special Topics in History (with approval when appropriate topic offered) | |
| Select 1 History of Medicine and Disabilities course from the following list: | | 4.0 |
| HIST 340 | History of Bodies in Science, Technology, and Medicine | |
| HIST 341 | Disabilities in History | |
| HIST T280 | Special Topics in History (with approval when appropriate topic offered) | |
| HIST T380 | Special Topics in History (with approval when appropriate topic offered) | |
| Concentration Electives (select three from the following list) | | 12.0 |
| HIST 278 | Medicine Before Germs | |
| HIST 279 | History of Modern Medicine | |
| HIST 283 | Technology and Identity | |
| HIST 285 | Technology in Historical Perspective | |
| HIST 287 | History of Science: Ancient to Medieval | |
| HIST 288 | History of Science: Medieval to Enlightenment | |
| HIST 289 | History of Science: Enlightenment to Modernity | |
| HIST 290 | Technology and the World Community | |
| HIST 291 | Global History of Engineering | |
| HIST 292 | Technology in American Life | |
| HIST 320 | Disaster in Global History | |
| HIST 321 | Themes in Global Environmental History | |
| HIST 322 | Empire and Environment | |
| HIST 340 | History of Bodies in Science, Technology, and Medicine | |
| HIST 341 | Disabilities in History | |
| HIST 365 | Science and State Power: Colonialism | |
| HIST T280 | Special Topics in History (with approval when appropriate topic offered) | |
| HIST T380 | Special Topics in History (with approval when appropriate topic offered) | |
| Total Credits | | 28.0 |

Global History Concentration

| | | |
|---|-----------------------------|---------|
| HIST 303 | The Study of Global History | 4.0 |
| Global Engagement Course † | | 4.0 |
| One Foreign Language Course †† | | 3.0-4.0 |
| Concentration Electives (select any four from the following list) ††† | | 16.0 |

| | |
|---------------|--|
| HIST 235 | The Great War, 1914-1918 |
| HIST 236 | World War II |
| HIST 250 | European Revolutionary Movements and Ideology, 1815-1914 |
| HIST 251 | Fascism |
| HIST 254 | Russian History Before 1900 |
| HIST 255 | Twentieth Century Russia & the USSR |
| HIST 256 | Germany & the World of Hitler |
| HIST 257 | The Reformation Age |
| HIST 261 | Making of Modern South Asia |
| HIST 263 | The World and China |
| HIST 264 | East Asia in Modern Times |
| HIST 267 | Twentieth Century World I |
| HIST 268 | Twentieth Century World II |
| HIST 270 [WI] | Introduction to Latin American History |
| HIST 271 | History of Mexico |
| HIST 274 | Conquest of Mexico |
| HIST 290 | Technology and the World Community |
| HIST 291 | Global History of Engineering |
| HIST 315 | History of Capitalism |
| HIST 320 | Disaster in Global History |
| HIST 321 | Themes in Global Environmental History |
| HIST 322 | Empire and Environment |
| HIST 355 | Venice and the Mediterranean from the Middle Ages to Napoleon |
| HIST 365 | Science and State Power: Colonialism |
| HIST 385 | Transnational History of Science, Technology and Environment |
| HIST T280 | Special Topics in History (with approval when appropriate topic offered) |
| HIST T380 | Special Topics in History (with approval when appropriate topic offered) |

Total Credits**27.0-28.0**

- † Courses which may fulfill the global engagement requirement include designated travel-integrated courses, study abroad courses (with approval), Global Classroom courses in history, or independent study courses (with approval.)
- †† In addition to the required CoAS Foundation Requirements foreign language courses (two courses, including completion of a language through 201) in one language, students in the global history concentration must take at least one course in a second foreign language.
- ††† At least two courses must be 300-level and above.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study (BA)

History BA - No concentration

4 year, no co-op

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--|--|------------------------|----------------|---------|
| ENGL 101 or 111 | 3.0 CIVC 101 | 1.0 ENGL 103 or 113 | 3.0 VACATION | |
| HIST 101 | 4.0 ENGL 102 or 112 | 3.0 US History course* | 4.0 | |
| UNIV H101 | 1.0 HIST 102 | 4.0 Mathematics course | 3.0-4.0 | |
| Foreign Language course (103-level or above) | 4.0 Foreign Language course (201-level or above) | 3.0-4.0 Free electives | 4.0 | |

| | | | | |
|--|--|--|-----------------------|----------------|
| Non-US History course [*] | 4.0 Mathematics course | 3.0-4.0 | | |
| | 16 | 14-16 | 14-15 | 0 |
| Second Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| HIST 296 | 4.0 History of Science, Technology and Environment course [*] | 4.0 Non-U.S. History course [*] | 4.0 VACATION | |
| Science elective ^{***} | 3.0-4.0 Humanities/fine arts elective | 3.0 Humanities/fine arts elective | 3.0 | |
| History course covering pre-1700 history ^{**} | 4.0 Social and behavioral science elective | 3.0 Social and behavioral science elective | 3.0 | |
| Free electives | 3.0-4.0 Science elective ^{***} | 3.0-4.0 Free electives | 6.0 | |
| | Free elective | 3.0-4.0 | | |
| | 14-16 | 16-18 | 16 | 0 |
| Third Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| History electives [†] | 8.0 HIST 301 | 4.0 HIST 396 | 4.0 VACATION | |
| International Studies elective | 3.0 UNIV H201 | 1.0 HIST 380 | 4.0 | |
| Diversity elective | 3.0 History elective [†] | 4.0 History elective [†] | 4.0 | |
| Free elective | 3.0-4.0 Social and Behavioral Science elective | 3.0 Humanities/Fine Arts elective | 3.0 | |
| | International Studies elective | 3.0 Free elective | 3.0-4.0 | |
| | 17-18 | 15 | 18-19 | 0 |
| Fourth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits | |
| HIST 490 | 4.0 HIST 491 | 4.0 History elective [†] | 4.0 | |
| History elective [†] | 4.0 History elective [†] | 4.0 Free electives | 9.0-10.0 | |
| Social and Behavioral Science elective | 3.0 Humanities/Fine Arts elective | 3.0 | | |
| Free elective | 3.0-4.0 Free elective | 3.0-4.0 | | |
| | 14-15 | 14-15 | 13-14 | |

Total Credits 181-193

History BA - no concentration

4 year, 1 co-op

| | | | | |
|--|--|--|------------------------------------|----------------|
| First Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| ENGL 101 or 111 | 3.0 CIVC 101 | 1.0 COOP 101 | 1.0 VACATION | |
| HIST 101 | 4.0 ENGL 102 or 112 | 3.0 ENGL 103 or 113 | 3.0 | |
| UNIV H101 | 1.0 HIST 102 | 4.0 US History course [*] | 4.0 | |
| Foreign Language course (103-level or above) | 4.0 Foreign Language course (201-level or above) | 3.0-4.0 Mathematics course | 3.0-4.0 | |
| Non-US History course [*] | 4.0 Mathematics course | 3.0-4.0 Free elective | 3.0-4.0 | |
| | 16 | 14-16 | 14-16 | 0 |
| Second Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| HIST 296 | 4.0 History of Science, Technology and Environment course [*] | 4.0 Non-US History course [*] | 4.0 History electives [†] | 8.0 |
| Science elective ^{***} | 3.0-4.0 Humanities/Fine Arts elective | 3.0 Humanities/Fine Arts elective | 3.0 International Studies elective | 3.0 |
| History course covering pre-1700 history ^{**} | 4.0 Social and Behavioral Science elective | 3.0 Social and Behavioral Science elective | 3.0 Diversity elective | 3.0 |
| Free elective | 3.0-4.0 Science elective ^{***} | 3.0-4.0 Free electives | 6.0 Free elective | 3.0-4.0 |
| | Free elective | 3.0-4.0 | | |
| | 14-16 | 16-18 | 16 | 17-18 |
| Third Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| HIST 301 | 4.0 HIST 380 | 4.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| UNIV H201 | 1.0 HIST 396 | 4.0 | | |

| | | | |
|--|-----------------------------------|-----------------------------------|----------------|
| History elective [†] | 4.0 History elective [†] | 4.0 | |
| Social and Behavioral Science elective | 3.0 Humanities/Fine Arts elective | 3.0 | |
| International Studies elective | 3.0 Free elective | 3.0-4.0 | |
| | 15 | 18-19 | 0 |
| Fourth Year | | | |
| Fall | Credits Winter | Credits Spring | Credits |
| HIST 490 | 4.0 HIST 491 | 4.0 History elective [†] | 4.0 |
| History elective [†] | 4.0 History elective [†] | 4.0 Free electives | 9.0-10.0 |
| Social and Behavioral Science elective | 3.0 Humanities/Fine Arts elective | 3.0 | |
| Free elective | 3.0-4.0 Free elective | 3.0-4.0 | |
| | 14-15 | 14-15 | 13-14 |

Total Credits 181-194

History BA - no concentration

5 year, 3 co-ops

| | | | | |
|--|---|------------------------------------|-----------------------|----------------|
| First Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| ENGL 101 or 111 | 3.0 CIVC 101 | 1.0 COOP 101 | 1.0 VACATION | |
| HIST 101 | 4.0 ENGL 102 or 112 | 3.0 ENGL 103 or 113 | 3.0 | |
| UNIV H101 | 1.0 HIST 102 | 4.0 US History course [*] | 4.0 | |
| Foreign Language course (103-level or higher) | 4.0 Foreign Language course (201-level or higher) | 3.0-4.0 Mathematics course | 3.0-4.0 | |
| Non-US History course [*] | 4.0 Mathematics course | 3.0-4.0 Free elective | 3.0-4.0 | |
| | 16 | 14-16 | 14-16 | 0 |
| Second Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| HIST 296 | 4.0 History of Science, Technology, and Environment course [*] | 4.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| Science elective ^{***} | 3.0-4.0 Humanities/Fine Arts elective | 3.0 | | |
| History course covering pre-1700 history ^{**} | 4.0 Social and Behavioral Science elective | 3.0 | | |
| Free elective | 3.0-4.0 Science elective ^{***} | 3.0-4.0 | | |
| | Free elective | 3.0-4.0 | | |
| | 14-16 | 16-18 | 0 | 0 |
| Third Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| Non-US History course [*] | 4.0 History electives [†] | 8.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| Humanities/Fine Arts elective | 3.0 International Studies elective | 3.0 | | |
| Social and Behavioral Science elective | 3.0 Diversity elective | 3.0 | | |
| Free electives | 6.0 Free elective | 3.0-4.0 | | |
| | 16 | 17-18 | 0 | 0 |
| Fourth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| HIST 201 | 4.0 HIST 380 | 4.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| UNIV H201 | 1.0 HIST 396 | 4.0 | | |
| History elective [†] | 4.0 History elective [†] | 4.0 | | |
| Social and Behavioral Science elective | 3.0 Humanities/Fine Arts elective | 3.0 | | |
| International Studies elective | 3.0 Free elective | 3.0-4.0 | | |
| | 15 | 18-19 | 0 | 0 |
| Fifth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits | |
| HIST 490 | 4.0 HIST 491 | 4.0 History elective [†] | 4.0 | |

| | | | |
|---|-----------------------------------|--------------------|--------------|
| History elective [†] | 4.0 History elective [†] | 4.0 Free electives | 9.0-11.0 |
| Social and Behavioral Sciences elective | 3.0 Humanities/Fine Arts elective | 3.0 | |
| Free elective | 3.0-4.0 Free elective | 3.0-4.0 | |
| | 14-15 | 14-15 | 13-15 |

Total Credits 181-195

* Must be 200-level or above.

** Must be 200-level or above. May not be HIST 201.

*** See degree requirements (p.).

† At least four core courses must be 200-level or above.

History BA - Science, Technology, and Environment Concentration

4 year, no co-op

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|---|---|------------------------|----------------|----------|
| HIST 101 | 4.0 CIVC 101 | 1.0 ENGL 103 or 113 | 3.0 VACATION | |
| ENGL 101 or 111 | 3.0 HIST 102 | 4.0 US History course* | 4.0 | |
| UNIV H101 | 1.0 ENGL 102 or 112 | 3.0 Mathematics course | 3.0-4.0 | |
| Non-US History course* | 4.0 Foreign Language course (201-level or higher) | 3.0-4.0 Free electives | 6.0-7.0 | |
| Foreign Language course (103-level or higher) | 4.0 Mathematics course | 3.0-4.0 | | |
| | 16 | 14-16 | 16-18 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|------------------------|---|--|----------------|----------|
| HIST 296 | 4.0 HIST 385 | 4.0 Non-US History course* | 4.0 VACATION | |
| Concentration elective | 4.0 Concentration elective | 4.0 History course covering pre-1700 history** | 4.0 | |
| Diversity elective | 3.0 Diversity elective | 3.0 Science elective*** | 3.0-4.0 | |
| Free electives | 6.0-7.0 Social or Behavioral Science elective | 3.0 Social or Behavioral Sciences elective | 3.0 | |
| | Free elective | 3.0-4.0 | | |
| | 17-18 | 17-18 | 14-15 | 0 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|---|---|-----------------------------------|----------------|----------|
| History of Science, Technology, and Environment course* | 4.0 HIST 301 | 4.0 HIST 302 | 4.0 VACATION | |
| Science elective*** | 3.0-4.0 HIST 380 | 4.0 HIST 396 | 4.0 | |
| Social or Behavioral Science elective | 3.0 UNIV H201 | 1.0 Humanities/Fine Arts elective | 3.0 | |
| International Studies elective | 3.0 Social or Behavioral Science elective | 3.0 Free elective | 3.0-4.0 | |
| Free elective | 3.0-4.0 International Studies elective | 3.0 | | |
| | 16-18 | 15 | 14-15 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits |
|---|-----------------------------------|-----------------------------------|--------------|
| HIST 490 | 4.0 HIST 491 | 4.0 Concentration elective | 4.0 |
| History of Medicine and Disabilities course | 4.0 Environmental History course | 4.0 Humanities/Fine Arts elective | 3.0 |
| Humanities/Fine Arts elective | 3.0 Humanities/Fine Arts elective | 3.0 Free electives | 7.0-9.0 |
| Free elective | 3.0-4.0 Free elective | 3.0-4.0 | |
| | 14-15 | 14-15 | 14-16 |

Total Credits 181-195

4 year, 1 co-op

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|---|---|----------------------------|----------------|----------|
| ENGL 101 or 111 | 3.0 CIVC 101 | 1.0 COOP 101 | 1.0 VACATION | |
| HIST 101 | 4.0 ENGL 102 or 112 | 3.0 ENGL 103 or 113 | 3.0 | |
| UNIV H101 | 1.0 HIST 102 | 4.0 US History course* | 4.0 | |
| Non-US History course* | 4.0 Foreign Language course (201-level or higher) | 3.0-4.0 Mathematics course | 3.0-4.0 | |
| Foreign Language course (103-level or higher) | 4.0 Mathematics course | 3.0-4.0 Free electives | 6.0-7.0 | |
| | 16 | 14-16 | 17-19 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|------------------------|---|--|---|--------------|
| HIST 296 | 4.0 HIST 385 | 4.0 Non-US History course* | 4.0 History of Science, Technology, and Environment course* | 4.0 |
| Concentration elective | 4.0 Concentration elective | 4.0 History course covering pre-1700 history** | 4.0 Science elective*** | 3.0-4.0 |
| Diversity elective | 3.0 Diversity elective | 3.0 Science elective*** | 3.0-4.0 Social or Behavioral Science elective | 3.0 |
| Free electives | 6.0-7.0 Social or Behavioral Science elective | 3.0 Social or Behavioral Sciences elective | 3.0 International Studies elective | 3.0 |
| | Free elective | 3.0-4.0 | Free elective | 3.0-4.0 |
| | 17-18 | 17-18 | 14-15 | 16-18 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|---------------------------------------|-----------------------------------|---------------------|-----------------|----------|
| HIST 301 | 4.0 HIST 302 | 4.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| HIST 380 | 4.0 HIST 396 | 4.0 | | |
| UNIV H201 | 1.0 Humanities/Fine Arts elective | 3.0 | | |
| Social or Behavioral Science elective | 3.0 Free elective | 3.0-4.0 | | |
| International Studies elective | 3.0 | | | |
| | 15 | 14-15 | 0 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits |
|---|-----------------------------------|-----------------------------------|--------------|
| HIST 490 | 4.0 HIST 491 | 4.0 Concentration elective | 4.0 |
| History of Medicine and Disabilities course | 4.0 Environmental History course | 4.0 Humanities/Fine Arts elective | 3.0 |
| Humanities/Fine Arts elective | 3.0 Humanities/Fine Arts elective | 3.0 Free electives | 7.0-9.0 |
| Free elective | 3.0-4.0 Free elective | 3.0-4.0 | |
| | 14-15 | 14-15 | 14-16 |

Total Credits 182-196

5 year, 3 co-ops

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|---|---|----------------------------|----------------|----------|
| ENGL 101 or 111 | 3.0 CIVC 101 | 1.0 COOP 101 | 1.0 VACATION | |
| HIST 101 | 4.0 ENGL 102 or 112 | 3.0 ENGL 103 or 113 | 3.0 | |
| UNIV H101 | 1.0 HIST 102 | 4.0 US History course* | 4.0 | |
| Non-US History course* | 4.0 Foreign Language course (201-level or higher) | 3.0-4.0 Mathematics course | 3.0-4.0 | |
| Foreign Language course (103-level or higher) | 4.0 Mathematics course | 3.0-4.0 Free elective | 6.0-7.0 | |
| | 16 | 14-16 | 17-19 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|----------|----------------|---------------------|-----------------|---------|
| HIST 296 | 4.0 HIST 385 | 4.0 COOP EXPERIENCE | COOP EXPERIENCE | |

| | | | | | |
|---|----------------|--|----------------|-------------------------------|-----------------|
| Concentration elective | 4.0 | Concentration elective | 4.0 | | |
| Diversity elective | 3.0 | Diversity elective | 3.0 | | |
| Free electives | 6.0-7.0 | Social or Behavioral Science elective | 3.0 | | |
| | | Free elective | 3.0-4.0 | | |
| | 17-18 | | 17-18 | 0 | 0 |
| Third Year | | | | | |
| Fall | Credits | Winter | Credits | Spring | Credits |
| Non-US History course * | 4.0 | History of Science, Technology, and Environment course * | 4.0 | COOP EXPERIENCE | COOP EXPERIENCE |
| History course covering pre-1700 history ** | 4.0 | Science elective *** | 3.0-4.0 | | |
| Science elective *** | 3.0-4.0 | Social or Behavioral Science elective | 3.0 | | |
| Social or Behavioral Sciences elective | 3.0 | International Studies elective | 3.0 | | |
| | | Free elective | 3.0-4.0 | | |
| | 14-15 | | 16-18 | 0 | 0 |
| Fourth Year | | | | | |
| Fall | Credits | Winter | Credits | Spring | Credits |
| HIST 301 | 4.0 | HIST 302 | 4.0 | COOP EXPERIENCE | COOP EXPERIENCE |
| HIST 380 | 4.0 | HIST 396 | 4.0 | | |
| UNIV H201 | 1.0 | Humanities/Fine Arts elective | 3.0 | | |
| Social or Behavioral Science elective | 3.0 | Free elective | 3.0-4.0 | | |
| International Studies elective | 3.0 | | | | |
| | 15 | | 14-15 | 0 | 0 |
| Fifth Year | | | | | |
| Fall | Credits | Winter | Credits | Spring | Credits |
| HIST 490 | 4.0 | HIST 491 | 4.0 | Concentration elective | 4.0 |
| History of Medicine and Disabilities course | 4.0 | Environmental History course | 4.0 | Humanities/Fine Arts elective | 3.0 |
| Humanities/Fine Arts elective | 3.0 | Humanities/Fine Arts elective | 3.0 | Free electives | 7.0-9.0 |
| Free elective | 3.0-4.0 | Free elective | 3.0-4.0 | | |
| | 14-15 | | 14-15 | 14-16 | |

Total Credits 182-196

* Must be 200-level or above.

** Must be 200-level or above. May not be HIST 201.

*** See degree requirements (p.).

History BA - Global History Concentration

4 year, no co-op

| | | | | | |
|--|----------------|--|----------------|--|----------------|
| First Year | | | | | |
| Fall | Credits | Winter | Credits | Spring | Credits |
| ENGL 101 or 111 | 3.0 | CIVC 101 | 1.0 | ENGL 103 or 113 | 3.0 |
| HIST 101 | 4.0 | ENGL 102 or 112 | 3.0 | US History course * | 4.0 |
| UNIV H101 | 1.0 | HIST 102 | 4.0 | Mathematics course | 3.0-4.0 |
| Foreign Language course (103-level or above) | 4.0 | Foreign Language course (201-level or above) | 3.0-4.0 | Free electives | 6.0-7.0 |
| Non-US History course * | 4.0 | Mathematics course | 3.0-4.0 | | |
| | 16 | | 14-16 | 16-18 | 0 |
| Second Year | | | | | |
| Fall | Credits | Winter | Credits | Spring | Credits |
| HIST 296 | 4.0 | Concentration elective ** | 4.0 | History of Science, Technology, and Environment course * | 4.0 |

| | | | | |
|---------------------------------------|--|---|-----------------------|----------------|
| Concentration elective** | 4.0 Foreign Language Concentration requirement | 4.0 History course covering pre-1700 history*** | 4.0 | |
| Diversity elective | 3.0 Diversity elective | 3.0 Global Engagement course† | 4.0 | |
| Free electives | 6.0-7.0 Social or Behavioral Science elective | 3.0 Science elective† | 3.0-4.0 | |
| 17-18 | | 14 | 15-16 | 0 |
| Third Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| Non-US History course* | 4.0 HIST 301 | 4.0 HIST 303 | 4.0 VACATION | |
| Science elective† | 3.0-4.0 HIST 380 | 4.0 HIST 396 | 4.0 | |
| Social or Behavioral Science elective | 3.0 UNIV H201 | 1.0 Social or Behavioral Science elective | 3.0 | |
| International Studies elective | 3.0 Social or Behavioral Science elective | 3.0 Humanities/Fine Arts elective | 3.0 | |
| Free elective | 3.0-4.0 International Studies elective | 3.0 Free elective | 3.0-4.0 | |
| 16-18 | | 15 | 17-18 | 0 |
| Fourth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits | |
| HIST 490 | 4.0 HIST 491 | 4.0 Concentration elective** | 4.0 | |
| Concentration elective** | 4.0 Humanities/Fine Arts elective | 3.0 Humanities/Fine Arts elective | 3.0 | |
| Humanities/Fine Arts elective | 3.0 Free electives | 6.0-8.0 Free electives | 6.0-8.0 | |
| Free elective | 3.0-4.0 | | | |
| 14-15 | | 13-15 | 13-15 | |

Total Credits 180-194

4 year, one co-op

| | | | | |
|--|--|---|---|----------------|
| First Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| ENGL 101 or 111 | 3.0 CIVC 101 | 1.0 COOP 101 | 1.0 VACATION | |
| HIST 101 | 4.0 ENGL 102 or 112 | 3.0 ENGL 103 or 113 | 3.0 | |
| UNIV H101 | 1.0 HIST 102 | 4.0 US History course* | 4.0 | |
| Foreign language course (103-level or above) | 4.0 Foreign language course (201-level or above) | 3.0-4.0 Mathematics course | 3.0-4.0 | |
| Non-US History course* | 4.0 Mathematics course | 3.0-4.0 Free electives | 6.0-7.0 | |
| 16 | | 14-16 | 17-19 | 0 |
| Second Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| HIST 296 | 4.0 Concentration elective** | 4.0 History of Science, Technology, and Environment course* | 4.0 Non-US History course* | 4.0 |
| Concentration elective** | 4.0 Foreign Language concentration requirement | 4.0 History course covering pre-1700 history*** | 4.0 Science elective† | 3.0-4.0 |
| Diversity elective | 3.0 Diversity elective | 3.0 Global Engagement course† | 4.0 Social or Behavioral Science elective | 3.0 |
| Free electives | 6.0-7.0 Social or Behavioral Science elective | 3.0 Science elective† | 3.0-4.0 International studies elective | 3.0 |
| | | | Free elective | 3.0-4.0 |
| 17-18 | | 14 | 15-16 | 16-18 |
| Third Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| HIST 301 | 4.0 HIST 303 | 4.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| HIST 380 | 4.0 HIST 396 | 4.0 | | |
| UNIV H201 | 1.0 Social or Behavioral Science elective | 3.0 | | |
| Social or Behavioral Science elective | 3.0 Humanities/Fine Arts elective | 3.0 | | |

| | | | | |
|--------------------------------|-----------------------------------|-----------------------------------|----------------|----------|
| International Studies elective | 3.0 Free elective | 3.0-4.0 | | |
| | 15 | 17-18 | 0 | 0 |
| Fourth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits | |
| HIST 490 | 4.0 HIST 491 | 4.0 Concentration elective** | 4.0 | |
| Concentration elective** | 4.0 Humanities/Fine Arts elective | 3.0 Humanities/Fine Arts elective | 3.0 | |
| Humanities/Fine Arts elective | 3.0 Free electives | 6.0-8.0 Free electives | 6.0-8.0 | |
| Free elective | 3.0-4.0 | | | |
| | 14-15 | 13-15 | 13-15 | |

Total Credits 181-195

5 year, three co-ops

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--|--|----------------------------|----------------|----------|
| ENGL 101 or 111 | 3.0 CIVC 101 | 1.0 COOP 101 | 1.0 VACATION | |
| HIST 101 | 4.0 ENGL 102 or 112 | 3.0 ENGL 103 or 113 | 3.0 | |
| UNIV H101 | 1.0 HIST 102 | 4.0 US History course* | 4.0 | |
| Foreign Language course (103-level or above) | 4.0 Foreign Language course (201-level or above) | 3.0-4.0 Mathematics course | 3.0-4.0 | |
| Non-US History course* | 4.0 Mathematics course | 3.0-4.0 Free elective | 6.0-7.0 | |
| | 16 | 14-16 | 17-19 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--------------------------|--|---------------------|-----------------|----------|
| HIST 296 | 4.0 Concentration elective** | 4.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| Concentration elective** | 4.0 Foreign Language Concentration requirement | 4.0 | | |
| Diversity elective | 3.0 Diversity elective | 3.0 | | |
| Free electives | 6.0-7.0 Social or Behavioral Science elective | 3.0 | | |
| | 17-18 | 14 | 0 | 0 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|---|---|---------------------|-----------------|----------|
| History of Science, Technology, and Environment course* | 4.0 Non-US History course* | 4.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| History course covering pre-1700 history*** | 4.0 Science elective† | 3.0-4.0 | | |
| Global Engagement course† | 4.0 Social or Behavioral Science elective | 3.0 | | |
| Science elective† | 3.0-4.0 International Studies elective | 3.0 | | |
| | Free elective | 3.0-4.0 | | |
| | 15-16 | 16-18 | 0 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|---------------------------------------|---|---------------------|-----------------|----------|
| HIST 301 | 4.0 HIST 303 | 4.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| HIST 380 | 4.0 HIST 396 | 4.0 | | |
| UNIV H201 | 1.0 Social or Behavioral Science elective | 3.0 | | |
| Social or Behavioral Science elective | 3.0 Humanities/Fine Arts elective | 3.0 | | |
| International Studies elective | 3.0 Free elective | 3.0-4.0 | | |
| | 15 | 17-18 | 0 | 0 |

Fifth Year

| Fall | Credits Winter | Credits Spring | Credits |
|--------------------------|-----------------------------------|-----------------------------------|---------|
| HIST 490 | 4.0 HIST 491 | 4.0 Concentration elective** | 4.0 |
| Concentration elective** | 4.0 Humanities/Fine Arts elective | 3.0 Humanities/Fine Arts elective | 3.0 |

| | | | |
|-------------------------------|--------------------|------------------------|---------|
| Humanities/Fine Arts elective | 3.0 Free electives | 6.0-8.0 Free electives | 6.0-8.0 |
| Free elective | 3.0-4.0 | | |
| | 14-15 | 13-15 | 13-15 |
| Total Credits 181-195 | | | |

- * Must be 200-level or above.
 ** Two must be 200-level or above.
 *** Must be 200-level or above. May not be HIST 201.
 † See degree requirements (p.).

Co-Op/Career Opportunities

Co-Op Experiences

History majors have a wide variety of co-op experiences from which to choose. Business and public utilities offer many possibilities, and local, state, and federal governments; museums and archives; and law firms present many additional interesting co-op placements. Pre-law students, for example, are especially eager to see the inside of a law office, whether the co-op job they receive is clerical or a more challenging paralegal assignment. These practical experiences in the “real” world can reinforce the lessons of the classroom, sharpen skills, and establish important contacts. Sample co-op positions include:

- Law clerk/paralegal, Joe Davidson, Attorney-at-Law, Philadelphia
- Research analyst, Legislative Office for Research Liaison, Harrisburg, PA
- Legislative intern, Corporate Public Affairs Division, Philadelphia Electric Company
- Assistant lobbyist, Government Relations Office, Drexel University
- Education intern, Philadelphia Museum of Art
- Researcher, Philadelphia Chamber of Commerce
- Assistant, Office of the Governor, Harrisburg, PA

Career Opportunities

The flexible programs allow students to shape a curriculum that meets their needs, whether they are preparing for the business world, graduate school in history or political science, an MBA or other business program, or law school.

History Faculty

Lloyd Ackert, PhD (*Johns Hopkins University*). Teaching Professor. History of science and technology; ecology; Russian science.

Debjani Bhattacharyya, PhD (*Emory University*). Associate Professor. Urban history, South Asian history, environmental history, legal history, transnational history, post-colonial theory, subaltern studies, history of modern economic thought and feminist history.

Yeonsil Kang, PhD (*Korea Advanced Institute of Science and Technology*). Visiting Assistant Professor. Science and technology studies, history of technology, environmental history.

Alison Kenner, PhD (*Rensselaer Polytechnic Institute*). Associate Professor. Science, technology, and health; environmental health problems; cities and place; feminist theory; medical anthropology; digital humanities

Scott G. Knowles, PhD (*Johns Hopkins University*) *Department Head, History*. Professor. Urban history, Philadelphia history, history of technology, history of disasters, modern history.

Jonson Miller, PhD (*Virginia Tech*). Teaching Professor. Science and technology, American history, military history.

Toni Pitock, PhD (*University of Delaware*) *Co-director, Judaic Studies Program*. Assistant Teaching Professor. Atlantic World, Jewish Migration and Diaspora, Economic Culture, Trade Networks, Colonial American History

Nic John Ramos, PhD (*University of Southern California*). Assistant Professor. African American History, history of Medicine, History of Psychiatry, urban History, 20th Century US History, History of Racial Capitalism, History of Sexuality

Rosalind Remer, PhD (*University of California, Los Angeles*) *Vice Provost & Executive Director, Lenfest Center for Cultural Partnerships; Affiliated Faculty Member*. History of the Book, Early American economic and business history, Public History, Museum planning, Non-profit Management

Tiago Saraiva, PhD (*Universidad Autónoma de Madrid*). Associate Professor. History of science and technology; transnational history; environmental history

Jonathan Seitz, PhD (*University of Wisconsin*) *Assistant Department Head, History*. Teaching Professor. History of religion, science, medicine, witchcraft, early modern Europe, Italy.

Amy Slaton, PhD (*University of Pennsylvania*). Professor. History of science and technology; history of standards and metrology; intersectionality, race, labor.

Kathryn Steen, PhD (*University of Delaware*). Associate Professor. History of technology, history of industry and business, and comparative history.

Donald F. Stevens, PhD (*University of Chicago*). Professor. Modern Latin American history.

Michael Yudell, MPH, PhD (*Columbia University*) *Chair, Department of Community Health*. Associate Professor. Department of Community Health and Prevention. Public health ethics; history of public health; race and racism; autism.

Emeritus Faculty

Eric Dorn Brose, PhD (*Ohio State University*). Professor Emeritus. German and European history.

Robert Zaller, PhD (*Washington University*). Professor Emeritus. English history and early modern European history.

Mathematics BA

Major: Mathematics

Degree Awarded: Bachelor of Arts (BA)

Calendar Type: Quarter

Minimum Required Credits: 181.0

Co-op Options: Three Co-op (Five years); One Co-op (Four years); No Co-op (Four years)

Classification of Instructional Programs (CIP) code: 27.0101

Standard Occupational Classification (SOC) code: 15-2021

About the Program

The mathematics major at Drexel provides a supportive learning environment in which students obtain a firm grounding in the core areas of mathematics and apply this knowledge to problems encountered in a technological society. The Department of Mathematics (<http://drexel.edu/coas/academics/departments-centers/mathematics/>) offers students the option of either a BA or a BS degree.

The Mathematics Department takes pride in offering a balanced and flexible curriculum. Three very different kinds of skills are emphasized in the mathematics major:

Abstract Reasoning

All students majoring in mathematics take courses that emphasize abstract reasoning. Students read and write proofs, and graduate well prepared to enter a PhD program in mathematics.

Computing

All students majoring in mathematics take a series of computing courses. This emphasis on computing is one of the distinctive features of the mathematics program at Drexel, and provides students with a competitive advantage in the job market.

Mathematical Modeling

All students majoring in mathematics take multidisciplinary courses that focus on the interplay between mathematics and an area of application. Students often use electives to focus on an area of personal interest. The Department of Mathematics encourages students to minor in a subject where mathematics is applied. The Department provides an advisor to assist students in selecting electives and planning career paths.

Degree Requirements (BA)

General Education Requirements

| | | |
|-------------|---|-----|
| CIVC 101 | Introduction to Civic Engagement | 1.0 |
| COM 230 | Techniques of Speaking | 3.0 |
| COOP 101 | Career Management and Professional Development * | 1.0 |
| ENGL 101 | Composition and Rhetoric I: Inquiry and Exploratory Research | 3.0 |
| or ENGL 111 | English Composition I | |
| ENGL 102 | Composition and Rhetoric II: Advanced Research and Evidence-Based Writing | 3.0 |
| or ENGL 112 | English Composition II | |
| ENGL 103 | Composition and Rhetoric III: Themes and Genres | 3.0 |
| or ENGL 113 | English Composition III | |

| | | |
|--|---|--------------------|
| UNIV S101 | The Drexel Experience | 1.0 |
| UNIV S201 | Looking Forward: Academics and Careers | 1.0 |
| Computer Science sequence: | | 9.0 |
| CS 150 | Computer Science Principles | |
| or CS 164 | Introduction to Computer Science | |
| CS 171 | Computer Programming I | |
| CS 172 | Computer Programming II | |
| Humanities and fine arts electives | | 6.0 |
| International studies electives | | 6.0 |
| Science electives | | 6.0 |
| Social and behavioral sciences electives | | 6.0 |
| Studies in diversity electives | | 6.0 |
| Free Electives * | | 66.0 |
| Core Mathematics Requirements | | |
| MATH 121 | Calculus I ** | 4.0 |
| MATH 122 | Calculus II | 4.0 |
| MATH 123 | Calculus III | 4.0 |
| MATH 200 | Multivariate Calculus | 4.0 |
| MATH 201 | Linear Algebra | 4.0 |
| MATH 210 | Differential Equations | 4.0 |
| MATH 220 [W] | Introduction to Mathematical Reasoning | 3.0 |
| MATH 331 | Abstract Algebra I | 3.0-4.0 |
| or MATH 401 | Elements of Modern Analysis I | |
| Math Major Electives *** | | 30.0 |
| Select a minimum of 30 credits from the following: | | |
| MATH 205 | Survey of Geometry | |
| MATH 221 | Discrete Mathematics | |
| MATH 222 [W] | Combinatorics | |
| MATH 235 | Math Competition Problem Solving Seminar | |
| MATH 238 | History of Mathematics | |
| MATH 250 | Mathematics of Investment and Credit | |
| MATH 285 | Differential Equations II | |
| MATH 300 | Numerical Analysis I | |
| MATH 301 | Numerical Analysis II | |
| MATH 305 | Introduction to Optimization Theory | |
| MATH 311 | Probability and Statistics I | |
| MATH 312 | Probability and Statistics II | |
| MATH 313 | Probability and Statistics III | |
| MATH 316 | Mathematical Applications of Symbolic Software | |
| MATH 318 [W] | Mathematical Applications of Statistical Software | |
| MATH 319 | Techniques of Data Analysis | |
| MATH 320 | Actuarial Mathematics | |
| MATH 321 | Vector Calculus | |
| MATH 322 | Complex Variables | |
| MATH 323 | Partial Differential Equations | |
| MATH 332 | Abstract Algebra II | |
| MATH 387 | Linear Algebra II | |
| MATH 401 | Elements of Modern Analysis I | |
| or MATH 331 | Abstract Algebra I | |
| MATH 402 | Elements of Modern Analysis II | |
| MATH 422 | Introduction to Topology | |
| MATH 449 | Mathematical Finance | |
| MATH 450 | Introduction to Graph Theory | |
| MATH 475 | Cryptography | |
| MATH 483 | Introduction to Monte Carlo Methods | |
| MATH 489 | Tensor Calculus | |
| Total Credits | | 181.0-182.0 |

* Students not participating in co-op, will take one additional credit of Free Elective instead of COOP 101.

** Math majors must pass MATH 121 with a grade of B or higher.

*** If a student takes both of MATH 331 and MATH 401, then one of these can count as a Mathematics Elective. Up to 3 mathematics-related courses from other departments may be substituted for Mathematics Electives with departmental permission. MATH special topics courses may be substituted for Mathematics Electives with departmental permission.

Categories of Electives

- *Humanities and arts electives*

Designated courses in art, art history, communication studies, foreign languages (300-level or above), history, literature, music, philosophy, religion, and theatre arts.

- *International electives*

Designated courses in anthropology, art history, history, literature, music, politics and sociology. Courses with an international focus may be used to fulfill requirements in other categories as well.

- *Science electives*

Students select two courses from chemistry, biology or physics. Both courses may be in the same subject or they may be in different subject areas.

- *Social and behavioral sciences electives*

Designated courses in anthropology, economics, criminology & justice studies, international relations, history, politics, psychology and sociology.

- *Studies in diversity electives*

Designated courses in Africana studies, anthropology, communication, English, history, Judaic studies, linguistics, music, sociology and women's & gender studies.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study (BA)

4 year, no co-op

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|------------------|--------------------------|--|----------------|----------|
| CS 150 or 164 | 3.0 CIVC 101 | 1.0 CS 172 | 3.0 VACATION | |
| ENGL 101 or 111 | 3.0 CS 171 | 3.0 ENGL 103 or 113 | 3.0 | |
| MATH 121* | 4.0 ENGL 102 or 112 | 3.0 MATH 123 | 4.0 | |
| UNIV S101 | 1.0 MATH 122 | 4.0 MATH 220 | 3.0 | |
| Science elective | 3.0-4.0 Science elective | 3.0-4.0 Social and Behavioral Science elective | 3.0 | |
| | 14-15 | 14-15 | 16 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--------------------------------|-----------------------------------|--|----------------|----------|
| COM 230 | 3.0 Mathematics (MATH) courses** | 6.0 MATH 210 | 4.0 VACATION | |
| MATH 200 | 4.0 Humanities/Fine Arts elective | 3.0 Mathematics (MATH) course | 3.0 | |
| MATH 201 | 4.0 Free electives | 6.0 Social and Behavioral Science elective | 3.0 | |
| Diversity Studies elective | 3.0 | Humanities/Fine Arts elective | 3.0 | |
| International Studies elective | 3.0 | Free elective | 3.0 | |
| | 17 | 15 | 16 | 0 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------------------|--|---------------------------------|-----------------------|----------------|
| Mathematics (MATH) course** | 3.0 MATH 401 or 331 | 3.0-4.0 UNIV S201 | 1.0 VACATION | |
| Diversity Studies elective | 3.0 Mathematics (MATH) course** | 3.0 Mathematics (MATH) course** | 4.0 | |
| Free electives | 9.0 International Studies elective Free electives | 3.0 Free electives 6.0 | 10.0 | |
| | 15 | 15-16 | 15 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits |
|-----------------------------|-------------------------------|---------------------------------|----------------|
| Mathematics (MATH) course** | 4.0 Mathematics (MATH) course | 3.0 Mathematics (MATH) course** | 4.0 |
| Free electives | 12.0 Free electives | 11.0 Free electives | 10.0 |
| | 16 | 14 | 14 |

Total Credits 181-184

* Math majors must pass MATH 121 with a grade of B or higher.

** If a student takes both of MATH 331 and MATH 401, then one of these can count as a Mathematics Elective. Up to 3 mathematics-related courses from other departments may be substituted for Mathematics Electives with departmental permission. MATH special topics courses may be substituted for Mathematics Electives with departmental permission.

4 year, 1 co-op**First Year**

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|------------------|--------------------------|---|-----------------------|----------------|
| CS 150 or 164 | 3.0 CIVC 101 | 1.0 COOP 101** | 1.0 VACATION | |
| ENGL 101 or 111 | 3.0 CS 171 | 3.0 CS 172 | 3.0 | |
| MATH 121* | 4.0 ENGL 102 or 112 | 3.0 ENGL 103 or 113 | 3.0 | |
| UNIV S101 | 1.0 MATH 122 | 4.0 MATH 123 | 4.0 | |
| Science elective | 3.0-4.0 Science elective | 3.0-4.0 MATH 220 Social and Behavioral Science elective | 3.0 3.0 | |
| | 14-15 | 14-15 | 17 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--------------------------------|-----------------------------------|--|----------------------------------|----------------|
| COM 230 | 3.0 Mathematics (MATH) courses*** | 6.0 MATH 210 | 4.0 Mathematics (MATH) course*** | 3.0 |
| MATH 200 | 4.0 Humanities/Fine Arts elective | 3.0 Mathematics (MATH) course*** | 3.0 Diversity Studies elective | 3.0 |
| MATH 201 | 4.0 Fine Arts elective | 6.0 Social and Behavioral Science elective | 3.0 Free elective | 9.0 |
| Diversity Studies elective | 3.0 | Humanities/Fine Arts elective | 3.0 | |
| International Studies elective | 3.0 | Free elective | 3.0 | |
| | 17 | 15 | 16 | 15 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--------------------------------|----------------------------------|-----------------------|-----------------------|----------------|
| MATH 401 or 331 | 3.0-4.0 UNIV S201 | 1.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| Mathematics (MATH) course*** | 3.0 Mathematics (MATH) course*** | 4.0 | | |
| International Studies elective | 3.0 Free electives | 9.0 | | |
| Free electives | 6.0 | | | |
| | 15-16 | 14 | 0 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits |
|------------------------------|----------------------------------|----------------------------------|----------------|
| Mathematics (MATH) course*** | 4.0 Mathematics (MATH) course*** | 3.0 Mathematics (MATH) course*** | 4.0 |

| | | | |
|----------------|---------------------|---------------------|-----------|
| Free electives | 12.0 Free electives | 11.0 Free electives | 10.0 |
| | 16 | 14 | 14 |

Total Credits 181-184

* Math majors must pass MATH 121 with a grade of B or higher.

** COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

*** If a student takes both of MATH 331 and MATH 401, then one of these can count as a Mathematics Elective. Up to 3 mathematics-related courses from other departments may be substituted for Mathematics Electives with departmental permission. MATH special topics courses may be substituted for Mathematics Electives with departmental permission.

5-year, 3 co-op**First Year**

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|------------------|--------------------------|---|----------------|----------|
| CS 150 or 164 | 3.0 CIVC 101 | 1.0 COOP 101** | 1.0 VACATION | |
| ENGL 101 or 111 | 3.0 CS 171 | 3.0 CS 172 | 3.0 | |
| MATH 121* | 4.0 ENGL 102 or 112 | 3.0 ENGL 103 or 113 | 3.0 | |
| UNIV S101 | 1.0 MATH 122 | 4.0 MATH 123 | 4.0 | |
| Science elective | 3.0-4.0 Science elective | 3.0-4.0 MATH 220 | 3.0 | |
| | | Social and Behavioral Science elective | 3.0 | |
| | 14-15 | 14-15 | 17 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--------------------------------|-----------------------------------|---------------------|-----------------|----------|
| COM 230 | 3.0 Mathematics (MATH) courses*** | 6.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| MATH 200 | 4.0 Humanities/Fine Arts elective | 3.0 | | |
| MATH 201 | 4.0 Free electives | 6.0 | | |
| Diversity Studies elective | 3.0 | | | |
| International Studies elective | 3.0 | | | |
| | 17 | 15 | 0 | 0 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--|----------------------------------|---------------------|-----------------|----------|
| MATH 210 | 4.0 Mathematics (MATH) course*** | 3.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| Mathematics (MATH) course*** | 3.0 Diversities Studies elective | 3.0 | | |
| Social and Behavioral Science elective | 3.0 Free electives | 9.0 | | |
| Humanities/Fine Arts elective | 3.0 | | | |
| Free elective | 3.0 | | | |
| | 16 | 15 | 0 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--------------------------------|-----------------------------------|---------------------|-----------------|----------|
| MATH 401 or 331 | 3.0 UNIV S201 | 1.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| Mathematics (MATH) course*** | 3.0 Mathematics (MATH) courses*** | 4.0 | | |
| International Studies elective | 3.0 Free electives | 9.0 | | |
| Free electives | 6.0 | | | |
| | 15 | 14 | 0 | 0 |

Fifth Year

| Fall | Credits Winter | Credits Spring | Credits |
|------------------------------|----------------------------------|----------------------------------|-----------|
| Mathematics (MATH) course*** | 4.0 Mathematics (MATH) course*** | 3.0 Mathematics (MATH) course*** | 4.0 |
| Free electives | 12.0 Free electives | 11.0 Free electives | 10.0 |
| | 16 | 14 | 14 |

Total Credits 181-183

- * Math majors must pass MATH 121 with a grade of B or higher.
- ** COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.
- *** If a student takes both of MATH 331 and MATH 401, then one of these can count as a Mathematics Elective. Up to 3 mathematics-related courses from other departments may be substituted for Mathematics Electives with departmental permission. MATH special topics courses may be substituted for Mathematics Electives with departmental permission.

Co-op/Career Opportunities

Mathematicians are employed in a variety of capacities in business, industry, and government. Students can combine courses in economics or finance and mathematics to prepare for careers in the actuarial field, banks, stock exchanges, or finance departments of large corporations or other financial institutions. Students interested in science careers may focus on probability and statistics in order to work for industries like pharmaceutical manufacturers. Many others combine math studies with computer science courses to prepare for careers in information systems or engineering. Teacher certification is also a career option available through a joint program in mathematics and teacher education.

Visit the Drexel Steinbright Career Development Center (<http://www.drexel.edu/scdc/>) for more detailed information on co-op and post-graduate opportunities.

Dual Degree Bachelor's Programs

Since applied mathematics plays an important role in many different disciplines, mathematics majors often choose to pursue specialization in a second field of study. Students may choose a dual major that involves completing the requirements of two separate majors or they can opt for a minor, which involves completing the major in one field and a smaller set of courses in another.

Dual majors are common in mathematics/computer science and mathematics/physics. Students interested in a dual major should consult with their advisor or contact the assistant department head. Dual majors in other fields are also possible, but early planning and discussions with advisors is essential.

Mathematics Faculty

David M. Ambrose, PhD (*Duke University*) Associate Department Head, *Mathematics*. Professor. Applied analysis and computing for systems of nonlinear partial differential equations, especially free-surface problems in fluid dynamics.

Jason Aran, MS (*Drexel University*). Associate Teaching Professor.

Jonah D. Blasiak, PhD (*University of California at Berkeley*). Associate Professor. Algebraic combinatorics, representation theory, and complexity theory.

Yasmine Boolakee-Pant, MS (*University of Freiburg*). Instructor.

Robert P. Boyer, PhD (*University of Pennsylvania*). Professor. Functional analysis, C*-algebras and the theory of group.

Fernando Carreon, PhD (*University of Texas at Austin*). Teaching Professor.

Patrick Clarke, PhD (*University of Miami*). Associate Professor. Homological mirror symmetry, Landau-Ginzburg models, algebraic geometry, symplectic geometry.

Daryl Falco, MS (*Drexel University*). Associate Teaching Professor. Discrete mathematics and automata theory.

Raymond Favocci, MS (*Drexel University*). Associate Teaching Professor.

Darij Grinberg, PhD (*Massachusetts Institute of Technology*). Assistant Professor. Algebraic Combinatorics, Noncommutative Algebra, Symmetric Functions, Hopf Algebras, Enumerative Combinatorics, Invariant Theory

Pavel Grinfeld, PhD (*Massachusetts Institute of Technology*). Associate Professor. Intersection of physics, engineering, applied mathematics and computational science.

Anatolii Grinshpan, PhD (*University of California at Berkeley*). Associate Teaching Professor. Function theory and operator theory, harmonic analysis, matrix theory.

Yixin Guo, PhD (*University of Pittsburgh*). Associate Professor. Biomathematics, dynamical systems, ordinary and partial differential equations and math education.

R. Andrew Hicks, PhD (*University of Pennsylvania*). Professor. Geometry; optics; computer vision.

Pawel Hitczenko, PhD (*Warsaw University*). Professor. Probability theory and its applications to analysis, combinatorics, wavelets, and the analysis of algorithms.

Jeffrey LaComb, PhD (*Duke University*). Assistant Teaching Professor. Rare Event Simulation, Dynamical Systems, Numerical Analysis and Mathematical Biology

Georgi S. Medvedev, PhD (*Boston University*). Professor. Ordinary and partial differential equations, mathematical neuroscience.

Cecilia Mondaini, PhD (*Federal University of Rio de Janeiro*). Assistant Professor. Analysis of Partial Differential Equations, Fluid Dynamics, Stochastic Processes

Shari Moskow, PhD (*Rutgers University*) *Department Head*. Professor. Partial differential equations and numerical analysis, including homogenization theory, numerical methods for problems with rough coefficients, and inverse problems.

Oksana P. Odintsova, PhD (*Omsk State University*). Teaching Professor. Math education; geometrical modeling.

Dimitrios Papadopoulos, MS (*Drexel University*). Assistant Teaching Professor.

Joel Pereira, PhD (*University of North Carolina*). Assistant Teaching Professor. Commutative Algebra

Ronald K. Perline, PhD (*University of California at Berkeley*) *Undergraduate Adviser*. Associate Professor. Applied mathematics, numerical analysis, symbolic computation, differential geometry, mathematical physics.

Marci A. Perlstadt, PhD (*University of California at Berkeley*). Associate Professor. Applied mathematics, computed tomography, numerical analysis of function reconstruction, signal processing, combinatorics.

Adam C. Rickert, MS (*Drexel University*). Associate Teaching Professor.

Eric Schmutz, PhD (*University of Pennsylvania*). Professor. Probabilistic combinatorics, asymptotic enumeration.

Li Sheng, PhD (*Rutgers University*). Associate Professor. Discrete optimization, combinatorics, operations research, graph theory and its application in molecular biology, social sciences and communication networks, biostatistics.

Gideon Simpson, PhD (*Columbia University*). Associate Professor. Partial differential equations, scientific computing and applied mathematics.

Xiaoming Song, PhD (*University of Kansas*). Associate Professor. Stochastic Calculus, Large Deviation Theory, Theoretical Statistics, Data Network Modeling and Numerical Analysis.

Jeanne M. Steuber, MS (*Boston University*). Associate Teaching Professor.

Kenneth P. Swartz, PhD (*Harvard University*). Assistant Teaching Professor. Applied statistics, data analysis, calculus, discrete mathematics, biostatistics.

K. Shwetketu Virbhadra, PhD (*Physical Research Laboratory*). Instructor.

Richard D. White, MS (*Penn State University*). Assistant Teaching Professor.

Hugo J. Woerdeman, PhD (*Vrije Universiteit, Amsterdam*). Professor. Matrix and operator theory, systems theory, signal and image processing, and harmonic analysis.

J. Douglas Wright, PhD (*Boston University*) *Associate Department Head*. Professor. Partial differential equations, specifically nonlinear waves and their interactions.

Dennis G. Yang, PhD (*Cornell University*). Associate Teaching Professor. Dynamical systems, neurodynamics.

Thomas (Pok-Yin) Yu, PhD (*Stanford University*). Professor. Multiscale mathematics, wavelets, applied harmonic analysis, subdivision algorithms, nonlinear analysis, applied differential geometry and data analysis.

Matthew Ziemke, PhD (*University of South Carolina*). Assistant Teaching Professor. Functional Analysis, Operator Algebras, Semigroups, Mathematical Physics

Emeritus Faculty

Howard Anton, PhD (*Polytechnic Institute of Brooklyn*). Professor Emeritus.

Loren N. Argabright, PhD (*University of Washington*). Professor Emeritus. Functional analysis, wavelets, abstract harmonic analysis, the theory of group representations.

Robert C. Busby, PhD (*University of Pennsylvania*). Professor Emeritus. Functional analysis, C*-algebras and group representations, computer science.

Ewaugh Finney Fields, EdD (*Temple University*) *Dean Emeritus*. Professor Emeritus. Mathematics education, curriculum and instruction, minority engineering education.

William M.Y. Goh, PhD (*Ohio State University*). Associate Professor Emeritus. Number theory, approximation theory and special functions, combinatorics, asymptotic analysis.

Patricia Henry Russell, MS (*Drexel University*). Teaching Professor Emerita.

Bernard Kolman, PhD (*University of Pennsylvania*). Professor Emeritus. Lie algebras; theory, applications, and computational techniques; operations research.

Charles J. Mode, PhD (*University of California at Davis*). Professor Emeritus. Probability and statistics, biostatistics, epidemiology, mathematical demography, data analysis, computer-intensive methods.

Chris Rorres, PhD (*Courant Institute, New York University*). Professor Emeritus. Applied mathematics, scattering theory, mathematical modeling in biological sciences, solar-collection systems.

Justin R. Smith, PhD (*Courant Institute, New York University*). Professor Emeritus. Homotopy theory, operad theory, quantum mechanics, quantum computing.

Jet Wimp, PhD (*University of Edinburgh*). Professor Emeritus. Applied mathematics, special factors, approximation theory, numerical techniques, asymptotic analysis.

Mathematics BS

Major: Mathematics

Degree Awarded: Bachelor of Science (BS)

Calendar Type: Quarter

Minimum Required Credits: 181.0

Co-op Options: Three Co-op (Five years); One Co-op (Four years); No Co-op (Four years)

Classification of Instructional Programs (CIP) code: 27.0101

Standard Occupational Classification (SOC) code: 15-2021

About the Program

The mathematics major at Drexel provides a supportive learning environment in which students obtain a firm grounding in the core areas of mathematics and apply this knowledge to problems encountered in a technological society. The Department of Mathematics (<http://drexel.edu/coas/academics/departments-centers/mathematics/>) offers students the option of either a BA or a BS degree.

The Mathematics Department takes pride in offering a balanced and flexible curriculum. Three very different kinds of skills are emphasized in the mathematics major:

Abstract Reasoning

All students majoring in mathematics take courses that emphasize abstract reasoning. Students read and write proofs, and graduate well prepared to enter a PhD program in mathematics.

Computing

All students majoring in mathematics take a series of computing courses. This emphasis on computing is one of the distinctive features of the mathematics program at Drexel, and provides students with a competitive advantage in the job market.

Mathematical Modeling

All students majoring in mathematics take multidisciplinary courses that focus on the interplay between mathematics and an area of application. Students often use electives to focus on an area of personal interest. The Department of Mathematics encourages students to minor in a subject where mathematics is applied. The Department provides an advisor to assist students in selecting electives and planning career paths.

Degree Requirements

General Education Requirements

| | | |
|----------|--|-----|
| CIVC 101 | Introduction to Civic Engagement | 1.0 |
| COOP 101 | Career Management and Professional Development | 1.0 |
| COM 230 | Techniques of Speaking | 3.0 |
| ENGL 101 | Composition and Rhetoric I: Inquiry and Exploratory Research | 3.0 |

| | | |
|---|---|-------------|
| or ENGL 111 | English Composition I | |
| ENGL 102 | Composition and Rhetoric II: Advanced Research and Evidence-Based Writing | 3.0 |
| or ENGL 112 | English Composition II | |
| ENGL 103 | Composition and Rhetoric III: Themes and Genres | 3.0 |
| or ENGL 113 | English Composition III | |
| UNIV S101 | The Drexel Experience | 1.0 |
| UNIV S201 | Looking Forward: Academics and Careers | 1.0 |
| Computer Science sequence: | | 9.0 |
| CS 150 | Computer Science Principles | |
| or CS 164 | Introduction to Computer Science | |
| CS 171 | Computer Programming I | |
| CS 172 | Computer Programming II | |
| Any Biology (BIO) course | | 3.0-4.0 |
| Any Chemistry (CHEM) course | | 3.0-4.0 |
| Any Physics (PHYS) or Physics-Environmental Science (PHEV) course | | 3.0-4.0 |
| Humanities electives | | 6.0 |
| Social sciences electives | | 15.0 |
| International studies or studies in diversity electives | | 6.0 |
| Free electives | | 40.0 |
| Mathematics Requirements | | |
| MATH 121 | Calculus I ** | 4.0 |
| MATH 122 | Calculus II | 4.0 |
| MATH 123 | Calculus III | 4.0 |
| MATH 200 | Multivariate Calculus | 4.0 |
| MATH 201 | Linear Algebra | 4.0 |
| MATH 210 | Differential Equations | 4.0 |
| MATH 220 [W] | Introduction to Mathematical Reasoning | 3.0 |
| MATH 331 | Abstract Algebra I | 4.0 |
| MATH 332 | Abstract Algebra II | 3.0 |
| MATH 401 | Elements of Modern Analysis I | 3.0 |
| MATH 402 | Elements of Modern Analysis II | 3.0 |
| Math Major Electives *** | | 40.0 |
| Select a minimum of 40.0 credits from the following: | | |
| MATH 222 [W] | Combinatorics | |
| MATH 235 | Math Competition Problem Solving Seminar | |
| MATH 250 | Mathematics of Investment and Credit | |
| MATH 285 | Differential Equations II | |
| MATH 300 | Numerical Analysis I | |
| MATH 301 | Numerical Analysis II | |
| MATH 305 | Introduction to Optimization Theory | |
| MATH 311 | Probability and Statistics I | |
| MATH 312 | Probability and Statistics II | |
| MATH 313 | Probability and Statistics III | |
| MATH 316 | Mathematical Applications of Symbolic Software | |
| MATH 318 [W] | Mathematical Applications of Statistical Software | |
| MATH 319 | Techniques of Data Analysis | |
| MATH 320 | Actuarial Mathematics | |
| MATH 321 | Vector Calculus | |
| MATH 322 | Complex Variables | |
| MATH 323 | Partial Differential Equations | |
| MATH 387 | Linear Algebra II | |
| MATH 422 | Introduction to Topology | |
| MATH 449 | Mathematical Finance | |
| MATH 450 | Introduction to Graph Theory | |
| MATH 475 | Cryptography | |
| MATH 483 | Introduction to Monte Carlo Methods | |
| MATH 489 | Tensor Calculus | |

Total Credits**181.0-184.0**

* Students not participating in co-op will take one additional credit of Free Elective instead of COOP 101.

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

** Math majors must pass MATH 121 with a grade of B or higher.

*** MATH special topics courses may be substituted for Math Major Electives with departmental permission.

MATH 100, MATH 101, MATH 102, MATH 110, MATH 119, MATH 180, MATH 171, MATH 172, MATH 173, and MATH 239 do not count towards the degree unless approved by the department.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

4 year, no coop

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--------------------------|---------------------------------|--|----------------|----------|
| CS 150 or 164 | 3.0 CIVC 101 | 1.0 CS 172 | 3.0 VACATION | |
| ENGL 101 or 111 | 3.0 CS 171 | 3.0 ENGL 103 or 113 | 3.0 | |
| MATH 121 | 4.0 ENGL 102 or 112 | 3.0 MATH 123 | 4.0 | |
| UNIV S101 | 1.0 MATH 122 | 4.0 MATH 200 | 4.0 | |
| Any Biology (BIO) course | 3.0 Any Chemistry (CHEM) course | 3.0 Any Physics (PHYS) or or Physics - Environmental Science (PHEV) course | 3.0-4.0 | |
| | 14 | 14 | 17-18 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|---------------------------|--|-------------------------------------|----------------|----------|
| COM 230 | 3.0 MATH 210 | 4.0 MATH 331 | 4.0 VACATION | |
| MATH 201 | 4.0 International Studies or Studies in Diversity elective | 3.0 Humanities elective | 3.0 | |
| MATH 220 | 3.0 Mathematics (MATH) elective ** | 3.0 Mathematics (MATH) elective *** | 4.0 | |
| Social Sciences electives | 6.0 Social Science elective | 3.0 Social Science elective | 3.0 | |
| | 16 | 13 | 14 | 0 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--|-------------------------------------|--------------------------------------|----------------|----------|
| MATH 332 | 3.0 MATH 401 | 3.0 MATH 402 | 3.0 VACATION | |
| Free elective | 3.0 Free electives | 6.0 UNIV S201 | 1.0 | |
| Humanities elective | 3.0 Mathematics (MATH) elective *** | 3.0 Free electives | 6.0 | |
| International Studies or Studies in Diversity elective | 3.0 Social Science elective | 3.0 Mathematics (MATH) electives *** | 7.0 | |
| Mathematics (MATH) elective *** | 4.0 | | | |
| | 16 | 15 | 17 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits |
|---------------------------------|-------------------------------------|-------------------------------------|--------------|
| Free electives | 7.0-8.0 Free electives | 8.0 Free electives | 9.0-10.0 |
| Mathematics (MATH) electives*** | 8.0 Mathematics (MATH) electives*** | 7.0 Mathematics (MATH) electives*** | 6.0 |
| | 15-16 | 15 | 15-16 |

Total Credits 181-184

* Students not participating in co-op will take one additional credit of Free Elective instead of COOP 101.

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4 year, 1 coop**First Year**

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--------------------------|-----------------------------|---|----------------|----------|
| CS 150 or 164 | 3.0 CIVC 101 | 1.0 CS 172 | 3.0 VACATION | |
| ENGL 101 or 111 | 3.0 COOP 101** | 1.0 ENGL 103 or 113 | 3.0 | |
| MATH 121* | 4.0 CS 171 | 3.0 MATH 123 | 4.0 | |
| UNIV S101 | 1.0 ENGL 102 or 112 | 3.0 MATH 200 | 4.0 | |
| Any Biology (BIO) course | 3.0 MATH 122 | 4.0 Any Physics (PHYS) or Physics - Environmental Science (PHEV) course | 3.0-4.0 | |
| | Any Chemistry (CHEM) course | 3.0 | | |
| | 14 | 15 | 17-18 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|---------------------------|--|-----------------------------------|--|-----------|
| COM 230 | 3.0 MATH 210 | 4.0 MATH 331 | 4.0 MATH 332 | 3.0 |
| MATH 201 | 4.0 International Studies or Studies in Diversity elective | 3.0 Humanities elective | 3.0 Free elective | 3.0 |
| MATH 220 | 3.0 Mathematics (MATH) elective*** | 3.0 Mathematics (MATH) elective** | 4.0 Humanities elective | 3.0 |
| Social Sciences electives | 6.0 Social Science elective | 3.0 Social Science elective | 3.0 International Studies or Studies in Diversity elective | 3.0 |
| | | | Mathematics (MATH) elective*** | 4.0 |
| | 16 | 13 | 14 | 16 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--------------------------------|-------------------------------------|---------------------|-----------------|----------|
| MATH 401 | 3.0 MATH 402 | 3.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| Free electives | 6.0 UNIV S201 | 1.0 | | |
| Mathematics (MATH) elective*** | 3.0 Free electives | 6.0 | | |
| Social Science elective | 3.0 Mathematics (MATH) electives*** | 7.0 | | |
| | 15 | 17 | 0 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits |
|---------------------------------|-------------------------------------|-------------------------------------|-----------|
| Free electives | 6.0-7.0 Free electives | 8.0 Free electives | 9.0 |
| Mathematics (MATH) electives*** | 8.0 Mathematics (MATH) electives*** | 7.0 Mathematics (MATH) electives*** | 6.0 |
| | 14-15 | 15 | 15 |

Total Credits 181-183

* Math majors must pass MATH 121 with a grade of B or higher.

** Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

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MATH 100, MATH 101, MATH 102, MATH 110, MATH 119, MATH 180, MATH 171, MATH 172, MATH 173, and MATH 239 do not count towards the degree unless approved by the department

5 year, 3 coop

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--------------------------|-----------------------------|---|----------------|----------|
| CS 150 or 164 | 3.0 CIVC 101 | 1.0 CS 172 | 3.0 VACATION | |
| ENGL 101 or 111 | 3.0 COOP 101** | 1.0 ENGL 103 or 113 | 3.0 | |
| MATH 121* | 4.0 CS 171 | 3.0 MATH 123 | 4.0 | |
| UNIV S101 | 1.0 ENGL 102 or 112 | 3.0 MATH 200 | 4.0 | |
| Any Biology (BIO) course | 3.0 MATH 122 | 4.0 Any Physics (PHYS) or Physics - Environmental Science (PHEV) course | 3.0-4.0 | |
| | Any Chemistry (CHEM) course | 3.0 | | |
| | 14 | 15 | 17-18 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--------------------------|--|---------------------|-----------------|----------|
| COM 230 | 3.0 MATH 210 | 4.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| MATH 201 | 4.0 International Studies or Studies in Diversity elective | 3.0 | | |
| MATH 220 | 3.0 Mathematics (MATH) elective*** | 3.0 | | |
| Social Science electives | 6.0 Social Science elective | 3.0 | | |
| | 16 | 13 | 0 | 0 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--------------------------------|--|---------------------|-----------------|----------|
| MATH 331 | 4.0 MATH 332 | 3.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| Humanities elective | 3.0 Free elective | 3.0 | | |
| Mathematics (MATH) elective*** | 4.0 Humanities elective | 3.0 | | |
| Social Science elective | 3.0 International Studies or Studies in Diversity elective | 3.0 | | |
| | Mathematics (MATH) elective*** | 4.0 | | |
| | 14 | 16 | 0 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|---------------------------------|-------------------------------------|---------------------|-----------------|----------|
| MATH 401 | 3.0 MATH 402 | 3.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| Free electives | 6.0 UNIV S201 | 1.0 | | |
| Mathematics (MATH) electives*** | 3.0 Free electives | 6.0 | | |
| Social Science elective | 3.0 Mathematics (MATH) electives*** | 7.0 | | |
| | 15 | 17 | 0 | 0 |

Fifth Year

| Fall | Credits Winter | Credits Spring | Credits |
|---------------------------------|-------------------------------------|-------------------------------------|-----------|
| Free electives | 6.0-7.0 Free electives | 8.0 Free electives | 9.0 |
| Mathematics (MATH) electives*** | 8.0 Mathematics (MATH) electives*** | 7.0 Mathematics (MATH) electives*** | 6.0 |
| | 14-15 | 15 | 15 |

Total Credits 181-183

* Math majors must pass MATH 121 with a grade of B or higher.

** Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

*** If a student takes both MATH 331 and MATH 401 then one of these can count as a Mathematics Elective. Up to 3 mathematics-related courses from other departments may be substituted for Mathematics Electives with departmental permission. MATH special topics courses may be substituted for Mathematics Electives with departmental permission.

MATH 100, MATH 101, MATH 102, MATH 110, MATH 119, MATH 180, MATH 171, MATH 172, MATH 173, and MATH 239 do not count towards the degree unless approved by the department

Co-op/Career Opportunities

Mathematicians are employed in a variety of capacities in business, industry, and government. Students can combine courses in economics or finance and mathematics to prepare for careers in the actuarial field, banks, stock exchanges, or finance departments of large corporations or other financial institutions. Students interested in science careers may focus on probability and statistics in order to work for industries like pharmaceutical manufacturers. Many others combine math studies with computer science courses to prepare for careers in information systems or engineering. Teacher certification is also a career option available through a joint program in mathematics and teacher education.

Visit the Drexel Steinbright Career Development Center (<http://www.drexel.edu/scdc/>) for more detailed information on co-op and post-graduate opportunities.

Dual Degree Bachelor's Programs

Since applied mathematics plays an important role in many different disciplines, mathematics majors often choose to pursue specialization in a second field of study. Students may choose a dual major that involves completing the requirements of two separate majors or they can opt for a minor, which involves completing the major in one field and a smaller set of courses in another.

Dual majors are common in mathematics/computer science and mathematics/physics. Students interested in a dual major should consult with their advisor or contact the assistant department head. Dual majors in other fields are also possible, but early planning and discussions with advisors is essential.

Mathematics Faculty

David M. Ambrose, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/DavidAmbrose/>) (*Duke University*) Associate Department Head, *Mathematics*. Professor. Applied analysis and computing for systems of nonlinear partial differential equations, especially free-surface problems in fluid dynamics.

Jason Aran, MS (<https://drexel.edu/coas/faculty-research/faculty-directory/aran-jason/>) (*Drexel University*). Associate Teaching Professor.

Jonah D. Blasiak, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/JonahBlasiak/>) (*University of California at Berkeley*). Associate Professor. Algebraic combinatorics, representation theory, and complexity theory.

Yasmine Boolakee-Pant, MS (<https://drexel.edu/coas/faculty-research/faculty-directory/boolakee-pant-yasmin/>) (*University of Freiburg*). Instructor.

Robert P. Boyer, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/Robert-Boyer/>) (*University of Pennsylvania*). Professor. Functional analysis, C^* -algebras and the theory of group.

Fernando Carreon, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/carreon-fernando/>) (*University of Texas at Austin*). Teaching Professor.

Patrick Clarke, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/Patrick-Clarke/>) (*University of Miami*). Associate Professor. Homological mirror symmetry, Landau-Ginzburg models, algebraic geometry, symplectic geometry.

Daryl Falco, MS (<https://drexel.edu/coas/faculty-research/faculty-directory/DarylFalco/>) (*Drexel University*). Associate Teaching Professor. Discrete mathematics and automata theory.

Raymond Favocci, MS (<https://drexel.edu/coas/faculty-research/faculty-directory/RaymondFavocci/>) (*Drexel University*). Associate Teaching Professor.

Darij Grinberg, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/grinberg-darij/>) (*Massachusetts Institute of Technology*). Assistant Professor. Algebraic Combinatorics, Noncommutative Algebra, Symmetric Functions, Hopf Algebras, Enumerative Combinatorics, Invariant Theory

Pavel Grinfeld, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/Pavel-Grinfeld/>) (*Massachusetts Institute of Technology*). Associate Professor. Intersection of physics, engineering, applied mathematics and computational science.

Anatolii Grinshpan, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/Anatolii-Grinshpan/>) (*University of California at Berkeley*). Associate Teaching Professor. Function theory and operator theory, harmonic analysis, matrix theory.

Yixin Guo, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/Yixin-Guo/>) (*University of Pittsburgh*). Associate Professor. Biomathematics, dynamical systems, ordinary and partial differential equations and math education.

R. Andrew Hicks, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/AndrewHicks/>) (*University of Pennsylvania*). Professor. Geometry; optics; computer vision.

Pawel Hitczenko, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/PawelHitczenko/>) (*Warsaw University*). Professor. Probability theory and its applications to analysis, combinatorics, wavelets, and the analysis of algorithms.

Jeffrey LaComb, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/lacomb-jeffrey/>) (*Duke University*). Assistant Teaching Professor. Rare Event Simulation, Dynamical Systems, Numerical Analysis and Mathematical Biology

Georgi S. Medvedev, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/GeorgiMedvedev/>) (*Boston University*). Professor. Ordinary and partial differential equations, mathematical neuroscience.

Cecilia Mondaini, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/mondaini-cecilia/>) (*Federal University of Rio de Janeiro*). Assistant Professor. Analysis of Partial Differential Equations, Fluid Dynamics, Stochastic Processes

Shari Moskow, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/ShariMoskow/>) (*Rutgers University*) *Department Head*. Professor. Partial differential equations and numerical analysis, including homogenization theory, numerical methods for problems with rough coefficients, and inverse problems.

Oksana P. Odintsova, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/OksanaOdintsova/>) (*Omsk State University*). Teaching Professor. Math education; geometrical modeling.

Dimitrios Papadopoulos, MS (<https://drexel.edu/coas/faculty-research/faculty-directory/DimitriosPapadopoulos/>) (*Drexel University*). Assistant Teaching Professor.

Joel Pereira, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/pereira-joel/>) (*University of North Carolina*). Assistant Teaching Professor. Commutative Algebra

Ronald K. Perline, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/RonaldPerline/>) (*University of California at Berkeley*) *Undergraduate Adviser*. Associate Professor. Applied mathematics, numerical analysis, symbolic computation, differential geometry, mathematical physics.

Marci A. Perlstadt, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/marziperlstadt/>) (*University of California at Berkeley*). Associate Professor. Applied mathematics, computed tomography, numerical analysis of function reconstruction, signal processing, combinatorics.

Adam C. Rickert, MS (<https://drexel.edu/coas/faculty-research/faculty-directory/rickert-adam/>) (*Drexel University*). Associate Teaching Professor.

Eric Schmutz, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/ericschmutz/>) (*University of Pennsylvania*). Professor. Probabilistic combinatorics, asymptotic enumeration.

Li Sheng, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/lisheng/>) (*Rutgers University*). Associate Professor. Discrete optimization, combinatorics, operations research, graph theory and its application in molecular biology, social sciences and communication networks, biostatistics.

Gideon Simpson, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/gideonsimpson/>) (*Columbia University*). Associate Professor. Partial differential equations, scientific computing and applied mathematics.

Xiaoming Song, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/song-xiaoming/>) (*University of Kansas*). Associate Professor. Stochastic Calculus, Large Deviation Theory, Theoretical Statistics, Data Network Modeling and Numerical Analysis.

Jeanne M. Steuber, MS (<https://drexel.edu/coas/faculty-research/faculty-directory/steuber-jeanne/>) (*Boston University*). Associate Teaching Professor.

Kenneth P. Swartz, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/kennethswartz/>) (*Harvard University*). Assistant Teaching Professor. Applied statistics, data analysis, calculus, discrete mathematics, biostatistics.

K. Shwetketu Virbhadra, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/virbhadra-k-shwetketu/>) (*Physical Research Laboratory*). Instructor.

Richard D. White, MS (<https://drexel.edu/coas/faculty-research/faculty-directory/white-richard/>) (*Penn State University*). Assistant Teaching Professor.

Hugo J. Woerdeman, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/hugowoerdeman/>) (*Vrije Universiteit, Amsterdam*). Professor. Matrix and operator theory, systems theory, signal and image processing, and harmonic analysis.

J. Douglas Wright, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/douglaswright/>) (*Boston University*) *Associate Department Head*. Professor. Partial differential equations, specifically nonlinear waves and their interactions.

Dennis G. Yang, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/dennisyang/>) (*Cornell University*). Associate Teaching Professor. Dynamical systems, neurodynamics.

Thomas (Pok-Yin) Yu, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/thomasyu/>) (*Stanford University*). Professor. Multiscale mathematics, wavelets, applied harmonic analysis, subdivision algorithms, nonlinear analysis, applied differential geometry and data analysis.

Matthew Ziemke, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/ziemke-matthew/>) (*University of South Carolina*). Assistant Teaching Professor. Functional Analysis, Operator Algebras, Semigroups, Mathematical Physics

Emeritus Faculty

Howard Anton, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/anton-howard/>) (*Polytechnic Institute of Brooklyn*). Professor Emeritus.

Loren N. Argabright, PhD (*University of Washington*). Professor Emeritus. Functional analysis, wavelets, abstract harmonic analysis, the theory of group representations.

Robert C. Busby, PhD (*University of Pennsylvania*). Professor Emeritus. Functional analysis, C*-algebras and group representations, computer science.

Ewaugh Finney Fields, EdD (*Temple University*) *Dean Emeritus*. Professor Emeritus. Mathematics education, curriculum and instruction, minority engineering education.

William M.Y. Goh, PhD (*Ohio State University*). Associate Professor Emeritus. Number theory, approximation theory and special functions, combinatorics, asymptotic analysis.

Patricia Henry Russell, MS (<https://drexel.edu/coas/faculty-research/faculty-directory/PatriciaHenryRussell/>) (*Drexel University*). Teaching Professor Emerita.

Bernard Kolman, PhD (*University of Pennsylvania*). Professor Emeritus. Lie algebras; theory, applications, and computational techniques; operations research.

Charles J. Mode, PhD (*University of California at Davis*). Professor Emeritus. Probability and statistics, biostatistics, epidemiology, mathematical demography, data analysis, computer-intensive methods.

Chris Rorres, PhD (*Courant Institute, New York University*). Professor Emeritus. Applied mathematics, scattering theory, mathematical modeling in biological sciences, solar-collection systems.

Justin R. Smith, PhD (*Courant Institute, New York University*). Professor Emeritus. Homotopy theory, operad theory, quantum mechanics, quantum computing.

Jet Wimp, PhD (*University of Edinburgh*). Professor Emeritus. Applied mathematics, special factors, approximation theory, numerical techniques, asymptotic analysis.

Philosophy

Major: Philosophy

Degree Awarded: Bachelor of Arts (BA)

Calendar Type: Quarter

Minimum Required Credits: 180.0

Co-op Options: Three Co-op (Five years); One Co-op (Four years); No Co-op (Four years)

Classification of Instructional Programs (CIP) code: 38.0101

Standard Occupational Classification (SOC) code: 25-1126

About the Program

A great philosopher once said, "Philosophers have just interpreted the world—but the point is to *change* it." At Drexel, we believe ideas do affect and change the world—ideas about what matters, what "success" means and how to accomplish it, and what is to be learned from our experiences and activity. The most important reason to do philosophy is that we all *can* change the world and ourselves by living "the examined life" and being more reflective, thoughtful, and critical in our lives in concrete ways. Our classes seek to engage students in the active development of their reflective, creative, rational, logical, and linguistic abilities in thoughtful concern for some of the most important and fundamental questions and problems of life, or work, and of the world.

It is widely recognized that philosophical activity encourages and facilitates independent thinking more than almost any other academic study. But many do not realize that philosophy is also a very practical subject to study because it helps one develop skills like reasoning, writing, reading, thinking, speaking, listening, and dialogue that are essential to success in the widest range of great and sometimes even meaningful careers. Philosophy isn't only a great way to think really carefully about what "success" might mean for you—it is also a way to work on the skills that are likely to help you accomplish success as you understand it.

The Drexel Philosophy major is an excellent preparation for success in any field of endeavor that values thoughtful reflection, logical thinking, and clear communication. It is particularly valuable as a preparation for careers in education, law, government, public policy, policy analysis, administration, journalism and international business and for research in philosophy and other humanities fields, classical studies and fields related to philosophy like critical media studies, public policy, and science, technology, and society (STS).

Drexel Philosophy majors take a mixture of historical and topical courses in the major fields of philosophical inquiry. These include ethics, metaphysics (philosophy of reality), epistemology (philosophy of knowledge), aesthetics (philosophy of art), social and political philosophy, philosophy of science, and logic. Our elective classes cover a wide range of subjects including technology, medicine, law, religion, science, the environment, and more. Our upper-level seminar classes are discussion-driven, reading- and writing-intensive classes usually limited to 12-16 students.

Concentrations

Once students have started in the program, they may choose to focus their philosophical studies in one of three areas of concentration:

- Ethical Theory and Practice
- Philosophy and Law
- Philosophy, Technology, and Science

Students may also remain in the Philosophy concentration, which gives them the widest range of options from which to select their courses.

Prior to the end of junior year, students may opt to work on a 6.0 credit senior thesis. This is a faculty-mentored independent research and writing project on a topic developed by the student working with a chosen faculty member. The project consists of two consecutive one-on-one tutorials directed by a faculty member of the student's choosing.

Philosophy students who are interested in pursuing careers in the law or government are encouraged to consider a Kline Law Minor or a minor in some other field of interest. Students considering graduate school in the humanities including philosophy should consider pursuing a language certificate in their chosen language of interest. The philosophy BA includes approximately 60.0 credits of free electives, which also makes it possible for students to double major.

Our program also offers a minor in Philosophy (24.0 credits) and certificate programs in Ethical Theory and Practice; Philosophy, Arts, and Humanities; and Philosophy, Science, and Technology (18.0 credits each).

Additional Information

For more information about Drexel Philosophy classes and programs, please visit the Department of English & Philosophy website or stop by to see our director anytime. The Department of English & Philosophy is located in MacAlister Hall, Room 5016. The director can be contacted at:

Dr. Peter Amato
 Director of Programs in Philosophy
 Department of English & Philosophy
 MacAlister 5029
 peterama@drexel.edu

Degree Requirements

University Requirements

| | | |
|-------------|---|-----|
| CIVC 101 | Introduction to Civic Engagement | 1.0 |
| COOP 101 | Career Management and Professional Development * | 1.0 |
| ENGL 101 | Composition and Rhetoric I: Inquiry and Exploratory Research | 3.0 |
| or ENGL 111 | English Composition I | |
| ENGL 102 | Composition and Rhetoric II: Advanced Research and Evidence-Based Writing | 3.0 |
| or ENGL 112 | English Composition II | |
| ENGL 103 | Composition and Rhetoric III: Themes and Genres | 3.0 |
| or ENGL 113 | English Composition III | |
| UNIV H101 | The Drexel Experience | 1.0 |
| UNIV H201 | Looking Forward: Academics and Careers | 1.0 |

College of Arts and Sciences Core Curriculum **

| | |
|-----------------------------------|---------|
| Analyzing Cultures & Histories ** | 6.0-8.0 |
| Cultivating Global Competence ** | 6.0-8.0 |

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|--|---|-------------|
| Developing Quantitative Reasoning - Two courses in MATH based on placement exams | | 6.0-8.0 |
| Engaging the Natural World ** | | 6.0-8.0 |
| Perspectives in Diversity ** | | 3.0-4.0 |
| Understanding Society & Human Behavior ** | | 6.0-8.0 |
| Language Requirement *** | | 8.0 |
| Philosophy Major Requirements - All Concentrations | | |
| COM 230 | Techniques of Speaking | 3.0 |
| LING 101 | Introduction to Linguistics | 3.0 |
| PHIL 105 | Critical Reasoning | 3.0 |
| PHIL 110 | Introduction to Philosophy | 3.0 |
| PHIL 201 | Non-Western Philosophies | 3.0 |
| PHIL 211 | Metaphysics: Philosophy of Reality | 3.0 |
| PHIL 221 | Epistemology: Philosophy of Knowledge | 3.0 |
| PHIL 251 | Ethics | 3.0 |
| PHIL 481 [WI] or PHIL 485 | Seminar in a Philosophical School Seminar in a Major Philosopher | 3.0 |
| PHIL 485 [WI] or PHIL 481 | Seminar in a Major Philosopher Seminar in a Philosophical School | 3.0 |
| PHIL 481 [WI] or PHIL 485 | Seminar in a Philosophical School Seminar in a Major Philosopher | 3.0 |
| WRIT 211 | Advanced Composition | 3.0 |
| Applied Ethics Elective | | 3.0 |
| Select one of the following: | | |
| PHIL 301 | Business Ethics | |
| PHIL 305 | Ethics and the Media | |
| PHIL 311 | Ethics and Information Technology | |
| PHIL 315 | Engineering Ethics | |
| PHIL 317 | Ethics and Design Professions | |
| PHIL 321 | Biomedical Ethics | |
| PHIL 323 | Organizational Ethics | |
| PHIL 325 | Ethics in Sports Management | |
| PHIL 330 | Criminal Justice Ethics | |
| PHIL 335 | Global Ethical Issues | |
| PHIL 340 | Environmental Ethics | |
| Thesis or Non-Thesis Option | | 6.0 |
| Thesis Option: | | |
| PHIL 497 [WI] | Senior Essay I: Research & Thesis Development | |
| PHIL 498 [WI] | Senior Essay II: Argument Construction | |
| Non-Thesis Option: | | |
| Any two PHIL courses (PHIL 341 and higher) | | |
| Free Electives | | 60.0 |
| Concentration Option | | 21.0 |
| General Philosophy Concentration: | | |
| PHIL 111 | Symbolic Logic I | |
| PHIL 231 or PHIL 218 | Aesthetics: Philosophy of Art Philosophy of Mathematics | |
| PHIL 481 [WI] or PHIL 485 | Seminar in a Philosophical School Seminar in a Major Philosopher | |
| PHIL 485 [WI] or PHIL 481 | Seminar in a Major Philosopher Seminar in a Philosophical School | |
| Select one of the following courses: | | |
| PHIL 121 | Symbolic Logic II | |
| PHIL 301 | Business Ethics | |
| PHIL 305 | Ethics and the Media | |
| PHIL 311 | Ethics and Information Technology | |
| PHIL 315 | Engineering Ethics | |
| PHIL 317 | Ethics and Design Professions | |
| PHIL 321 | Biomedical Ethics | |
| PHIL 323 | Organizational Ethics | |
| PHIL 325 | Ethics in Sports Management | |
| PHIL 330 | Criminal Justice Ethics | |
| PHIL 335 | Global Ethical Issues | |

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|---|---|
| PHIL 340 | Environmental Ethics |
| Select two of the following courses: | |
| PHIL 341 | Environmental Philosophy |
| PHIL 351 | Philosophy of Technology |
| PHIL 355 | Philosophy of Medicine |
| PHIL 361 | Philosophy of Science |
| PHIL 381 [WI] | Philosophy in Literature |
| PHIL 385 | Philosophy of Law |
| PHIL 391 | Philosophy of Religion |
| Philosophy & Law Concentration: | |
| PHIL 111 | Symbolic Logic I |
| PHIL 121 | Symbolic Logic II |
| PHIL 241 | Social & Political Philosophy |
| PHIL 385 | Philosophy of Law |
| PHIL 391 | Philosophy of Religion |
| PHIL 481 [WI] or PHIL 485 | Seminar in a Philosophical School Seminar in a Major Philosopher |
| Select one of the following courses: | |
| PHIL 301 | Business Ethics |
| PHIL 305 | Ethics and the Media |
| PHIL 311 | Ethics and Information Technology |
| PHIL 315 | Engineering Ethics |
| PHIL 317 | Ethics and Design Professions |
| PHIL 321 | Biomedical Ethics |
| PHIL 323 | Organizational Ethics |
| PHIL 325 | Ethics in Sports Management |
| PHIL 330 | Criminal Justice Ethics |
| PHIL 335 | Global Ethical Issues |
| PHIL 340 | Environmental Ethics |
| Ethical Theory & Practice Concentration: | |
| PHIL 231 | Aesthetics: Philosophy of Art |
| PHIL 241 | Social & Political Philosophy |
| PHIL 385 | Philosophy of Law |
| PHIL 391 | Philosophy of Religion |
| PHIL 481 [WI] or PHIL 485 | Seminar in a Philosophical School Seminar in a Major Philosopher |
| PHIL 485 [WI] or PHIL 481 | Seminar in a Major Philosopher Seminar in a Philosophical School |
| Select one of the following courses: | |
| PHIL 301 | Business Ethics |
| PHIL 305 | Ethics and the Media |
| PHIL 311 | Ethics and Information Technology |
| PHIL 315 | Engineering Ethics |
| PHIL 317 | Ethics and Design Professions |
| PHIL 321 | Biomedical Ethics |
| PHIL 323 | Organizational Ethics |
| PHIL 325 | Ethics in Sports Management |
| PHIL 330 | Criminal Justice Ethics |
| PHIL 335 | Global Ethical Issues |
| PHIL 340 | Environmental Ethics |
| Philosophy, Technology & Science Concentration: | |
| PHIL 111 | Symbolic Logic I |
| PHIL 121 | Symbolic Logic II |
| PHIL 218 or PHIL 231 | Philosophy of Mathematics Aesthetics: Philosophy of Art |
| PHIL 351 | Philosophy of Technology |
| PHIL 361 | Philosophy of Science |
| PHIL 481 [WI] or PHIL 485 | Seminar in a Philosophical School Seminar in a Major Philosopher |
| PHIL 485 [WI] | Seminar in a Major Philosopher |

or PHIL 481

Seminar in a Philosophical School

Total Credits**180.0-191.0**

* Students not participating in co-op will take one additional credit of free elective instead of COOP 101. Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

** See Core Curriculum List (p. 5) for complete list of course options.

*** Students are required to take a minimum of two consecutive courses in a foreign language and must complete at least through the 103 level. Reaching at least the 201 level is recommended for students considering graduate school in Philosophy.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

NOTE: The plan of study below is one way to complete the General Concentration in Philosophy. Students should consult with their academic advisor in choosing the concentration that best suits their interests, goals, and career plans.

4 year, no co-op

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------------------------|---|--------------------------------|----------------|----------|
| ENGL 101 or 111 | 3.0 CIVC 101 | 1.0 ENGL 103 or 113 | 3.0 VACATION | |
| PHIL 105 | 3.0 ENGL 102 or 112 | 3.0 PHIL 251 | 3.0 | |
| PHIL 110 | 3.0 PHIL 201 | 3.0 Concentration Course | 3.0 | |
| UNIV H101 | 1.0 Concentration Course | 3.0 Engaging the Natural World | 3.0-4.0 | |
| Developing Quantitative Reasoning | 3.0-4.0 Developing Quantitative Reasoning | 3.0-4.0 Language elective * | 4.0 | |
| | Language elective * | 4.0 | | |
| | 13-14 | 17-18 | 16-17 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--------------------------------|--|--|----------------|----------|
| PHIL 211 | 3.0 PHIL 221 | 3.0 COM 230 | 3.0 VACATION | |
| Analyzing Cultures & Histories | 3.0-4.0 PHIL 481 or 485 | 3.0 LING 101 | 3.0 | |
| Engaging the Natural World | 3.0-4.0 Analyzing Cultures & Histories | 3.0-4.0 PHIL 485 or 481 | 3.0 | |
| Free elective | 3.0 Free elective | 3.0 Free elective | 3.0 | |
| Perspectives in Diversity | 3.0-4.0 Understanding Society & Human Behavior | 3.0-4.0 Understanding Society & Human Behavior | 3.0-4.0 | |
| | 15-18 | 15-17 | 15-16 | 0 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|----------------------|-----------------------------------|---------------------------------------|----------------|---------|
| PHIL 481 or 485 | 3.0 PHIL 485 or 481 | 3.0 Applied Ethics elective | 3.0 VACATION | |
| WRIT 211 | 3.0 Cultivating Global Competence | 3.0-4.0 Cultivating Global Competence | 3.0-4.0 | |
| Concentration Course | 3.0 Free electives | 9.0 Free electives | 9.0 | |

| | | | | |
|------------------------------------|--|-------------------------------------|----------------|----------|
| Free electives | 6.0 | | | |
| | 15 | 15-16 | 15-16 | 0 |
| Fourth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits | |
| UNIV H201 | 1.0 PHIL 497 (Or Non-Thesis Option) | 3.0 PHIL 498 (Or Non-Thesis Option) | 3.0 | |
| Concentration Course | 3.0 Free electives | 9.0 Free electives | 10.0 | |
| Free electives | 9.0 Philosophy elective (PHIL 341-391) | 3.0 | | |
| Philosophy elective (PHIL 341-391) | 3.0 | | | |
| | 16 | 15 | 13 | |
| Total Credits 180-191 | | | | |

* Students must complete two consecutive courses in a foreign language and must reach the 103 level.

4 year, 1 co-op

| | | | | |
|------------------------------------|--|-------------------------------------|--|----------------|
| First Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| ENGL 101 or 111 | 3.0 CIVC 101 | 1.0 COOP 101** | 1.0 VACATION | |
| PHIL 105 | 3.0 ENGL 102 or 112 | 3.0 ENGL 103 or 113 | 3.0 | |
| PHIL 110 | 3.0 PHIL 201 | 3.0 PHIL 251 | 3.0 | |
| UNIV H101 | 1.0 Concentration Course | 3.0 Concentration Course | 3.0 | |
| Developing Quantitative Reasoning | 3.0-4.0 Developing Quantitative Reasoning | 3.0-4.0 Engaging the Natural World | 3.0-4.0 | |
| | Language elective * | 4.0 Language elective * | 4.0 | |
| | 13-14 | 17-18 | 17-18 | 0 |
| Second Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| PHIL 211 | 3.0 PHIL 221 | 3.0 COM 230 | 3.0 Cultivating Global Competence | 3.0-4.0 |
| Analyzing Cultures & Histories | 3.0-4.0 PHIL 481 or 485 | 3.0 LING 101 | 3.0 Free electives | 9.0 |
| Applied Ethics elective | 3.0 Analyzing Cultures & Histories | 3.0-4.0 PHIL 485 or 481 | 3.0 Understanding Society & Human Behavior | 3.0-4.0 |
| Engaging the Natural World | 3.0-4.0 Free elective | 3.0 Free electives | 6.0 | |
| Perspectives in Diversity | 3.0-4.0 Understanding Society & Human Behavior | 3.0-4.0 | | |
| | 15-18 | 15-17 | 15 | 15-17 |
| Third Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| PHIL 481 or 485 | 3.0 PHIL 485 or 481 | 3.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| WRIT 211 | 3.0 Cultivating Global Competence | 3.0-4.0 | | |
| Concentration Course | 3.0 Free electives | 9.0 | | |
| Free electives | 6.0 | | | |
| | 15 | 15-16 | 0 | 0 |
| Fourth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits | |
| UNIV H201 | 1.0 PHIL 497 (Or Non-Thesis Option) | 3.0 PHIL 498 (Or Non-Thesis Option) | 3.0 | |
| Concentration Course | 3.0 Free electives | 9.0 Free electives | 9.0 | |
| Free electives | 9.0 Philosophy elective (PHIL 341-391) | 3.0 | | |
| Philosophy elective (PHIL 341-391) | 3.0 | | | |
| | 16 | 15 | 12 | |
| Total Credits 180-191 | | | | |

* Students must complete two consecutive courses in a foreign language and must reach the 103 level.

** COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

5 year, 3 co-op

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------------------------|---|------------------------------------|----------------|----------|
| ENGL 101 or 111 | 3.0 CIVC 101 | 1.0 COOP 101** | 1.0 VACATION | |
| PHIL 105 | 3.0 ENGL 102 or 112 | 3.0 ENGL 103 or 113 | 3.0 | |
| PHIL 110 | 3.0 PHIL 201 | 3.0 PHIL 251 | 3.0 | |
| UNIV H101 | 1.0 Concentration Course | 3.0 Concentration Course | 3.0 | |
| Developing Quantitative Reasoning | 3.0-4.0 Developing Quantitative Reasoning | 3.0-4.0 Engaging the Natural World | 3.0-4.0 | |
| | Language elective * | 4.0 Language elective * | 4.0 | |
| | 13-14 | 17-18 | 17-18 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--------------------------------|--|---------------------|-----------------|----------|
| PHIL 211 | 3.0 PHIL 221 | 3.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| Analyzing Cultures & Histories | 3.0-4.0 PHIL 481 or 485 | 3.0 | | |
| Applied Ethics elective | 3.0 Analyzing Cultures & Histories | 3.0-4.0 | | |
| Engaging the Natural World | 3.0-4.0 Free elective | 3.0 | | |
| Perspectives in Diversity | 3.0-4.0 Understanding Society & Human Behavior | 3.0-4.0 | | |
| | 15-18 | 15-17 | 0 | 0 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|----------------------|-----------------------------------|---------------------|-----------------|----------|
| PHIL 485 | 3.0 PHIL 485 or 481 | 3.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| WRIT 211 | 3.0 Cultivating Global Competence | 3.0-4.0 | | |
| Concentration Course | 3.0 Free electives | 9.0 | | |
| Free electives | 6.0 | | | |
| | 15 | 15-16 | 0 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|------------------------------------|--|---------------------|-----------------|----------|
| PHIL 481 or 485 | 3.0 Concentration Course | 3.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| Free electives | 9.0 Free electives | 9.0 | | |
| Philosophy elective (PHIL 341-391) | 3.0 Philosophy elective (PHIL 341-391) | 3.0 | | |
| | 15 | 15 | 0 | 0 |

Fifth Year

| Fall | Credits Winter | Credits Spring | Credits |
|-------------------------------|--|-------------------------------------|-----------|
| COM 230 | 3.0 PHIL 497 (Or Non-Thesis Option) | 3.0 LING 101 | 3.0 |
| UNIV H201 | 1.0 Free electives | 6.0 PHIL 498 (Or Non-Thesis Option) | 3.0 |
| Cultivating Global Competence | 3.0-4.0 Understanding Society & Human Behavior | 3.0-4.0 Free electives | 9.0 |
| Free electives | 9.0 | | |
| | 16-17 | 12-13 | 15 |

Total Credits 180-191

* Students must complete two consecutive courses in a foreign language and must reach the 103 level.

** Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Co-op/Career Opportunities

Opportunities

No major prepares students for success in as wide a variety of careers as philosophy. Because philosophical work helps students develop superior reasoning, communication, and analytical skills, a philosophy major can be an ideal choice for pre-med or pre-law students. It is also particularly valuable as a preparation for graduate study in philosophy and fields related to it, such as critical media studies, public policy, education, and science, technology, and society (STS). The Drexel Philosophy major is an excellent preparation for success in any field of endeavor that values thoughtful reflection, logical thinking, and clear communication. Philosophy majors graduate into a wide range of successful careers in business, industry, law, government, education, and service organizations and agencies, as well as many fields of graduate study and research.

In just its first five years, the Drexel Philosophy BA program graduated students into careers including teaching, the law, public policy, and academic research.

Co-op Experiences

Philosophy students at Drexel are encouraged to seek out interesting co-op opportunities related to the skills and interests they are developing through their philosophical studies and potential career options they would like to explore. These can be as broad as the difference between an ethics-related co-op that has the student shadowing an ethicist working for a hospital's board of institutional review, to a student who is interested in aesthetics and politics working with the Philadelphia Mural Arts Program in liaison with community groups. Students in philosophy who are pre-law frequently pursue law-related co-ops and co-ops at public and private agencies and organizations that employ lawyers and law students. Students in philosophy who are thinking about careers in academia have the full gamut of writing, editing, and publishing co-ops available to them, as well as research-related co-ops they can develop by working with professors. While academically oriented co-ops and co-ops in the humanities generally pay less than those in the sciences, business, law, and engineering—if they pay at all—they are still enormously valuable as a way for students to develop a sense of what various careers might actually be like and how they work.

Additional Information

For detailed information on co-op and career opportunities, visit the Drexel Steinbright Career Development Center webpage. For further information about co-op and career prospects related to Philosophy, contact the Drexel Philosophy program director:

Dr. Peter Amato
 Director of Programs in Philosophy
 Department of English & Philosophy
 MacAlister 5030
 215-895-1353
 peterama@drexel.edu

Philosophy Faculty

Stacey Ake, PhD (*Pennsylvania State University*). Teaching Professor. Ethics, semiotics, existentialism

Peter Amato, PhD (*Fordham University*) *Director, Philosophy*. Teaching Professor. Ethics, Marxism, Continental philosophy.

Jacques N. Catudal, PhD (*Temple University*). Associate Professor. Ancient philosophy, epistemology, aesthetics.

Nathan Hanna, PhD (*Syracuse University*). Associate Professor. Ethics, philosophy of law, philosophy of punishment

Adam Knowles, PhD (*The New School for Social Research*). Associate Teaching Professor. Continental philosophy, phenomenology, Heidegger

Carol Mele, PhD (*University of Pennsylvania*). Associate Teaching Professor. Ethical Theory, social and political philosophy, Rawls.

Flavia Padovani, PhD (*University of Geneva*). Associate Professor. History and philosophy of science, epistemology, logic.

Marilyn Piety, PhD (*McGill University*). Professor. History of philosophy, philosophy of religion, Kierkegaard.

Andrew Smith, PhD (*SUNY, Stony Brook*). Associate Professor. Philosophy, social and political philosophy, American philosophy.

Philosophy, Politics and Economics

Major: Philosophy, Politics and Economics

Degree Awarded: Bachelor of Arts (BA)

Calendar Type: Quarter

Minimum Required Credits: 180.0

Co-op Options: Three Co-op (Five years); One Co-op (Four years); No Co-op (Four years)

Classification of Instructional Programs (CIP) code: 45.1004

Standard Occupational Classification (SOC) code: 25-1065

About the Program

Drexel University's BA degree Philosophy, Politics & Economics, or PPE as it is often called, exemplifies Drexel's commitment to comprehensive education at the intersection of thought and practice. A joint endeavor of the School of Economics, the Department of Politics, and the Department of English & Philosophy, the BA in PPE provides a multidisciplinary foundation for professionals and researchers who want to address the complex, interconnected challenges of contemporary life. It prepares students for a wide variety of excellent careers that require thoughtful analysis and engaged leadership including, but not limited to, public service, government, international and domestic business, law, community organizing, publishing, journalism, education, academic research, and more.

PPE began in the early 20th century at Oxford University in the United Kingdom in an effort to ensure that scholars were ready to apply their learning in practical, governmental, and business contexts to become leaders and change agents. Historically, political science and economics descend from what had been called "political economy." PPE acknowledges what is often lost in the separation and specialization of these fields—the political wisdom that understands economic imperatives and the economic intelligence that recognizes the limits of political initiative. The philosophical dimension of PPE represents the vital reflective and critical aspects that are essential to bringing political and economic insights into conversation for understanding and leadership. PPE is devoted to the idea that great learning should inspire and empower students to have an impact on the world.

Students in the Drexel BA in PPE begin with the interdisciplinary class PPE 101 *Introduction to Philosophy, Politics and Economics*, which presents the field through a discussion of how the aims and methods of the three constitutive disciplines work together and discussion of the political, economic, and philosophical dimensions of specific topics and themes. The Philosophy classes in the major are mainly focused on issues in ethics, logic, philosophy of law, and social and political philosophy. The Politics classes cover a variety of subjects and constitute a solid foundation in political science covering topics that include comparative politics, history of political thought, qualitative or quantitative research methods, theories of justice, American foreign policy, social protest movements in comparative perspective, and more. The Economics classes are designed to give the student a foundation for profound analysis and insight. These include microeconomics, macroeconomics, economic ideas, public finance, and electives chosen from courses which include Game Theory and Applications, Economics of Small Business, Labor Economics, Comparative Economic Systems, Resource and Environmental Economics, and more.

PPE majors are encouraged to take a minor or certificate in a field they are interested in studying. Students interested in careers in the law are encouraged to consider adding a minor in Law offered through the Kline Law School, for example. The College of Arts and Sciences offers minors in many PPE-adjacent fields including Sociology, offering courses like Race, Ethnicity and Social Inequality, Wealth and Power, Gender and Society, Development and Underdevelopment in the Global South, Environmental Justice, etc. Other popular minors and even double majors for PPE students to consider include History, Global Studies, Criminal Justice Studies, and Science, Technology, and Society. In the senior capstone course PPE 450, students work with an instructor as they formulate, evaluate, and criticize public policy proposals, research, and/or theoretical perspectives on political and economic issues using the research tools, arguments, and methods drawn from the three fields. PPE majors at Drexel have access to the widest range of co-op positions related to public service, government, international and domestic business, law, community organizing, education, publishing, journalism, academic research, and many more areas.

Additional Information

For more information about the Drexel Philosophy, Politics, and Economics program, please visit the Department of English & Philosophy website or stop by to see one of our co-directors anytime. The Department of English & Philosophy is located in MacAlister Hall, Room 5016. The co-directors of the Drexel Philosophy, Politics and Economics program can be contacted at:

Dr. Peter Amato, Department of English and Philosophy, College of Arts & Sciences, pa34@drexel.edu

Dr. Amelia Hoover Green, Department of Politics, College of Arts & Sciences, aah92@drexel.edu

Dr. Roger McCain, School of Economics, LeBow College of Business, mccainra@drexel.edu

Admission Requirements

The interdisciplinary Philosophy, Politics and Economics (PPE) program exemplifies Drexel's commitment to comprehensive education at the intersection of thought and practice. A joint endeavor of the School of Economics, the Department of Politics, and the Department of English and Philosophy, the BA in PPE provides a multidisciplinary foundation for professionals who will address the complex, interconnected challenges of contemporary life. It prepares students for careers that require careful analysis, clear foresight, and thoughtful leadership: government, politics, law, public policy, public service, and business. Our program starts from the idea that the economy is fundamentally political, politics are fundamentally economic, and both are shaped by centuries of philosophical inquiry. We build on a foundation of rigorous philosophical thought, political and economic theory, and applied research skills.

Degree Requirements

University Requirements:

| | | |
|----------|--|-----|
| CIVC 101 | Introduction to Civic Engagement | 1.0 |
| COOP 101 | Career Management and Professional Development | 1.0 |

| | | |
|---|---|--------------------|
| ENGL 101 or ENGL 111 | Composition and Rhetoric I: Inquiry and Exploratory Research English Composition I | 3.0 |
| ENGL 102 or ENGL 112 | Composition and Rhetoric II: Advanced Research and Evidence-Based Writing English Composition II | 3.0 |
| ENGL 103 or ENGL 113 | Composition and Rhetoric III: Themes and Genres English Composition III | 3.0 |
| UNIV H101 | The Drexel Experience | 1.0 |
| UNIV H201 | Looking Forward: Academics and Careers | 1.0 |
| College of Arts and Sciences Core Curriculum ** | | |
| Analyzing Cultures & Histories ** | | 6.0-8.0 |
| Cultivating Global Competence - LANG sequence reaching 103 level § | | 6.0-8.0 |
| Developing Quantitative Reasoning - MATH Analysis or Calculus sequence §§ | | 6.0-8.0 |
| Engaging the Natural World ** | | 6.0-8.0 |
| Perspectives in Diversity ** | | 3.0-4.0 |
| Understanding Society & Human Behavior ** | | 6.0-8.0 |
| Free Electives | | 65.0-61.0 |
| Philosophy, Politics & Economics Major Requirements: | | |
| PPE 101 | Introduction to Philosophy, Politics and Economics | 3.0 |
| PHIL 105 | Critical Reasoning | 3.0 |
| PHIL 111 | Symbolic Logic I | 3.0 |
| PSCI 110 or PSCI 140 or PSCI 150 | American Government Comparative Politics I International Politics | 4.0 |
| PSCI 120 | History of Political Thought | 4.0 |
| One of these Political Science Methods classes: | | 4.0 |
| PSCI 231 | Qualitative and Mixed-Methods Research in Political Science | |
| PSCI 232 | Quantitative Research Methods in Political Science | |
| ECON 201 | Principles of Microeconomics | 4.0 |
| ECON 202 | Principles of Macroeconomics | 4.0 |
| ECON 326 [WI] | Economic Ideas | 4.0 |
| PHIL 121 | Symbolic Logic II | 3.0 |
| PHIL 151 or PHIL 251 | Ethical Reasoning Ethics | 3.0 |
| One of these Political Science Area electives: | | 4.0 |
| PSCI 210 | American Political Development | |
| PSCI 229 | Theories of Justice | |
| PSCI 250 | American Foreign Policy | |
| PSCI 252 | Global Governance | |
| PSCI 260 [WI] | Power in Protest: Social Movements in Comparative Perspective | |
| Two Economics/International Business electives: † | | 8.0 |
| ECON 203 [WI] | Survey of Economic Policy | |
| Any ECON class level 250 and higher | | |
| INTB 334 | International Trade | |
| INTB 336 | International Money and Finance | |
| ECON 334 | Public Finance | 4.0 |
| PHIL 385 | Philosophy of Law | 3.0 |
| Any Political Science 300- or 400-level elective | | 4.0 |
| PHIL 481 [WI] or PHIL 485 | Seminar in a Philosophical School Seminar in a Major Philosopher | 3.0 |
| PPE 450 | Senior Seminar in Philosophy, Politics and Economics | 4.0 |
| Total Credits | | 180.0-187.0 |

* Students not participating in co-op will take one additional credit of free elective instead of COOP 101. Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

** See Core Curriculum List (<http://catalogue.drexel.edu/undergraduate/collegeofartsandsciences/#corecurriculumtext>) for complete list of course options.

- § The 103 level class requires 102 and 101 (all 4 credits each) unless one tests out of 101 or 102. A student who tests out of 102 must take 103 and 201.
- §§ For Analysis, take either MATH 101 and MATH 102, or MATH 172 and MATH 173 and any necessary prerequisites, For Calculus, take either MATH 116 and MATH 117 or MATH 121 and any necessary prerequisites.
- † Recommended electives: ECON 301 and ECON 321.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

4 year, no co-op

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--------------------------------------|--|------------------------------------|----------------|----------|
| ENGL 101 or 111 | 3.0 CIVC 101 | 1.0 ENGL 103 or 113 | 3.0 VACATION | |
| PPE 101 | 3.0 ENGL 102 or 112 | 3.0 PHIL 105 | 3.0 | |
| UNIV H101 | 1.0 PSCI 120 | 4.0 Analyzing Cultures & Histories | 3.0-4.0 | |
| Foreign Language elective | 4.0 Foreign Language elective | 4.0 Perspectives in Diversity | 3.0-4.0 | |
| Math sequence (Analysis or Calculus) | 4.0 Math sequence (Analysis or Calculus) | 4.0 Engaging the Natural World | 3.0-4.0 | |
| | 15 | 16 | 15-18 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--------------------------------|--|------------------------|----------------|----------|
| ECON 201 | 4.0 ECON 202 | 4.0 PHIL 121 | 3.0 VACATION | |
| PSCI 110, 140, or 150 | 4.0 PHIL 111 | 3.0 PSCI 231 or 232 | 4.0 | |
| Analyzing Cultures & Histories | 3.0-4.0 Understanding Society & Human Behavior | 3.0-4.0 Free electives | 9.0 | |
| Engaging the Natural World | 3.0-4.0 Free electives | 6.0 | | |
| | 14-16 | 16-17 | 16 | 0 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--|------------------------|-------------------------|----------------|----------|
| PHIL 151 or 251 | 3.0 ECON 326 | 4.0 ECON 334 | 4.0 VACATION | |
| Understanding Society & Human Behavior | 3.0-4.0 Free electives | 10.0 PSCI Area elective | 4.0 | |
| Free electives | 9.0 | Free electives | 6.0 | |
| | 15-16 | 14 | 14 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits |
|-----------------|---|---|-----------|
| PHIL 481 or 485 | 3.0 PHIL 385 | 3.0 PPE 450 | 4.0 |
| UNIV H201 | 1.0 Economics / International Business Elective | 4.0 Economics / International Business Elective | 4.0 |
| Free electives | 10.0 PSCI 300-level or higher elective | 4.0 Free electives | 6.0 |
| | Free electives | 6.0 | |
| | 14 | 17 | 14 |

Total Credits 180-187

4 year, 1 co-op

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--------------------------------------|--|------------------------------------|----------------|----------|
| ENGL 101 or 111 | 3.0 CIVC 101 | 1.0 ENGL 103 or 113 | 3.0 VACATION | |
| PPE 101 | 3.0 ENGL 102 or 112 | 3.0 PHIL 105 | 3.0 | |
| UNIV H101 | 1.0 PSCI 120 | 4.0 Analyzing Cultures & Histories | 3.0-4.0 | |
| Foreign Language elective | 4.0 Foreign Language elective | 4.0 Engaging the Natural World | 3.0-4.0 | |
| Math sequence (Analysis or Calculus) | 4.0 Math sequence (Analysis or Calculus) | 4.0 Perspectives in Diversity | 3.0-4.0 | |
| | 15 | 16 | 15-18 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--------------------------------|--|---------------------|------------------------|-----------|
| ECON 201 | 4.0 ECON 202 | 4.0 COOP 101* | 1.0 PSCI Area elective | 4.0 |
| PSCI 110, 140, or 150 | 4.0 PHIL 111 | 3.0 ECON 334 | 4.0 Free electives | 9.0 |
| Analyzing Cultures & Histories | 3.0-4.0 Understanding Society & Human Behavior | 3.0-4.0 PHIL 121 | 3.0 | |
| Engaging the Natural World | 3.0-4.0 Free electives | 7.0 PSCI 231 or 232 | 4.0 | |
| | | Free elective | 3.0 | |
| | 14-16 | 17-18 | 15 | 13 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--|------------------------|---------------------|-----------------|----------|
| PHIL 151 or 251 | 3.0 ECON 326 | 4.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| Understanding Society & Human Behavior | 3.0-4.0 Free electives | 9.0 | | |
| Free electives | 9.0 | | | |
| | 15-16 | 13 | 0 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits |
|-----------------|---|---|-----------|
| PHIL 481 or 485 | 3.0 PHIL 385 | 3.0 PPE 450 | 4.0 |
| UNIV H201 | 1.0 Economics / International Business Elective | 4.0 Economics / International Business Elective | 4.0 |
| Free electives | 9.0 PSCI 300-level or higher elective | 4.0 Free electives | 9.0 |
| | Free electives | 6.0 | |
| | 13 | 17 | 17 |

Total Credits 180-187

* Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

5 year, 3 co-op

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--------------------------------------|--|------------------------------------|----------------|----------|
| ENGL 101 | 3.0 CIVC 101 | 1.0 COOP 101* | 1.0 VACATION | |
| PPE 101 | 3.0 ENGL 102 or 112 | 3.0 ENGL 103 or 113 | 3.0 | |
| UNIV H101 | 1.0 PSCI 120 | 4.0 PHIL 105 | 3.0 | |
| Foreign Language elective | 4.0 Foreign Language elective | 4.0 Analyzing Cultures & Histories | 3.0-4.0 | |
| Math sequence (Analysis or Calculus) | 4.0 Math sequence (Analysis or Calculus) | 4.0 Engaging the Natural World | 3.0-4.0 | |
| | | Perspectives in Diversity | 3.0-4.0 | |
| | 15 | 16 | 16-19 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--------------------------------|--|---------------------|-----------------|----------|
| ECON 201 | 4.0 ECON 202 | 4.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| PSCI 110, 140, or 150 | 4.0 PHIL 111 | 3.0 | | |
| Analyzing Cultures & Histories | 3.0-4.0 Understanding Society & Human Behavior | 3.0-4.0 | | |
| Engaging the Natural World | 3.0-4.0 Free electives | 6.0 | | |
| Free elective | 3.0 | | | |
| | 17-19 | 16-17 | 0 | 0 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--|------------------------|---------------------|-----------------|----------|
| PHIL 151 or 251 | 3.0 ECON 326 | 4.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| PSCI 231 or 232 | 4.0 PSCI Area elective | 4.0 | | |
| Understanding Society & Human Behavior | 3.0-4.0 Free electives | 9.0 | | |
| Free electives | 6.0 | | | |
| | 16-17 | 17 | 0 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|----------------|---|---------------------|-----------------|----------|
| ECON 334 | 4.0 Economics / International Business Elective | 4.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| Free electives | 9.0 Free electives | 9.0 | | |
| | 13 | 13 | 0 | 0 |

Fifth Year

| Fall | Credits Winter | Credits Spring | Credits |
|-----------------|---------------------------------------|---|-----------|
| PHIL 481 or 485 | 3.0 PHIL 385 | 3.0 PHIL 121 | 3.0 |
| UNIV H201 | 1.0 PSCI 300-level or higher elective | 4.0 PPE 450 | 4.0 |
| Free electives | 9.0 Free electives | 7.0 Economics / International Business Elective | 4.0 |
| | | Free elective | 3.0 |
| | 13 | 14 | 14 |

Total Credits 180-187

* Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Affiliated Faculty

Peter Amato, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/amato-peter/>) (*Fordham University*) Teaching Professor of Philosophy. Ethics, Marxism, Continental Philosophy

Debjani Bhattacharyya, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/DebjaniBhattacharyya/>) (*Emory University*) Assistant Professor of History. South Asia, Environmental History, Global History

Sebastien Bradley, PhD (<https://www.lebow.drexel.edu/people/sebastienbradley/>) (*University of Michigan*) Associate Professor of Economics. Public Economics, Real Estate. Applied Econometrics

Zoltán Búzás, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/Zoltan-Buzas/>) (*The Ohio State University*) Assistant Professor of Politics. International Norms, Human Rights, Race and Ethnicity in International Politics

Erin Graham, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/ErinGraham/>) (*The Ohio State University*) Associate Professor of Politics. International Organization, Institutional Design and Development, Climate Change

Nathan Hanna, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/HannaNathan/>) (*Syracuse University*) Associate Professor of Philosophy. Ethics, Philosophy of Law, Philosophy of Punishment

Amelia Hoover Green, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/hoover-green-amelia/>) (*Yale University*) Associate Professor of Politics. Armed Conflict, Political Violence, Empirical Research Methods

Roger A. McCain, PhD (<https://www.lebow.drexel.edu/people/rogermccain/>) (*Louisiana State University*) Professor of Economics. History of Economic Ideas, Welfare Economics, Game Theory

Carol Mele, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/MeleCarol/>) (*University of Pennsylvania*) Associate Teaching Professor of Philosophy. Ethical Theory, Social and Political Philosophy, Rawls

Joel E. Oestreich, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/JoelEOestreich/>) (*Brown University*) Professor of Politics and Global Studies. Human Rights, Economic Development, International Relations Theory

Maria Olivero, PhD (<https://www.lebow.drexel.edu/people/mariaolivero/>) (*Duke University*) Associate Professor of Economics. Open Economy Macroeconomics, Monetary Economics, Quantitative Methods

Flavia Padovani, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/padovani-flavia/>) (*University of Geneva*) Associate Professor of Philosophy. History and Philosophy of Science, Epistemology, Logic.

Rachel Reynolds, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/reynolds-rachel/>) (*University of Illinois at Chicago*) Associate Professor of Communication. Language and Linguistics. Immigration, African Studies

Andrew Smith, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/smith-andrew/>) (*SUNY, Stony Brook*) Associate Professor of Philosophy. Environmental Philosophy, Social and Political Philosophy, American Philosophy

José A. Tapia, MBBCH, MPH, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/JoseTapia/>) (*New School for Social Research*) Associate Professor of Politics. Climate Change, Social Development, Economic Effects on Health

Physics

Major: Physics

Degree Awarded: Bachelor of Science (BS)

Calendar Type: Quarter

Minimum Required Credits: 180.0

Co-op Options: Three Co-op (Five years); Four Co-op (Four years); No Co-op (Four years)

Classification of Instructional Programs (CIP) code: 40.0801

Standard Occupational Classification (SOC) code: 19-2012

About the Program

Drexel's undergraduate program provides a solid foundation in physics suitable for graduate study or to branch out into other scientific or technical disciplines. The physics program offers an innovative curriculum in a top-notch learning environment: small class sizes, personal input from faculty, and close interaction with researchers who are leaders in their fields. Students explore the span of universal phenomenon—from the farthest reaches of astrophysics and cosmology, to molecular biophysics and subatomic particle physics— providing a solid foundation for continued study and exploration. Most undergraduates actively participate in research projects, including co-authoring publications and presenting results at conferences.

Virtually every course in the physics major is designed to extend the students' ability to handle real-world problems solved by state-of-the-art techniques. An important feature of the program is the large number of electives, which allow a student to pursue topics of special interest. There are numerous elective courses in areas as diverse as biophysics and cosmology, nanoscience and particle physics. Students can also choose electives to meet teacher certification requirements.

The Laboratory for High-Performance Computational Physics is a venue for students to become proficient in numerical techniques, parallel processing, electronic communication, and the basic computer languages and software relevant to advanced studies and research in physics.

The Department of Physics (<http://www.drexel.edu/coas/academics/departments-centers/physics/>) conducts a broad array of outreach activities including the Kaczmarczik Lecture Series, public observing nights at the Lynch Observatory (<https://drexel.edu/coas/academics/departments-centers/physics/lynch-observatory/>), and demonstrations in grade school performed by the Drexel Chapter of the Society of Physics Students (<http://www.drexel.edu/coas/academics/departments-centers/physics/student-organizations/society-physics-students/>) (SPS) and the Women in Physics Society (<https://drexel.edu/coas/academics/departments-centers/physics/student-organizations/WiPS/>) (WiPS).

In addition to the physics major, the Department also offers (p. 4) a minor in physics as well as a minor in astrophysics and a minor in biophysics.

The Physics Department is dedicated to equity and inclusiveness, and strives to be a welcoming environment to students of all races, backgrounds, genders, and orientations.

Degree Requirements

Core Physics Requirements

| | | |
|---------------|--|-----|
| PHYS 105 | Computational Physics I | 3.0 |
| PHYS 113 | Contemporary Physics I | 5.0 |
| PHYS 114 | Contemporary Physics II | 5.0 |
| PHYS 115 | Contemporary Physics III | 5.0 |
| PHYS 128 | Introduction to Experimental Physics | 3.0 |
| PHYS 217 | Thermodynamics | 4.0 |
| PHYS 311 | Classical Mechanics I | 4.0 |
| PHYS 317 | Statistical Mechanics | 3.0 |
| PHYS 321 | Electromagnetic Fields I | 4.0 |
| PHYS 322 | Electromagnetic Fields II | 4.0 |
| PHYS 326 | Quantum Mechanics I | 4.0 |
| PHYS 327 | Quantum Mechanics II | 4.0 |
| PHYS 328 [WI] | Advanced Laboratory | 3.0 |
| PHYS 408 | Physics Seminar (To be taken 3 times.) | 3.0 |
| PHYS 491 | Senior Research I | 3.0 |
| PHYS 492 | Senior Research II | 3.0 |
| PHYS 493 [WI] | Senior Research III | 3.0 |

Method Classes: Complete 12.0 credits from the following *

| | | |
|----------|--------------------------------------|--|
| MATH 322 | Complex Variables | |
| MATH 323 | Partial Differential Equations | |
| MATH 331 | Abstract Algebra I | |
| MATH 401 | Elements of Modern Analysis I | |
| PHYS 160 | Introduction to Scientific Computing | |
| PHYS 226 | Instrumentation for Scientists I | |
| PHYS 227 | Instrumentation for Scientists II | |
| PHYS 232 | Observational Astrophysics | |
| PHYS 305 | Computational Physics II | |
| PHYS 324 | Topics in Mathematical Physics | |
| PHYS 325 | Computational Physics III | |
| PHYS 405 | Advanced Computational Physics | |
| PHYS 440 | Big Data Physics | |

Subject Courses: Complete 15.0 credits from the following: **

| | | |
|----------|---------------------------------|--|
| PHYS 231 | Introductory Astrophysics | |
| PHYS 233 | Introduction to Relativity | |
| PHYS 262 | Introduction to Biophysics | |
| PHYS 312 | Classical Mechanics II | |
| PHYS 330 | Introduction to Nuclear Physics | |
| PHYS 428 | Quantum Mechanics III | |
| PHYS 431 | Galactic Astrophysics | |
| PHYS 432 | Cosmology | |
| PHYS 452 | Solid State Physics | |
| PHYS 453 | Nanoscience | |
| PHYS 461 | Biophysics | |
| PHYS 462 | Computational Biophysics | |
| PHYS 476 | Particle Physics | |

Math and Technical Requirements

| | | |
|-------------|---|---------|
| MATH 121 | Calculus I | 4.0 |
| MATH 122 | Calculus II | 4.0 |
| MATH 200 | Multivariate Calculus | 4.0 |
| MATH 201 | Linear Algebra | 3.0-4.0 |
| or MATH 261 | Linear Algebra | |
| MATH 210 | Differential Equations | 4.0 |
| MATH 291 | Complex and Vector Analysis for Engineers | 4.0 |

Sciences

| | | |
|---|------------------------|---------|
| CHEM 101 | General Chemistry I | 3.5 |
| CHEM 102 | General Chemistry II | 4.5 |
| CHEM 103 OR Any Bio OR an ENGR class at 200 or higher | | 3.0-5.0 |
| CS 171 | Computer Programming I | 3.0 |

General Education

| | | |
|------------------------------|--|--------------------|
| CIVC 101 | Introduction to Civic Engagement | 1.0 |
| COOP 101 | Career Management and Professional Development *** | 1.0 |
| ENGL 101 | Composition and Rhetoric I: Inquiry and Exploratory Research | 3.0 |
| or ENGL 111 | English Composition I | |
| ENGL 102 | Composition and Rhetoric II: Advanced Research and Evidence-Based Writing | 3.0 |
| or ENGL 112 | English Composition II | |
| ENGL 103 | Composition and Rhetoric III: Themes and Genres | 3.0 |
| or ENGL 113 | English Composition III | |
| UNIV S101 | The Drexel Experience | 1.0 |
| UNIV S201 | Looking Forward: Academics and Careers (For students pursuing graduate degree only.) Students who are not required to take this course will take an additional credit of free elective. | 1.0 |
| Business elective † | | 4.0 |
| Liberal Studies electives †† | | 9.0 |
| Technical elective ‡ | | 3.0 |
| Free electives | | 24.0 |
| Total Credits | | 180.0-183.0 |

* At least 6.0 credits must have a PHYS subject code.

** Courses at the 400 level and above will also be accepted.

*** Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Students not participating in co-op will take one additional credit of Free Elective instead of COOP 101.

† Any course at the 100-499 level in the following subject codes: ACCT, BLAW, BSAN, BUSN, ECON, EGMT, EHRD, ENTP, FIN, HRM, HRMT, INTB, MET, MGMT, MIP, MIS, MKTG, OPM, OPR, ORGB, REAL, REMD, SMT, STAT, STS, TAX, and TVIE.

†† Any course at the 100-499 level in the following subject codes: AFAS, ANTH, ARBC, ARCH, ARTH, CHIN, CJS, COM, ENGL, FMST, FREN, GER, GST, HBRW, HIST, HUM, IST, ITAL, JAPN, JWST, KOR, LANG, LING, MENA, MUSC, PHIL, PHTO, PPE, PSCI, PSY, RELS, SCRIP, SCTS, SPAN, SOC, THTR, TVST, VSCM, WGST, and WRIT.

‡ Technical electives can be any course in BIO, CHEM, ENVS, GEO, MATH, PHYS, or any course from the College of Engineering.

Astrophysics Concentration

The Astrophysics concentration is available only to Physics majors. The PHYS requirements listed below simultaneously satisfy some of the "Subject" and "Method" electives required for the major.

| | | |
|---------------|----------------------------|------|
| PHYS 231 | Introductory Astrophysics | 3.0 |
| PHYS 232 | Observational Astrophysics | 3.0 |
| PHYS 431 | Galactic Astrophysics | 3.0 |
| PHYS 432 | Cosmology | 3.0 |
| Total Credits | | 12.0 |

Biophysics Concentration

The Biophysics concentration is available only to Physics majors. The PHYS requirements listed below simultaneously satisfy some of the "Subject" electives required by the major while the BIO and CHEM courses also fulfill either Free or Technical electives.

| | | |
|--------------------------------|---|-----------|
| PHYS 262 | Introduction to Biophysics | 3.0 |
| PHYS 461 | Biophysics | 3.0 |
| PHYS 462 | Computational Biophysics | 3.0 |
| One course from the following: | | 4.5 |
| BIO 122 | Cells and Genetics | |
| BIO 141 | Essential Biology | |
| One course from the following | | 3.0-4.0 |
| BIO 209 | Cell, Molecular & Developmental Biology I | |
| BIO 214 | Principles of Cell Biology | |
| BIO 218 | Principles of Molecular Biology | |
| CHEM 371 | Chemistry of Biomolecules | |
| Total Credits | | 16.5-17.5 |

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

5 year, 3 co-op

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|---------------------|---------------------|----------------|----------|
| ENGL 101 or 111 | 3.0 CIVC 101 | 1.0 COOP 101* | 1.0 VACATION | |
| MATH 121 | 4.0 CS 171 | 3.0 ENGL 103 or 113 | 3.0 | |
| PHYS 113 | 5.0 ENGL 102 or 112 | 3.0 MATH 200 | 4.0 | |
| PHYS 128 | 3.0 MATH 122 | 4.0 PHYS 105 | 3.0 | |
| UNIV S101 | 1.0 PHYS 114 | 5.0 PHYS 115 | 5.0 | |
| | 16 | 16 | 16 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|------------------|---------------------|-----------------|----------|
| CHEM 101 | 3.5 CHEM 102 | 4.5 COOP EXPERIENCE | COOP EXPERIENCE | |
| MATH 201 or 261 | 3.0-4.0 MATH 210 | 4.0 | | |
| MATH 291 | 4.0 PHYS 311 | 4.0 | | |
| PHYS 217 | 4.0 PHYS 317 | 3.0 | | |
| | 14.5-15.5 | 15.5 | 0 | 0 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-------------------------------------|------------------|---------------------|-----------------|----------|
| PHYS 321 | 4.0 PHYS 322 | 4.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| One of the following: | 3.0-5.0 PHYS 328 | 3.0 | | |
| CHEM 103 | Free elective | 3.0 | | |
| Any Biology (BIO) course | Method course*** | 3.0 | | |
| Any ENGR course 200-level or higher | Subject course** | 3.0 | | |
| Free elective | 3.0 | | | |
| Subject course** | 3.0 | | | |
| | 13-15 | 16 | 0 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--------------------------|-----------------------|---------------------|-----------------|----------|
| PHYS 326 | 4.0 PHYS 327 | 4.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| Free electives | 6.0 Business elective | 4.0 | | |
| Liberal Studies elective | 3.0 Method course*** | 3.0 | | |
| Method course*** | 3.0 Subject course** | 3.0 | | |
| | Technical elective | 3.0 | | |
| | 16 | 17 | 0 | 0 |

Fifth Year

| Fall | Credits Winter | Credits Spring | Credits |
|------------------|------------------------------|------------------------------|---------|
| PHYS 408 | 1.0 PHYS 408 | 1.0 PHYS 408 | 1.0 |
| PHYS 491 | 3.0 PHYS 492 | 3.0 PHYS 493 | 3.0 |
| UNIV S201† | 1.0 Free electives | 6.0 Free electives | 3.0 |
| Free elective | 3.0 Liberal Studies elective | 3.0 Liberal Studies elective | 3.0 |
| Method course*** | 3.0 | Subject course** | 3.0 |

| | | | |
|------------------|-----------|-----------|-----------|
| Subject course** | 3.0 | | |
| | 14 | 13 | 13 |

Total Credits 180-183

* COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

** Courses at the 400 level and above will also be accepted.

*** At least 6.0 credits must have PHYS subject code.

† For students pursuing graduate study only; other students add an additional credit of free elective.

4 year, no co-op**First Year**

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|---------------------|---------------------|----------------|----------|
| ENGL 101 or 111 | 3.0 CIVC 101 | 1.0 ENGL 103 or 113 | 3.0 VACATION | |
| MATH 121 | 4.0 CS 171 | 3.0 MATH 200 | 4.0 | |
| PHYS 113 | 5.0 ENGL 102 or 112 | 3.0 PHYS 105 | 3.0 | |
| PHYS 128 | 3.0 MATH 122 | 4.0 PHYS 115 | 5.0 | |
| UNIV S101 | 1.0 PHYS 114 | 5.0 | | |
| | 16 | 16 | 15 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|----------------|---|------------------|----------|
| CHEM 101 | 3.5 CHEM 102 | 4.5 One of the following: | 3.0-5.0 VACATION | |
| MATH 201 or 261 | 4.0 MATH 210 | 4.0 CHEM 103 | | |
| MATH 291 | 4.0 PHYS 311 | 4.0 Any Biology (BIO) course | | |
| PHYS 217 | 4.0 PHYS 317 | 3.0 Any ENGR course 200-level or higher | | |
| | | Free electives | 6.0 | |
| | | Liberal Studies elective | 3.0 | |
| | | Technical elective | 3.0 | |
| | 15.5 | 15.5 | 15-17 | 0 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|---------------------|------------------------------|----------------|----------|
| PHYS 321 | 4.0 PHYS 322 | 4.0 Business elective | 4.0 VACATION | |
| Free elective | 3.0 PHYS 328 | 3.0 Free electives | 9.0 | |
| Method course** | 3.0 Free elective | 3.0 Liberal Studies elective | 3.0 | |
| Subject course* | 3.0 Method course** | 3.0 | | |
| | Subject course* | 3.0 | | |
| | 13 | 16 | 16 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits |
|-----------------|---------------------|------------------------------|-----------|
| PHYS 326 | 4.0 PHYS 327 | 4.0 PHYS 408 | 1.0 |
| PHYS 408 | 1.0 PHYS 408 | 1.0 PHYS 493 | 3.0 |
| PHYS 491 | 3.0 PHYS 492 | 3.0 Free elective | 3.0 |
| UNIV S201*** | 1.0 Method course** | 3.0 Liberal Studies elective | 3.0 |
| Method Course** | 3.0 Subject course* | 3.0 Subject course* | 3.0 |
| Subject Course* | 3.0 | | |
| | 15 | 14 | 13 |

Total Credits 180-182

* Courses at the 400 level and above will also be accepted.

** At least 6.0 credits must have a PHYS subject code.

*** For students pursuing graduate study only; other students add an additional credit of free elective.

4 year, 1 co-op**First Year**

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|---------------------|---------------------|----------------|---------|
| ENGL 101 or 111 | 3.0 CIVC 101 | 1.0 COOP 101† | 1.0 VACATION | |
| MATH 121 | 4.0 CS 171 | 3.0 ENGL 103 or 113 | 3.0 | |
| PHYS 113 | 5.0 ENGL 102 or 112 | 3.0 MATH 200 | 4.0 | |

| | | | | |
|-----------|--------------|--------------|-----------|----------|
| PHYS 128 | 3.0 MATH 122 | 4.0 PHYS 105 | 3.0 | |
| UNIV S101 | 1.0 PHYS 114 | 5.0 PHYS 115 | 5.0 | |
| | 16 | 16 | 16 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|------------------|---|---------------------------|-----------|
| CHEM 101 | 3.5 CHEM 102 | 4.5 One of the following: | 3.0-5.0 Business elective | 4.0 |
| MATH 201 or 261 | 3.0-4.0 MATH 210 | 4.0 CHEM 103 | Free electives | 9.0 |
| MATH 291 | 4.0 PHYS 311 | 4.0 Any Biology (BIO) course | Liberal Studies elective | 3.0 |
| PHYS 217 | 4.0 PHYS 317 | 3.0 Any ENGR course 200-level or higher | | |
| | | Free electives | 6.0 | |
| | | Liberal Studies elective | 3.0 | |
| | | Technical elective | 3.0 | |
| | 14.5-15.5 | 15.5 | 15-17 | 16 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-------------------|-----------------------|----------------------|------------------|----------|
| PHYS 321 | 4.0 PHYS 322 | 4.0 CO-OP EXPERIENCE | CO-OP EXPERIENCE | |
| Free elective | 3.0 PHYS 328 | 3.0 | | |
| Method course *** | 3.0 Free elective | 3.0 | | |
| Subject course ** | 3.0 Method course *** | 3.0 | | |
| | Subject course ** | 3.0 | | |
| | 13 | 16 | 0 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits |
|------------------------|-----------------------|------------------------------|-----------|
| PHYS 326 | 4.0 PHYS 327 | 4.0 PHYS 408 | 1.0 |
| PHYS 408 | 1.0 PHYS 408 | 1.0 PHYS 493 | 3.0 |
| PHYS 491 | 3.0 PHYS 492 | 3.0 Free elective | 3.0 |
| UNIV S201 [†] | 1.0 Method course *** | 3.0 Liberal Studies elective | 3.0 |
| Method Course *** | 3.0 Subject course ** | 3.0 Subject course ** | 3.0 |
| Subject Course ** | 3.0 | | |
| | 15 | 14 | 13 |

Total Credits 180-183

* COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

** Courses at the 400 level and above will also be accepted.

*** At least 6.0 credits must have PHYS subject code.

† For students pursuing graduate study only; other students add an additional credit of free elective.

Co-op/Career Opportunities

Students who complete a degree in physics have many options. Some enter graduate school with the intention of obtaining a master's or a PhD. Others attend medical school. Engineering is yet another option, and graduates of an undergraduate physics program can enter this field with an unusually solid background in fundamental physical principles, mathematics, and computation. It is also possible for physics graduates to work in business and finance; for example, Wall Street employs many analysts trained in such "hard sciences" as physics.

Many Drexel physics graduates proceed directly into graduate schools, or medical or other professional programs. Physics graduates have attended some of the best graduate programs in the United States, including Columbia, Harvard, and CalTech. Other graduates have found jobs in engineering and business, and with such government agencies as the National Bureau of Standards.

Co-op employers for physics majors include:

- Lockheed Martin
- Princeton Plasma Physics
- Children's Hospital of Philadelphia
- Harvard University
- MIT
- University of Pennsylvania
- Academy of Natural Sciences
- Brandywine Photonics
- National Board of Medical Examiners

- Philadelphia Water Department
- C. & J. Nyheim Plasma Institute
- II-VI Optical Systems
- Comcast Corporation

Visit the Drexel Steinbright Career Development Center (<http://www.drexel.edu/scdc/>) for more detailed information on co-op and post-graduate opportunities.

Facilities

Astrophysics Facilities:

- The Numerical Astrophysics Facility emphasizes theoretical and numerical studies of stars, star formation, planetary systems, star clusters, galaxy distributions, cosmological modeling, gravitational lensing, and the early universe. The facility employs a high-performance Graphics Processing Unit (GPU) compute cluster, each node containing two 6-core, 2.7 GHz Intel Xeon CPUs and 96 Gbytes of RAM, accelerated by 4–6 Nvidia Fermi/Titan GPUs, and connected by QDR infiniband, affording computational speeds of up to 50 trillion floating point operations per second.
- The Joseph R. Lynch Observatory houses a 16-inch Meade Schmidt-Cassegrain telescope equipped with an SBIG CCD camera.
- Drexel is an institutional member of the Legacy Survey of Space and Time (LSST) that will be conducted with the Simonyi Survey Telescope at the Vera C. Rubin Observatory, currently under construction in Chile as a joint project of the National Science Foundation and Department of Energy. Faculty and students are developing LSST-related machine learning tools and analyzing simulated LSST data to prepare for "first light" in 2022.

Biophysics Facilities:

- Bio-manipulation and microscopy laboratories. Four optical tables and six research grade microscopes are configured to perform microscopic spectroscopy and manipulation on solutions and individual cells. A spatial light modulator allows spatial patterns to be encoded on samples and explored; all microscopes are temperature controlled with state of the art cameras, including a 2,000 frame per second high speed system. Each optical table is also equipped with high power lasers for photolysis or fluorescence spectroscopy.
- Wet lab for studies of proteins and biomimetic lipids, and protein purification and characterization. The laboratory has a variety of chromatographic equipment, large and small centrifuges, fume hood, a spectrophotometer and a spectrofluorimeter. In addition, the laboratory houses a small microfluidic fabrication facility.
- The Computational Biophysics facility also includes: (i) a Beowulf cluster with 46 dual Quad-core hyperthreaded Xeon CPU (736 cores) and 12Gb of RAM nodes plus a master with 1Tb of storage and 24Gb of RAM, (ii) a Beowulf cluster with 44 dual-core Xeon CPU (344 cores), (iii) a dual Quad-core hyperthreaded Xeon CPU workstation with 24Gb RAM and 3Tb disk with two Tesla C2050 GPU CUDA-accelerated graphics card, (iv) a dual Quad-core hyperthreaded Xeon CPU workstation with 8Gb RAM and 4Tb disk with an NVIDIA N280 GPU CUDA-accelerated graphics card, (v) a quad 8-core hyperthreaded Xeon CPU workstation with 128Gb RAM and 16Tb total disk, (vi) a 72Tb file server with 12Gb RAM, (vii) a 96Tb quad 6-core file server with 64Gb RAM, (viii) and several Linux workstations connected through a gigabit network.

Condensed Matter Physics Research Facilities:

- The Energy Materials Research Laboratory includes a Variable Temperature UHV Scanning Probe Microscope for studies of 2D correlated electron materials and quantum systems.
- Ultrafast Structural Dynamics Laboratory includes a transient electron diffraction setup with sub-picosecond temporal resolution used in studies of quantum materials.
- Single crystal growth laboratory utilizes different techniques for growing high quality single crystals of strongly correlated materials including dichalcogenides.
- The Magnetic Material Laboratory conducts research on amorphous magnetic thin films and fiber optical sensors.
- The Surface Science Laboratory has several scanning probe microscopy setups to study surface structure interfaces at the atomic level.
- The Ultra-Low Temperature Laboratory has a cryogenic dilution refrigerator and microwave sources and detectors to study quantum phenomena in nano- and microscale devices, superconducting qubits, nanostructures, and quantum fluids and solids.
- The Mesoscale Materials Laboratory investigates light-matter interactions and the extent and effects of ordering of lattice, charge and spin degrees of freedom on electronic phases and functional properties in solids, with an emphasis on bulk and epitaxial film complex oxides. Facilities include instrumentation for pulsed laser deposition of epitaxial complex oxide films, atomic layer deposition, variable-temperature characterization of carrier transport (DC to 20 GHz), and a laser spectroscopy lab enabling high-resolution Raman scattering spectroscopy at temperatures to 1.5 K and under magnetic field to 7 T.
- Condensed Matter Physics group has active collaborations with DOE Argonne National Laboratory near Chicago (visiting faculty Dr. Valentyn Novosad) with numerous experimental capabilities available at the Materials Science Division and Center for Nanoscale Materials. Graduates students in experimental condensed matter physics have an opportunity to conduct part or all of their thesis research at Argonne as part of collaborative projects with the research groups there.
- Local high performance computing facility.
- The Experimental Condensed Matter group is actively utilizing local user facilities at Drexel (Core Research Facilities (<https://drexel.edu/core-facilities/facilities/material-characterization>)), University of Pennsylvania (Singh

Center for Nanotechnology (<https://www.nano.upenn.edu> (<https://www.nano.upenn.edu/>)), and Temple University (Science and Education and Research Center (<https://cst.temple.edu/research/SERC>) (<https://cst.temple.edu/research/SERC/>)) to access top of the line instrumentation for nanoscale fabrication and characterization of materials.

- Faculty in Condensed Matter Physics thrust participate in several large-scale collaborations such as Energy Frontier Research Center (DOE EFRC--CCM), detector development for South Pole Telescope Collaboration and others.

Particle Physics Facilities:

- The Drexel Particle Physics Group researches fundamental neutrino properties with the DUNE long baseline experiment hosted by Fermilab and the PROSPECT short baseline reactor experiment, as well as the planned nEXO neutrinoless double beta decay experiment.
- We are also active in the IceCube neutrino telescope located at the geographic South Pole.
- The Bubble Chamber Laboratory develops superheated-liquid detectors for rare-interaction searches, including the PICO dark matter experiment located at SNOLAB in Canada.

Laboratory for High-Performance Computational Physics:

- In addition to the department computing cluster (15 Linux workstations), high-performance computing resources include a dual-processor server with two Xeon E5-2650 processors (16 cores), 128 GB of RAM, and two Xeon Phi P5110 co-processor cards (480 cores). Department researchers also have access to a cluster of 18 Dell PowerEdge C6145 servers (AMD Opteron 6378 Piledriver CPU's, 64 cores/server, 256 GB RAM/server) with a total of 1152 cores and 4.5TB RAM.

Physics Faculty

Eric Brewe, PhD (*Arizona State University*). Associate Professor. Physics Education Research, introductory course reform, network analysis in learning, neuromechanisms of learning.

Luis R. Cruz Cruz, PhD (*MIT*). Associate Professor. Computational studies of confinement effects on the folding of amyloidogenic proteins, spatial correlations of neurons in the brain, firing dynamics of neuronal networks, fluid flow through porous media.

N. John DiNardo, PhD (*University of Pennsylvania*). Professor. Physics education research, surface physics, condensed matter physics, materials science.

Michelle Dolinski, PhD (*University of California, Berkeley*) *Associate Dean of Graduate Education*. Associate Professor. Neutrino physics, rare nuclear decays, cryogenic detector technologies.

Frank A. Ferrone, PhD (*Princeton University*). Professor. Experimental and theoretical protein dynamics, kinetics of biological self-assembly, including sickle cell and Alzheimer's disease, sickle cell testing and diagnostic devices.

David M. Goldberg, PhD (*Princeton University*) *Associate Department Head for Undergraduate Studies*. Professor. Theoretical and computational cosmology, extragalactic astrophysics, gravitational lensing.

Goran Karapetrov, PhD (*Oregon State University*). Professor. Experimental solid state physics, scanning probe microscopy, nanoscale catalysis, mesoscopic superconductivity.

Rachael M. Kratzer, PhD (*Drexel University*). Associate Teaching Professor. Quasars, active galactic nuclei

Charles Lane, PhD (*California Institute of Technology*). Professor. Experimental tests of invariance principles and conservation laws, neutrino oscillations and properties.

Christina Love, PhD (*Temple University*). Associate Teaching Professor. Educational methods and technology, STEM education, science literacy and outreach, particle physics, astrophysics.

Stephen L. W. McMillan, PhD (*Harvard University*) *Department Head*. Professor. Stellar dynamics, star cluster formation, large-scale computations of stellar systems, high-performance special-purpose computers

Naoko Kurahashi Neilson, PhD (*Stanford University*). Associate Professor. Neutrino physics, high energy astro-particle physics.

Russell Neilson, PhD (*Stanford University*). Associate Professor. Dark matter, neutrino physics.

Gordon Richards, PhD (*University of Chicago*). Professor. Quasars, active galactic nuclei, supermassive black holes, galaxy evolution, sky surveys, infrared/X-ray/radio astronomy

Jonathan E. Spanier, PhD (*Columbia University*) *Department Head, Mechanical Engineering and Mechanics*. Professor. Light-matter interactions in electronic materials, including ferroelectric semiconductors, complex oxide thin film science; laser spectroscopy, including Raman scattering.

Somdev Tyagi, PhD (*Brigham Young University*). Professor. Nanobiophysics, Raman spectroscopy, magnetic materials.

Brigita Urbanc, PhD (*University of Ljubljana, Slovenia*) *Associate Department Head for Graduate Studies*. Professor. Computational and experimental biophysics of protein folding and assembly, relevant to Alzheimer's and Parkinson's disease; discrete molecular dynamics of coarse-grained protein and lipid models.

Jörn Venderbos, PhD (*Leiden University*). Assistant Professor. Theory of quantum materials: topological Insulators, topological semimetals, materials prediction and design, strongly correlated electron materials, complex electronic ordering phenomena, unconventional superconductors

Michael Vogeley, PhD (*Harvard University*) *Associate Department Head for Graduate Studies*. Professor. Cosmology; galaxy formation and evolution; statistical analysis of large data sets; active galactic nuclei.

Emeritus Faculty

Shyamalendu Bose, PhD (*University of Maryland*). Professor Emeritus.

Leonard D. Cohen, PhD (*University of Pennsylvania*). Professor Emeritus.

Leonard X. Finegold, PhD (*University of London*). Professor Emeritus.

Robert Gilmore, PhD (*Massachusetts Institute of Technology*). Professor Emeritus.

Richard D. Haracz, PhD (*Wayne State University*). Professor Emeritus.

Frederick House, PhD (*University of Wisconsin*). Professor Emeritus.

Arthur P. Joblin, PhD (*Drexel University*). Professor Emeritus.

Donald C. Larson, PhD (*Harvard University*). Professor Emeritus.

Teck-Kah Lim, PhD (*University of Adelaide*). Professor Emeritus.

Arthur E. Lord, PhD (*Columbia University*). Professor Emeritus.

James McCray, PhD (*California Institute of Technology*). Professor Emeritus.

Richard I Steinberg, PhD (*Yale University*). Professor Emeritus.

T. S. Venkataraman, PhD (*Worcester Polytechnic Institute*). Professor Emeritus.

Jian-Min Yuan, PhD (*University of Chicago*). Professor Emeritus.

Political Science

Major: Political Science

Degree Awarded: Bachelor of Arts (BA)

Calendar Type: Quarter

Minimum Required Credits: 180.0

Co-op Options: Three Co-op (Five years); One Co-op (Four years)

Classification of Instructional Programs (CIP) code: 45.1001

Standard Occupational Classification (SOC) code: 19-3094

About the Program

The Political Science program in the Department of Politics (<http://www.drexel.edu/coas/academics/departments-centers/politics/>) helps students cultivate perspective; develop critical thinking, communication, and data analysis skills; and understand the economic, social, and political systems within which we live and work. Our curriculum builds on the department's research focuses and strengths. These include public policy, environmental politics, international organizations, human rights, and law and society. This flexible program allows students to shape a curriculum that meets their needs whether they are preparing for public service, the business world, graduate school in political science, an MBA or other business program, or law school.

Degree Offered

The department offers a Bachelor of Arts (BA) in Political Science, which includes study of a foreign language and allows for options in the fulfillment of humanities, social science, math, and science requirements.

Degree Requirements

General Education Requirements

| | | |
|--|---|--------------------|
| or ENGL 111 | English Composition I | |
| ENGL 102 | Composition and Rhetoric II: Advanced Research and Evidence-Based Writing | 3.0 |
| or ENGL 112 | English Composition II | |
| ENGL 103 | Composition and Rhetoric III: Themes and Genres | 3.0 |
| or ENGL 113 | English Composition III | |
| UNIV H101 | The Drexel Experience | 1.0 |
| UNIV H201 | Looking Forward: Academics and Careers | 1.0 |
| CIVC 101 | Introduction to Civic Engagement | 1.0 |
| COOP 101 | Career Management and Professional Development * | 1.0 |
| Two Math courses | | 6.0-8.0 |
| Two Science courses ** | | 6.0-8.0 |
| Foundation Requirements | | |
| Studies in Diversity electives | | 6.0 |
| Three Consecutive Foreign Language courses (must complete level 201) *** | | 11.0-12.0 |
| Humanities/Fine Arts electives | | 12.0 |
| Social Science electives | | 12.0 |
| International Studies electives | | 6.0 |
| Core Political Science Requirements | | |
| PSCI 110 | American Government | 4.0 |
| PSCI 120 | History of Political Thought | 4.0 |
| PSCI 140 | Comparative Politics I | 4.0 |
| PSCI 150 | International Politics | 4.0 |
| Political Science Research Methods Sequence | | |
| PSCI 131 [W] | Research Design for Political Science | 4.0 |
| PSCI 231 | Qualitative and Mixed-Methods Research in Political Science | 4.0 |
| PSCI 232 | Quantitative Research Methods in Political Science | 4.0 |
| Intermediate Courses | | |
| Select four of the following courses: | | |
| PSCI 210 | American Political Development | |
| PSCI 220 | Constitutional Law I | |
| PSCI 223 | Comparative Political Thought | |
| PSCI 229 | Theories of Justice | |
| PSCI 240 | Comparative Politics II | |
| PSCI 250 | American Foreign Policy | |
| PSCI 252 | Global Governance | |
| PSCI 260 [W] | Power in Protest: Social Movements in Comparative Perspective | |
| PSCI 330 | Public Opinion & Propaganda | |
| PSCI 363 | Constitutional Law II | |
| Political Science Electives † | | 32.0 |
| Free Electives | | 32.0 |
| Total Credits | | 180.0-185.0 |

* Select students may be eligible to take COOP 001 in place of COOP 101.

** Any Biology (BIO), Chemistry (CHEM), Geoscience (GEO), Nutrition (NFS), Physics (PHYS) or Environmental Science (ENVS) course.

*** University requirement is two consecutive courses; the third language course, though listed here, is a departmental requirement.

† Choose eight 200-level or above PSCI courses.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

4 year, 1 co-op

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-------------------------|-----------------------------|--------------------------------|----------------|----------|
| ENGL 101 or 111 | 3.0 CIVC 101 | 1.0 COOP 101 | 1.0 VACATION | |
| PSCI 110 | 4.0 ENGL 102 or 112 | 3.0 ENGL 103 or 113 | 3.0 | |
| PSCI 120, 140, or 150 | 4.0 PSCI 120, 140, or 150 | 4.0 PSCI 120, 140, or 150 | 4.0 | |
| UNIV H101 | 1.0 PSCI 131 | 4.0 Foreign Language course | 3.0 | |
| Foreign Language course | 4.0 Foreign Language course | 4.0 Diversity Studies elective | 3.0 | |
| | | Social Science elective | 3.0 | |
| | 16 | 16 | 17 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|----------------------------|-----------------------------|-----------------------------------|--------------------------------|-----------|
| PSCI 232 | 4.0 PSCI 231 | 4.0 Intermediate course | 4.0 Political Science elective | 4.0 |
| Intermediate course | 4.0 Intermediate course | 4.0 Humanities/Fine Arts elective | 3.0 Free electives | 8.0 |
| Mathematics course | 3.0 Mathematics course | 3.0 Science elective | 3.0 | |
| Diversity Studies elective | 3.0 Social Science elective | 3.0 Political Science elective | 4.0 | |
| Free elective | 3.0 Free elective | 3.0 Free elective | 3.0 | |
| | 17 | 17 | 17 | 12 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-------------------------------|-----------------------------------|---------------------|-----------------|----------|
| Intermediate course | 4.0 Social Science elective | 3.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| Political Science elective | 4.0 Humanities/Fine Arts elective | 3.0 | | |
| Humanities/Fine Arts elective | 3.0 Political Science elective | 4.0 | | |
| Social Science elective | 3.0 Free elective | 3.0 | | |
| | 14 | 13 | 0 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits |
|-------------------------------|---|---|-----------|
| UNIV H201 | 1.0 International Area Studies elective | 3.0 Political Science elective | 4.0 |
| Social Science elective | 3.0 Political Science electives | 8.0 International Area Studies elective | 3.0 |
| Humanities/Fine Arts elective | 3.0 Free elective | 3.0 Free electives | 6.0 |
| Political Science elective | 4.0 | | |
| Free elective | 3.0 | | |
| | 14 | 14 | 13 |

Total Credits 180

5 year, 3 co-op

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-------------------------|-----------------------------|--------------------------------|----------------|----------|
| UNIV H101 | 1.0 CIVC 101 | 1.0 COOP 101 | 1.0 VACATION | |
| ENGL 101 or 111 | 3.0 ENGL 102 or 112 | 3.0 ENGL 103 or 113 | 3.0 | |
| PSCI 110 | 4.0 PSCI 120, 140, or 150 | 4.0 PSCI 120, 140, or 150 | 4.0 | |
| PSCI 120, 140, or 150 | 4.0 PSCI 131 | 4.0 Foreign Language course | 3.0 | |
| Foreign Language course | 4.0 Foreign Language course | 4.0 Diversity Studies elective | 3.0 | |
| | | Social Science elective | 3.0 | |
| | 16 | 16 | 17 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|----------|----------------|---------------------|-----------------|---------|
| PSCI 232 | 4.0 PSCI 231 | 4.0 COOP EXPERIENCE | COOP EXPERIENCE | |

| | | | | |
|----------------------------|-----------|-----------------------|-----------|----------|
| Intermediate course | 4.0 | Intermediate course | 4.0 | |
| Mathematics course | 3.0 | Social Science course | 3.0 | |
| Diversity Studies elective | 3.0 | Mathematics course | 3.0 | |
| Free elective | 3.0 | Free elective | 3.0 | |
| | 17 | | 17 | 0 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-------------------------------|----------------|----------------------------|----------------|-----------------|
| Intermediate course | 4.0 | Political Science elective | 4.0 | COOP EXPERIENCE |
| Political Science elective | 4.0 | Free electives | 8.0 | |
| Humanities/Fine Arts elective | 3.0 | | | |
| Science elective | 3.0 | | | |
| Free elective | 3.0 | | | |
| | 17 | 12 | 0 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-------------------------------|----------------|-------------------------------|----------------|-----------------|
| Intermediate course | 4.0 | Social Science elective | 3.0 | COOP EXPERIENCE |
| Political Science elective | 4.0 | Humanities/Fine Arts elective | 3.0 | |
| Humanities/Fine Arts elective | 3.0 | Political Science elective | 4.0 | |
| Social Science elective | 3.0 | Free elective | 3.0 | |
| | 14 | 13 | 0 | 0 |

Fifth Year

| Fall | Credits Winter | Credits Spring | Credits |
|-------------------------------|----------------|-------------------------------------|-----------|
| UNIV H201 | 1.0 | International Area Studies elective | 3.0 |
| Social Science elective | 3.0 | Political Science electives | 8.0 |
| Humanities/Fine Arts elective | 3.0 | Free elective | 3.0 |
| Political Science elective | 4.0 | | |
| Free elective | 3.0 | | |
| | 14 | 14 | 13 |

Total Credits 180

Co-Op/Career Opportunities

Political Science majors have a wide variety of co-op experiences from which to choose. Business and public utilities offer many lucrative possibilities, and local, state, and federal governments, museums and archives, and law firms present many additional interesting co-op placements. Pre-law students, for example, are especially eager to see the inside of a law office whether the co-op job they receive is clerical or a more challenging paralegal assignment. These practical experiences in the "real" world can reinforce the lessons of the classroom, sharpen skills, and establish important contacts. Sample co-op positions include:

- Law clerk/paralegal, Joe Davidson, Attorney-at-Law, Philadelphia
- Research analyst, Legislative Office for Research Liaison, Harrisburg, PA
- Legislative intern, Corporate Public Affairs Division, Philadelphia Electric Company
- Assistant lobbyist, Government Relations Office, Drexel University
- Education intern, Philadelphia Museum of Art
- Researcher, Philadelphia Chamber of Commerce
- Assistant, Office of the Governor, Harrisburg, PA

Career Opportunities

The flexible programs allow students to shape a curriculum that meets their needs whether they are preparing for the business world, graduate school in history or political science, the department's master's program in Science, Technology, and Society (<http://drexel.edu/coas/academics/departments-centers/science-technology-society/>), an MBA or other business program, or law school.

Visit the Drexel Steinbright Career Development Center (<http://www.drexel.edu/scdc/>) page for more detailed information on co-op and post-graduate opportunities.

Politics Faculty

Zoltán Búzás, PhD (*Ohio State University*). Assistant Professor. International relations theory, international security, race and politics, diplomatic history.

Rose Corrigan, PhD (*Rutgers University*) Associate Dean for Undergraduate Education. Associate Professor. Women, public law, American politics and policy.

Richardson Dilworth, PhD (*Johns Hopkins University*) Director, Center for Public Policy. Professor. American political development, urban politics, public policy.

Erin R. Graham, PhD (*Ohio State University*). Associate Professor. International institutions, international relations theory, global environmental politics.

Amelia Hoover Green, PhD (*Yale University*). Associate Professor. Dynamics of conflict-related violence; intra-armed group politics and socialization; statistics in human rights.

Christian Hunold, PhD (*University of Pittsburgh*). Professor. Environmental policy; comparative politics; urban wildlife; political theory.

Alison Kenner, PhD (*Rensselaer Polytechnic Institute*). Associate Professor. Science, technology, and health; environmental health problems; cities and place; feminist theory; medical anthropology; digital humanities

Joel E. Oestreich, PhD (*Brown University*) Director of the Global Studies major. Professor. International organizations, international finance, development, and human rights.

Gwen Ottinger, PhD (*University of California, Berkeley*). Associate Professor. Social studies of science and technology, environmental justice, environmental political theory, citizen science, science and engineering ethics.

William L. Rosenberg, PhD (*Temple University*). Professor. Behavioral politics, public opinion, and political communication.

Jack Santucci, PhD (*Georgetown University*). Assistant Teaching Professor. Electoral Systems, Political Parties, American Political Development.

Chloe Silverman, PhD (*University of Pennsylvania*) Director, Center for Science, Technology & Society. Associate Professor. Parent advocacy for autism, neurodiversity, and pollinator health research.

Jose Tapia, PhD (*New School for Social Research*). Associate Professor. Social development, world economy, climate change, macroeconomic effects on health

Emeritus Faculty

Julie Mostov, PhD (*New York University*). Professor Emeritus. Modern political thought, democratic theory, nationalism, gender studies, South Eastern Europe and the Balkans.

Psychology

Major: Psychology

Degree Awarded: Bachelor of Science (BS)

Calendar Type: Quarter

Minimum Required Credits: 180.0

Co-op Options: Three Co-op (Five years); One Co-op (Four years); No Co-op (Four years)

Classification of Instructional Programs (CIP) code: 42.2799

Standard Occupational Classification (SOC) code: 19-3031

About the Program

Drexel University's Department of Psychological and Brain Sciences is a tight-knit, active community of internationally known faculty and impressive student scholars. The department defines psychology as a science of mind and behavior. From the neurophysiological underpinnings of cognition to defining the impact of human behaviors within the judicial systems and policies. Psychology contributes to the human behavioral aspects of other fields, including STEM, medicine, law, arts, and other social sciences. Our students work alongside professors on cutting-edge research and clinical projects in a range of areas, including health, forensic, neuropsychology, human development, experimental, cognitive, and clinical psychology. Undergraduates also benefit from Drexel's cooperative education program, gaining hands-on, extensive work experience in areas of their interest.

Bachelor of Science in Psychology

Students in the Bachelor of Science in Psychology program learn how to ask and answer important questions regarding human behavior, cognition and emotion, and how to apply their findings to improve lives. Within the program, students have the option to concentrate in three specific areas:

Mind, Brain and Behavior

The Mind, Brain and Behavior (MBB) area of focus allows psychology majors to concentrate their plan of study on how the mind and brain produce human behavior. Situating the mind within its biological substrate is one of the great scientific challenges of the 21st century. MBB covers introductory through advanced courses, exposing students to the formal study of the human mind and behavior and their underlying brain systems and structures

Human Development

This area allows students to focus on issues affecting human development across the lifespan. Using a biological, cognitive and socio-emotional perspective, students gain both breadth and depth in the understanding of current issues in child, adolescent and adult development.

Clinical and Health

For those interested in health and service careers, this area of focus includes coursework, experiential learning, and individualized mentorship, providing students with practical experience in the field.

Combined Accelerated Degrees

There are two accelerated programs to which undergraduates may apply: the Psychology BS/MS (p. 237) program as well as the Psychology BS/JD in Law (p. 259) program (a collaboration with the Thomas Kline School of Law). For more information, visit the Drexel University Department of Psychological and Brain Sciences (<https://drexel.edu/coas/academics/departments-centers/psychology/degrees/>) (<http://www.drexel.edu/coas/academics/departments-centers/psychology/>) degree offering page.

Additional Information

To schedule an appointment, students should contact the Psychological and Brain Sciences department's academic advisor:

Devon M. Thomas
Academic Advisor, Undergraduate Program
Phone: 215-895-0487
Email: dmt356@drexel.edu
Office: Stratton 103A

Degree Requirements

College Requirements

| | | |
|--|---|---------|
| CIVC 101 | Introduction to Civic Engagement | 1.0 |
| COM 230 | Techniques of Speaking | 3.0 |
| COOP 101 | Career Management and Professional Development * | 1.0 |
| ENGL 101 | Composition and Rhetoric I: Inquiry and Exploratory Research | 3.0 |
| or ENGL 111 | English Composition I | |
| ENGL 102 | Composition and Rhetoric II: Advanced Research and Evidence-Based Writing | 3.0 |
| or ENGL 112 | English Composition II | |
| ENGL 103 | Composition and Rhetoric III: Themes and Genres | 3.0 |
| or ENGL 113 | English Composition III | |
| Select one of the following: | | 8.0 |
| MATH 101 & MATH 102 | Introduction to Analysis I and Introduction to Analysis II | |
| MATH 121 & MATH 122 | Calculus I and Calculus II | |
| UNIV H101 | The Drexel Experience | 1.0 |
| UNIV H201 | Looking Forward: Academics and Careers | 1.0 |
| Business elective | | 4.0 |
| Fine Arts elective | | 3.0 |
| Anthropology (ANTH) elective ** | | 3.0 |
| English (ENGL) electives, 200-level or above | | 6.0 |
| History (HIST) electives | | 8.0 |
| Philosophy (PHIL) elective | | 3.0 |
| Political Science (PSCI) elective | | 4.0 |
| Sociology (SOC) elective | | 3.0-4.0 |
| Select one of the following sequences: | | 8.0 |

| | | |
|---|--|--------------------|
| Biology | | |
| BIO 107 | Cells, Genetics & Physiology | |
| BIO 108 | Cells, Genetics and Physiology Laboratory | |
| BIO 109 | Biological Diversity, Ecology & Evolution | |
| BIO 110 | Biological Diversity, Ecology and Evolution Laboratory | |
| Chemistry | | |
| CHEM 111 | General Chemistry I | |
| CHEM 112 | General Chemistry II | |
| Physics | | |
| PHYS 170 | Electricity and Motion | |
| PHYS 171 | Computational Lab for Electricity and Motion | |
| PHYS 175 | Light and Sound | |
| PHYS 176 | Computational Lab for Light and Sound | |
| Free electives | | 48.0 |
| Departmental Requirements | | |
| General Psychology Requirements | | |
| PSY 111 | Pre-Professional General Psychology I *** | 3.0 |
| PSY 112 | Pre-Professional General Psychology II *** | 3.0 |
| 100-Level Requirements | | |
| Select two of the following: | | 6.0 |
| PSY 120 | Developmental Psychology | |
| PSY 140 | Approaches to Personality | |
| PSY 150 | Introduction to Social Psychology | |
| Required Psychology Courses | | |
| PSY 212 | Physiological Psychology | 3.0 |
| PSY 240 [WI] | Abnormal Psychology | 3.0 |
| PSY 264 | Computer-Assisted Data Analysis I | 3.0 |
| PSY 265 | Computer-Assisted Data Analysis II | 3.0 |
| PSY 280 | Psychological Research | 3.0 |
| PSY 290 | History and Systems of Psychology | 3.0 |
| PSY 325 | Psychology of Learning | 3.0 |
| PSY 330 | Cognitive Psychology | 3.0 |
| PSY 360 [WI] | Experimental Psychology | 3.0 |
| PSY 380 | Psychological Testing and Assessment | 3.0 |
| Advanced Psychology Electives | | |
| Any non-required PSY course at the 200-level or above. | | 12.0 |
| Senior Seminar Sequence OR Psychology Electives **** | | |
| PSY 490 [WI] | Psychology Senior Thesis I | 4.0 |
| PSY 491 [WI] | Psychology Senior Thesis II | 4.0 |
| PSY 492 [WI] | Psychology Senior Thesis III | 4.0 |
| Total Credits | | 180.0-181.0 |

* Students not participating in co-op will not take COOP 101; 1 credit of Free Elective will be added in place of COOP 101. Select students may be eligible to take COOP 001 in place of COOP 101.

** GST 100 may be used as a substitute for ANTH 101

*** Students with AP psychology, or transfer students with PSY 101 credit, should check the AP Student Placement Exam Crosswalk (http://www.drexel.edu/provost/policies/pdf/supporting/ap_crosswalk.pdf) or check with their advisor.

**** Students who do not wish to complete the research seminar sequence are required to complete 12.0 credits of additional advanced Psychology electives instead.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>)

program/drexel-writing-center/) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

4 year, No co-op

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|------------------------------|------------------------------|----------------------------------|----------------|----------|
| ENGL 101 or 111 | 3.0 CIVC 101 | 1.0 ENGL 103 or 113 | 3.0 VACATION | |
| PSY 111 | 3.0 ENGL 102 or 112 | 3.0 PSY 120, 140, or 150 | 3.0 | |
| MATH 121 or 101 | 4.0 MATH 102 or 122 | 4.0 PSY 240 | 3.0 | |
| UNIV H101 | 1.0 PSY 112 | 3.0 UNIV H201 | 1.0 | |
| Select one of the following: | 4.0 PSY 120, 140, or 150 | 3.0 Anthropology (ANTH) Elective | 3.0 | |
| CHEM 111 | Select one of the following: | 4.0 Fine Arts Elective | 3.0 | |
| PHYS 170 & PHYS 171 | BIO 109 & BIO 110 | | | |
| BIO 107 & BIO 108 | CHEM 112 | | | |
| | PHYS 175 & PHYS 176 | | | |
| | 15 | 18 | 16 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|---|---|-------------------------|----------------|----------|
| PSY 264 | 3.0 COM 230 | 3.0 PSY 212 | 3.0 VACATION | |
| PSY 290 | 3.0 PSY 265 | 3.0 PSY 280 | 3.0 | |
| English (ENGL) elective, 200-level or above | 3.0 PSY 330 | 3.0 PSY 360 | 3.0 | |
| Political Science (PSCI) Elective | 4.0 English (ENGL) Elective, 200-level or above | 3.0 Psychology Elective | 3.0 | |
| Sociology (SOC) Elective | 3.0-4.0 Philosophy (PHIL) Elective | 3.0 Business Elective | 4.0 | |
| | 16-17 | 15 | 16 | 0 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|---------------------|--------------------------|--------------------------|----------------|----------|
| PSY 325 | 3.0 Free Electives | 7.0 Free Electives | 12.0 VACATION | |
| PSY 380 | 3.0 History Elective | 4.0 Psychology Elective* | 3.0 | |
| History Elective | 4.0 Psychology Elective* | 3.0 | | |
| Free Elective | 3.0 | | | |
| Psychology Elective | 3.0 | | | |
| | 16 | 14 | 15 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits |
|----------------|--------------------|--------------------|-----------|
| PSY 490** | 4.0 PSY 491** | 4.0 PSY 492** | 4.0 |
| Free Electives | 9.0 Free Electives | 9.0 Free Electives | 9.0 |
| | 13 | 13 | 13 |

Total Credits 180-181

* See degree requirements (p. 147).

** Students who do not wish to complete the research seminar sequence are instead required to complete 12.0 credits of additional advanced Psychology electives.

4 year, 1 co-op*

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|---------------------|--------------------------|----------------|---------|
| ENGL 101 or 111 | 3.0 CIVC 101 | 1.0 COOP 101 | 1.0 VACATION | |
| PSY 111 | 3.0 ENGL 102 or 112 | 3.0 ENGL 103 or 113 | 3.0 | |
| MATH 121 or 101 | 4.0 MATH 102 or 122 | 4.0 PSY 120, 140, or 150 | 3.0 | |
| UNIV H101 | 1.0 PSY 112 | 3.0 PSY 240 | 3.0 | |

| | | | | |
|---|---|----------------------------------|----------------------------|----------------|
| Select one of the following: | 4.0 PSY 120, 140, or 150 | 3.0 UNIV H201 | 1.0 | |
| CHEM 111 | Select one of the following: | 4.0 Anthropology (ANTH) Elective | 3.0 | |
| PHYS 170 & PHYS 171 | BIO 109 & BIO 110 | Fine Arts Elective | 3.0 | |
| BIO 107 & BIO 108 | CHEM 112 | | | |
| | PHYS 175 & PHYS 176 | | | |
| | 15 | 18 | 17 | 0 |
| Second Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| PSY 264 | 3.0 COM 230 | 3.0 PSY 212 | 3.0 PSY 325 | 3.0 |
| PSY 290 | 3.0 PSY 265 | 3.0 PSY 280 | 3.0 PSY 380 | 3.0 |
| English (ENGL) elective, 200-level or above | 3.0 PSY 330 | 3.0 PSY 360 | 3.0 Psychology Elective | 3.0 |
| Political Science (PSCI) elective | 4.0 English (ENGL) elective, 200-level or above | 3.0 Psychology Elective | 3.0 History Elective | 4.0 |
| Sociology (SOC) elective | 3.0-4.0 Philosophy (PHIL) elective | 3.0 Business Elective | 4.0 Free Elective | 3.0 |
| | 16-17 | 15 | 16 | 16 |
| Third Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| COOP EXPERIENCE | COOP EXPERIENCE | Psychology Elective ** | 3.0 Psychology Elective ** | 3.0 |
| | | History Elective | 4.0 Free Electives † | 12.0 |
| | | Free Electives | 6.0 | |
| | 0 | 0 | 13 | 15 |
| Fourth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits | |
| PSY 490 *** | 4.0 PSY 491 *** | 4.0 PSY 492 *** | 4.0 | |
| Free Electives | 9.0 Free Electives | 9.0 Free Electives | 9.0 | |
| | 13 | 13 | 13 | |

Total Credits 180-181

- * Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.
COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term.
- ** See degree requirements (p. 147).
- *** Students who do not wish to complete the research seminar sequence are instead required to complete 12.0 credits of additional advanced Psychology electives.
- † If student selects a 4.0 credit SOC elective, the Free Electives in this term will be 11.0 credits.

5 year, 3 Co-ops*

| | | | | |
|------------------------------|------------------------------|----------------------------------|-----------------------|----------------|
| First Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| ENGL 101 or 111 | 3.0 CIVC 101 | 1.0 COOP 101 | 1.0 VACATION | |
| PSY 111 | 3.0 ENGL 102 or 112 | 3.0 ENGL 103 or 113 | 3.0 | |
| MATH 121 or 101 | 4.0 MATH 102 or 122 | 4.0 PSY 120, 140, or 150 | 3.0 | |
| UNIV H101 | 1.0 PSY 112 | 3.0 PSY 240 | 3.0 | |
| Select one of the following: | 4.0 PSY 120, 140, or 150 | 3.0 UNIV H201 | 1.0 | |
| CHEM 111 | Select one of the following: | 4.0 Anthropology (ANTH) elective | 3.0 | |
| PHYS 170 & PHYS 171 | BIO 109 & BIO 110 | Fine Arts elective | 3.0 | |
| BIO 107 & BIO 108 | CHEM 112 | | | |
| | PHYS 175 & PHYS 176 | | | |
| | 15 | 18 | 17 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|-----------------|--|--|---------|
| COOP EXPERIENCE | COOP EXPERIENCE | PSY 264 | 3.0 COM 230 | 3.0 |
| | | PSY 290 | 3.0 PSY 265 | 3.0 |
| | | English (ENGL) elective, 200-level or above | 3.0 PSY 330 | 3.0 |
| | | Political Science (PSCI) elective | 4.0 English (ENGL) elective, 200-level or above | 3.0 |
| | | Sociology (SOC) elective | 3.0-4.0 Philosophy (PHIL) elective | 3.0 |
| | 0 | 0 | 16-17 | 15 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|-----------------|---------------------|-------------------------|---------|
| COOP EXPERIENCE | COOP EXPERIENCE | PSY 212 | 3.0 PSY 325 | 3.0 |
| | | PSY 280 | 3.0 PSY 380 | 3.0 |
| | | PSY 360 | 3.0 Psychology elective | 3.0 |
| | | Psychology elective | 3.0 History elective | 4.0 |
| | | Business elective | 4.0 Free elective | 3.0 |
| | 0 | 0 | 16 | 16 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|-----------------|------------------------|----------------------------|---------|
| COOP EXPERIENCE | COOP EXPERIENCE | Psychology elective ** | 3.0 Psychology elective ** | 3.0 |
| | | History elective | 4.0 Free electives *** | 12.0 |
| | | Free electives | 6.0 | |
| | 0 | 0 | 13 | 15 |

Fifth Year

| Fall | Credits Winter | Credits Spring | Credits |
|----------------------|--------------------------|--------------------------|---------|
| PSY 490 [†] | 4.0 PSY 491 [†] | 4.0 PSY 492 [†] | 4.0 |
| Free electives | 9.0 Free electives | 9.0 Free electives | 9.0 |
| | 13 | 13 | 13 |

Total Credits 180-181

* Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term.

** See degree requirements (p. 147).

*** If a student selects a 4.0 credit SOC elective the Free electives in this term will be 11.0 credits.

† Students who do not wish to complete the research seminar sequence are instead required to complete 12.0 credits of additional advanced Psychology electives.

Co-op/Career Opportunities

Some graduates seek employment immediately after receiving their bachelor's degrees. They are well trained to work as research assistants in consulting firms and medical settings or to provide front-line services in mental health and educational settings. Other graduates go on to professional schools in law, business, medicine, and other health professions. Still others pursue graduate training in psychology and related fields. Students build skills and knowledge that provide a foundation for advanced study, create opportunities for future growth, and can be used to improve the quality of life for others.

Co-Op Experiences

Drexel University has long been known for its co-operative education programs, through which students mix periods of full-time, career-related employment with their studies. Co-op/internship employment is an option for psychology majors. Visit the Drexel Steinbright Career Development Center (<http://www.drexel.edu/scdc/>) page for more detailed information on co-op and post-graduate opportunities.

Psychology Faculty

Meaghan Butryn, PhD (*Drexel University*). Associate Professor. Treatment and prevention of obesity and eating disorders, behavioral treatment, acceptance and commitment therapy.

Dorothy Charbonnier, PhD (*State University of New York at Stony Brook*). Associate Teaching Professor. The nature of the creative process and writing.

Evangelia Chryssikou, PhD (*Temple University*). Associate Professor. Cognitive neuroscience, neuropsychology, neural basis of language, memory, and executive functions, neurocognitive processes associated with problem solving and flexible thought

Brian Daly, PhD (*Loyola University, Chicago*) *Interim Department Head*. Associate Professor. Pediatric neuropsychology, intervention with at-risk youth.

David DeMatteo, PhD, JD (*MCP Hahnemann University; Villanova University School of Law*) *Director of the JD-PhD Program in Law and Psychology*. Professor. Psychopathy, forensic mental health assessment, drug policy; offender diversion.

Evan M. Forman, PhD (*University of Rochester*) *Director WELL Center*. Professor. Clinical psychology: mechanisms and measurement of psychotherapy outcome, cognitive-behavioral and acceptance based psychotherapies, the development and evaluation of acceptance-based interventions for health behavior change (for problems of obesity and cardiac disease) as well as mood and anxiety disorders; neurocognition of eating.

Pamela Geller, PhD (*Kent State University*) *Director, Clinical Training*. Associate Professor. Stressful life events and physical and mental health outcomes, particularly in the area of women's reproductive health (e.g. pregnancy, pregnancy loss, infertility, medical education).

Maureen Gibney, PsyD (*Widener University*). Teaching Professor. Clinical psychopathology; neuropsychological evaluation and intervention with the elderly.

Naomi Goldstein, PhD (*University of Massachusetts*) *Co-Director of the JD-PhD Program; Stoneleigh Foundation Fellow*. Professor. Forensic psychology; juvenile justice; Miranda rights comprehension; false confessions; juvenile justice treatment outcome research; anger management intervention development; child and adolescent behavior problems.

Kirk Heilbrun, PhD (*University of Texas at Austin*). Professor. Forensic psychology, juvenile and adult criminality, violence risk assessment, forensic psychological assessment, treatment of mentally disordered offenders, academic-sports mentoring.

Adrienne Juarascio, PhD (*Drexel University*) *Director, Practicum Training*. Assistant Professor. Enhancing treatment outcomes for eating disorders and obesity; Acceptance-based behavioral treatments; Evaluating mechanisms of action in behavioral treatments

Marlin Killen, PhD (*Trident University International*). Teaching Professor. Authentic teaching methods in Psychology as well as student persistence behavior.

John Kounios, PhD (*University of Michigan*) *Director, PhD Program in Applied Cognitive and Brain Sciences*. Professor. Cognitive neuroscience, especially creativity, problem solving, and cognitive enhancement.

David Kutzik, PhD (*Temple University*). Professor. Social and cultural theory, political economy, gerontology, materialisms, activity theory, reflection theories, communities of practice and labor theories of culture.

Michael Lowe, PhD (*Boston College*). Professor. Prevention and treatment of eating disorders and obesity; effects of appetitive responsiveness and dietary restraint on eating regulation; psychobiology of obesity-proneness; empirical foundations of unconscious processes.

John Medaglia, PhD (*The Pennsylvania State University*). Assistant Professor. Applying models and methods developed in neuropsychology, cognitive neuroscience and graph theory to understand and treat brain dysfunction and enhance healthy functioning

Megan Meyer, PhD (*Temple University*). Assistant Teaching Professor. Influences on preferred body type; changes in body image, self-esteem, and self-efficacy in females as a function of strength training; Sensation and Perception

Danette Morrison, PhD (*University of Maryland - College Park*). Assistant Teaching Professor. Social and academic motivation within school context; Social relationships and identity development; Educational attainment of ethnic minorities

Arthur Nezu, PhD, DHLL, ABPP (*State University of New York at Stony Brook*). Distinguished University Professor of Psychology, Professor of Medicine, Professor of Community Health and Prevention. Behavioral medicine applications of problem-solving therapy and other cognitive-behavior therapies (e.g., to decrease emotional and psychosocial risk factors; improve adherence), particularly with regard to patients with cardiovascular disease; assessment.

Christine Maguth Nezu, PhD (*Fairleigh Dickinson University*). Professor of Psychology, Professor of Medicine. Cognitive-behavioral assessment and treatment for mood, anxiety, personality disorders, and coping with chronic illness; mind/body studies; stress and coping; developmental disabilities and comorbid behavioral and emotional disorders; spirituality and psychology.

Nancy Raitano Lee, PhD (*University of Denver*) *Director of MS and BS/MS Programs*. Associate Professor. Neuropsychological and neuroanatomic correlates of intellectual and developmental disabilities; Verbal memory and language difficulties in Down syndrome and other genetic disorders; Comorbid autism spectrum disorder symptoms in youth with genetic disorders; Neuroanatomic correlates of individual differences in typical and atypical cognition

Diana Robins, PhD (*University of Connecticut*) *Interim Director, AJ Drexel Autism Institute*. Professor. Autism screening, early detection of autism

Ludo Scheffer, PhD (*University of Pennsylvania*) *Director of Undergraduate Studies*. Teaching Professor. Meta-cognitive development, writing, and computers; Language and literacy development in the early years in the context of family and schooling; Youth-at-risk; School violence and bullying; Program/intervention effectiveness

Maria Schultheis, PhD (*Drexel University*) *Vice Provost of Research, Office of Research and Innovation*. Professor. Clinical Neuropsychology and rehabilitation following neurological compromise (brain injury, stroke, multiple sclerosis), application of technologies in psychology. Specialization in the use of virtual reality (VR) simulation, and evaluation of the demands of driving after disability.

Jennifer Schwartz, PhD (*Idaho State University*) *Director of Psychological Services Center*. Teaching Professor. Adult psychopathology; evidence-based clinical practice; competency-based training; competency-based clinical supervision.

Julia Sluzenski, PhD (*Temple University*). Assistant Teaching Professor. Spatial and episodic memory, memory loss across the lifespan, developmental psychology.

Fengqing (Zoe) Zhang, PhD (*Northwestern University*). Associate Professor. Neuroimaging data analysis; Data mining; Bayesian inference; High dimensional data analysis

Eric A Zillmer, PsyD (*Florida Institute of Technology*) *Carl R. Pacifico Professor of Neuropsychology and the Director of Athletics*. Professor. Psychological assessment (neuropsychological, cognitive, personality), psychiatric and neurological disorders, behavioral medicine, neurogerontology, mathematical modeling, sports psychology, psychology of genocide.

Emeritus Faculty

Donald Bersoff, JD, PhD (*Yale University, New York University*). Professor Emeritus. Law and psychology; mental health law.

James Calkins, PhD. Professor Emeritus.

Douglas L. Chute, PhD (*University of Missouri*) *Louis and Bessie Stein Fellow*. Professor Emeritus. Neuropsychology and rehabilitation; technological applications for the cognitively compromised and those with acquired brain injuries.

Myrna Shure, PhD (*Cornell University*). Professor Emeritus. Child development, problem-solving interventions with children, prevention programs.

Mary Spiers, PhD (*University of Alabama at Birmingham*). Professor Emeritus. Clinical neuropsychology and medical psychology; memory and practical applications for memory disorders in the elderly; cognitive health of women.

Sociology

Major: Sociology

Degree Awarded: Bachelor of Arts (BA)

Calendar Type: Quarter

Minimum Required Credits: 180.0

Co-op Options: Three Co-op (Five years); One Co-op (Four years); No Co-op (Four years)

Classification of Instructional Programs (CIP) code: 45.1101

Standard Occupational Classification (SOC) code: 19-3041

About the Program

The Sociology major at Drexel University has three components: theory, methods, and substantive coursework. It also features specialized coursework relating to social justice issues.

Sociology is the systematic study of societies. Society is the sum total of individual and group interactions and relations from small groups and families to global networks and complex social organizations. The discipline covers a wide variety of fields of inquiry. Sociologists examine structural relations and are committed to developing a *critical understanding* of these relationships. Thus, the Sociology major stresses theory, research methods, and quantitative and qualitative data analysis. These are then applied to a wide variety of substantive areas including, but not limited to, social inequality, political power, gender, sexuality, class, race, ethnicity, family, health, cities and neighborhoods, technology and environmental change, as well as social and political movements connected with social change. The stress on *critical understanding* means that Sociology majors will strive not only to develop strong analytic abilities but an intellectual and ethical engagement reflected in sociologically informed thinking and action. The research and analytical skills developed in our program are sought after by a wide variety of professions.

Specialized social justice coursework is typically carried out in connection with community groups and organizations. It is a way the Sociology Program and Drexel University as a whole seek to become practically engaged with the wider community while promoting social justice.

Additional Information

For more information about the Sociology major, visit the Department of Sociology (<http://www.drexel.edu/coas/academics/departments-centers/sociology/>) webpage.

Degree Requirements

General Requirements

| | | |
|---|---|-----|
| CIVC 101 | Introduction to Civic Engagement | 1.0 |
| COOP 101 | Career Management and Professional Development * | 1.0 |
| ENGL 101 | Composition and Rhetoric I: Inquiry and Exploratory Research | 3.0 |
| or ENGL 111 | English Composition I | |
| ENGL 102 | Composition and Rhetoric II: Advanced Research and Evidence-Based Writing | 3.0 |
| or ENGL 112 | English Composition II | |
| ENGL 103 | Composition and Rhetoric III: Themes and Genres | 3.0 |
| or ENGL 113 | English Composition III | |
| UNIV H101 | The Drexel Experience | 1.0 |
| UNIV H201 | Looking Forward: Academics and Careers | 1.0 |
| Two Consecutive Foreign Language Courses ** | | 8.0 |

College of Arts and Sciences Core Curriculum***

| | | |
|---|-------------------|---------|
| Developing Quantitative Reasoning*** | | 6.0-8.0 |
| Two courses in MATH based on placement exams OR | | |
| PHIL 111 | Symbolic Logic I | |
| or PHIL 121 | Symbolic Logic II | |
| Engaging the Natural World*** | | 6.0-8.0 |
| Analyzing Cultures & Histories*** | | 6.0-8.0 |
| Understanding Society & Human Behavior*** | | 6.0-8.0 |
| Cultivating Global Competence*** | | 6.0-8.0 |
| Perspectives in Diversity*** | | 3.0-4.0 |

Sociology Core Requirements

| | | |
|---------|---------------------------|-----|
| SOC 101 | Introduction to Sociology | 3.0 |
|---------|---------------------------|-----|

Required Major Capstone

| | | |
|---------|-----------------------|-----|
| SOC 450 | Capstone in Sociology | 4.0 |
|---------|-----------------------|-----|

Theory Sequence

| | | |
|--------------|----------------------------|-----|
| SOC 355 [WI] | Classical Social Theory | 8.0 |
| SOC 356 [WI] | Contemporary Social Theory | |

Methods Sequence

| | | |
|---------|---------------------------------------|-----|
| SOC 241 | Research Design: Qualitative Methods | 8.0 |
| SOC 242 | Research Design: Quantitative Methods | |

Required Sociology Electives

Select at least 10 of the following: (At least four must be at the 300 or 400 level; and at least one must be at the 400-level.)

| | | |
|---------|--|--|
| SOC 115 | Social Problems | |
| SOC 207 | Medicine and Society | |
| SOC 210 | Race, Ethnicity and Social Inequality | |
| SOC 215 | Sociology of Work | |
| SOC 220 | Wealth and Power | |
| SOC 221 | Sociology of the Family | |
| SOC 222 | Sex and Society | |
| SOC 230 | Gender and Society | |
| SOC 235 | Sociology of Health and Illness | |
| SOC 238 | Sociology of Health Professions | |
| SOC 240 | Urban Sociology | |
| SOC 244 | Sociology of the Environment | |
| SOC 261 | Sex and The City | |
| SOC 268 | Sociology of Sport | |
| SOC 271 | Sociology of Aging | |
| SOC 276 | Global Climate Change | |
| SOC 281 | Gentrification and Neighborhood Change | |
| SOC 313 | Sociology of Global Health | |
| SOC 318 | Social Networks and Health | |
| SOC 320 | Sociology of Deviance | |
| SOC 330 | Development and Underdevelopment in the Global South | |
| SOC 335 | Sociology of Education | |
| SOC 340 | Globalization | |
| SOC 341 | Global Environmental Movements | |
| SOC 346 | Environmental Justice | |
| SOC 349 | Sociology of Disasters | |

| | |
|----------|--|
| SOC 370 | Practicum in Applied and Community Sociology |
| SOC 405 | Medicine, Technology and Science |
| SOC 406 | Housing and Homelessness |
| SOC 410 | Imagining Multiple Democracies |
| SOC 420 | Love, Rage & Debt: The Debt Society |
| SOC 430 | Politics of Life |
| SOC 444 | Social Movements |
| SOC 490 | Sociology Research Seminar I: Research Design |
| SOC 491 | Sociology Research Seminar II: Data Acquisition and Analysis |
| SOC 492 | Sociology Research Seminar III: Practicum in Sociological Research |
| SOC T380 | Special Topics in SOC |

Free Electives **63.0**

Total Credits **180.0-191.0**

* Students not participating in co-op will take one additional credit of free elective instead of COOP 101. Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

** Select from one of the following:

Two courses in: ARBC 103 or ARBC 201-499, CHIN 103 or CHIN 201-499, FREN 103 or FREN 201-499, GER 103 or GER 201-499, JAPN 103 or JAPN 201-499, KOR 103 or KOR 201-499, SPAN 103 or SPAN 201-499.

At least one foreign language course must be at the 200-level. In addition, the department recommends students take two additional foreign language courses as free electives.

*** See Core Curriculum List (p. 5) for complete list of course options.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

4 year, no co-op

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------------------------|--|-------------------------------|----------------|----------|
| ENGL 101 or 111 | 3.0 CIVC 101 | 1.0 ENGL 103 or 113 | 3.0 VACATION | |
| SOC 101 | 3.0 ENGL 102 or 112 | 3.0 Free electives | 8.0 | |
| UNIV H101 | 1.0 Foreign Language course | 4.0 Perspectives in Diversity | 3.0-4.0 | |
| Developing Quantitative Reasoning | 3.0-4.0 Sociology required elective | 4.0 | | |
| Foreign Language course | 4.0 Understanding Society & Human Behavior | 3.0-4.0 | | |
| | 14-15 | 15-16 | 14-15 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------------------------|--|--|----------------|---------|
| SOC 241 | 4.0 SOC 242 | 4.0 SOC 355 | 4.0 VACATION | |
| Developing Quantitative Reasoning | 3.0-4.0 Analyzing Cultures & Histories | 3.0-4.0 Analyzing Cultures & Histories | 3.0-4.0 | |
| Sociology required electives | 8.0 Engaging the Natural World | 3.0-4.0 Free electives | 6.0 | |

| | | | | |
|---|---|---|-----------------------|----------------|
| | Sociology required elective | 4.0 Understanding Society & Human Behavior | 3.0-4.0 | |
| | 15-16 | 14-16 | 16-18 | 0 |
| Third Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| SOC 356 | 4.0 UNIV H201 | 1.0 Free electives | 9.0 VACATION | |
| Free electives | 8.0 Free electives | 6.0 Cultivating Global Competence | 3.0-4.0 | |
| Sociology required elective (300-level) | 4.0 Sociology required elective | 4.0 Sociology required elective (300-level) | 4.0 | |
| | Sociology required elective (300-level) | 4.0 | | |
| | 16 | 15 | 16-17 | 0 |
| Fourth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits | |
| Cultivating Global Competence | 3.0-4.0 Free electives | 9.0 SOC 450 | 4.0 | |
| Free electives | 6.0 Sociology required elective (400-level) | 4.0 Free electives | 12.0 | |
| Engaging the Natural World | 3.0-4.0 | | | |
| Sociology required elective | 4.0 | | | |
| | 16-18 | 13 | 16 | |

Total Credits 180-191

4 year, 1 co-op

| | | | | |
|---|---|--|---|----------------|
| First Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| ENGL 101 or 111 | 3.0 CIVC 101 | 1.0 COOP 101* | 1.0 VACATION | |
| SOC 101 | 3.0 ENGL 102 or 112 | 3.0 ENGL 103 or 113 | 3.0 | |
| UNIV H101 | 1.0 Foreign Language course | 4.0 Free electives | 7.0 | |
| Developing Quantitative Reasoning | 3.0-4.0 Sociology required elective | 4.0 Perspectives in Diversity | 3.0-4.0 | |
| Foreign Language course | 4.0 Understanding Society & Human Behavior | 3.0-4.0 | | |
| | 14-15 | 15-16 | 14-15 | 0 |
| Second Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| SOC 241 | 4.0 SOC 242 | 4.0 SOC 355 | 4.0 SOC 356 | 4.0 |
| Developing Quantitative Reasoning | 3.0-4.0 Analyzing Cultures & Histories | 3.0-4.0 Analyzing Cultures & Histories | 3.0-4.0 Free electives | 8.0 |
| Sociology required electives | 8.0 Engaging the Natural World | 3.0-4.0 Free electives | 6.0 Sociology required elective (300-level) | 4.0 |
| | Sociology required elective | 4.0 Understanding Society & Human Behavior | 3.0-4.0 | |
| | 15-16 | 14-16 | 16-18 | 16 |
| Third Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| UNIV H201 | 1.0 Cultivating Global Competence | 3.0-4.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| Free electives | 6.0 Free electives | 9.0 | | |
| Sociology required elective | 4.0 Sociology required elective (300-level) | 4.0 | | |
| Sociology required elective (300-level) | 4.0 | | | |
| | 15 | 16-17 | 0 | 0 |
| Fourth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits | |
| Cultivating Global Competence | 3.0-4.0 Free electives | 9.0 SOC 450 | 4.0 | |
| Engaging the Natural World | 3.0-4.0 Sociology Required elective (400-level) | 4.0 Free elective | 12.0 | |

| | | | |
|-----------------------------|--------------|-----------|-----------|
| Free electives | 6.0 | | |
| Sociology required elective | 4.0 | | |
| | 16-18 | 13 | 16 |

Total Credits 180-191

* Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.
COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

5 year, 3 co-op**First Year**

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------------------------|--|-------------------------------|----------------|----------|
| ENGL 101 or 111 | 3.0 CIVC 101 | 1.0 COOP 101* | 1.0 VACATION | |
| SOC 101 | 3.0 ENGL 102 or 112 | 3.0 ENGL 103 or 113 | 3.0 | |
| UNIV H101 | 1.0 Foreign Language course | 4.0 Free electives | 7.0 | |
| Developing Quantitative Reasoning | 3.0-4.0 Sociology required elective | 4.0 Perspectives in Diversity | 3.0-4.0 | |
| Foreign Language course | 4.0 Understanding Society & Human Behavior | 3.0-4.0 | | |
| | 14-15 | 15-16 | 14-15 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------------------------|--|---------------------|-----------------|----------|
| SOC 241 | 4.0 SOC 242 | 4.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| Developing Quantitative Reasoning | 3.0-4.0 Analyzing Cultures & Histories | 3.0-4.0 | | |
| Sociology required electives | 8.0 Engaging the Natural World | 3.0-4.0 | | |
| | Sociology required elective | 4.0 | | |
| | 15-16 | 14-16 | 0 | 0 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--|---|---------------------|-----------------|----------|
| SOC 355 | 4.0 SOC 356 | 4.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| Analyzing Cultures & Histories | 3.0-4.0 Free electives | 8.0 | | |
| Free electives | 6.0 Sociology required elective (300-level) | 4.0 | | |
| Understanding Society & Human Behavior | 3.0-4.0 | | | |
| | 16-18 | 16 | 0 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|---|---|---------------------|-----------------|----------|
| UNIV H201 | 1.0 Free electives | 9.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| Free electives | 6.0 Cultivating Global Competence | 3.0-4.0 | | |
| Sociology required elective | 4.0 Sociology required elective (300-level) | 4.0 | | |
| Sociology required elective (300-level) | 4.0 | | | |
| | 15 | 16-17 | 0 | 0 |

Fifth Year

| Fall | Credits Winter | Credits Spring | Credits |
|-------------------------------|---|--------------------|---------|
| Cultivating Global Competence | 3.0-4.0 Free electives | 9.0 SOC 450 | 4.0 |
| Free electives | 6.0 Sociology required elective (400-level) | 4.0 Free electives | 12.0 |
| Engaging the Natural World | 3.0-4.0 | | |

| | | | |
|--------------------------------|-------|----|----|
| Sociology required elective | 4.0 | | |
| | 16-18 | 13 | 16 |

Total Credits 180-191

- * Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major. COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 101 in place of COOP 101.

Co-op/Career Opportunities

An undergraduate degree in sociology is excellent preparation for law school, medical school, or for graduate work in such fields as sociology, history, gerontology, or political science.

Outside of academics, sociologists work in a wide variety of settings. Some serve as statistical analysts for market research firms, health care agencies, and government. Others are involved in urban planning, survey research, public relations, agency management, trend analysis, or criminal justice.

There are sociologists of religion working for national church organizations, and sociologists specializing in gerontology who are engaged in research or administration for agencies concerned with the aged.

Co-op Experiences

Some recent co-op positions held by sociology students include the following:

- Human Resources Assistant, National Board of Medical Examiners (<http://www.nbme.org/>)
- Giving Corps Intern, Cradles to Crayons (<https://www.cradlestocrayons.org/>)
- Organizing Internship, Food & Water Watch (<https://www.foodandwaterwatch.org/>)
- Marketing Intern, Stradley Ronon Stevens & Young LLP (<http://www.stradley.com/>)
- Small Business Outreach Co-op, The Welcoming Center for New Pennsylvanians (<http://welcomingcenter.org/>)

Visit the Drexel Steinbright Career Development Center (<http://www.drexel.edu/scdc/>) page for more detailed information on co-op and post-graduate opportunities.

Sociology Faculty

Susan E. Bell, PhD (*Brandeis University*) *Department Head, Sociology*. Professor. Sociology of health and illness; global and transnational health; reproductive health, rights, and justice; experience of illness; narrative; visual sociology

Mary Ebeling, PhD (*University of Surrey*). Associate Professor. Science and technology studies; emerging technologies and biocapital; media and democratic cultures; radical social movements; sociology of markets; political sociology; and ethnographic methodologies.

Sarah Hosman, PhD (*Boston University*). Assistant Teaching Professor. Urban sociology, Gentrification, Cultural sociology, Economic Sociology, Narratives of place, Ethnography

Sonali Jain, PhD (*Boston University*). Associate Teaching Professor. South Asia, Race, Ethnicity, Gender, Transnationalism.

Kelly Joyce, PhD (*Boston College*) *Director, Master's Program in Science Technology & Society*. Professor. Science, medicine and technology; aging and technology; qualitative social science methods; healthcare and medicine.

Emmanuel F. Koku, PhD (*University of Toronto*). Associate Professor. Social network analysis; qualitative/quantitative research; medical sociology; social epidemiology; social demography; sociology of development; communication and information technology; community and urban sociology.

Nada Matta, PhD (*New York University*). Assistant Professor. Political Economy, Social Movements, Middle East Studies, Gender Studies, Revolutions, Inequality.

Elizabeth McGhee Hassrick, PhD (*University of Chicago*). Assistant Professor. . Sociology of Education; Educational Inequality; Social Networks; Organizational Sociology; Sociology of Disability

Amanda McMillan Lequieu, PhD (*University of Wisconsin-Madison*). Assistant Professor. Environmental sociology, political economy, place and space, rural-urban interface, qualitative and historical methodologies.

Jason Orne, PhD (*University of Wisconsin-Madison*). Assistant Professor. Urban Sociology, Sexualities Studies, Qualitative Methodologies, Sociology of Race and Ethnicity, Social Psychology, Social Theory

Diane Sicotte, PhD (*Arizona State University*). Associate Professor. Sociology of environmental justice; inequalities in the citing of environmental hazards; community-based research in neighborhoods dealing with industrial hazards; sociology of the environment; urban sociology; social inequalities.

Kelly Underman, PhD (*University of Illinois at Chicago*). Assistant Professor. Medical education, the social construction of bodies and emotions and the politics of scientific knowledge production.

Emeritus Faculty

Robert J. Brulle, PhD (*George Washington University*). Professor Emeritus. Environmental policy and politics, critical theory, marine risk, social movements, environmental sociology.

Arthur Shostak, PhD (*Princeton University*). Professor Emeritus. Futurism, race and ethnic relations, social implications of 20th century technology, urban sociology.

General Humanities and Social Sciences (Undeclared)

About the Program

The GHSS (General Humanities and Social Sciences) Undeclared program allows students to explore academic options within the College of Arts and Sciences before declaring a major and while staying on track during their first year.

GHSS is not a major; however, all the courses in year 1 are required in some form in the various majors in the Humanities/Social Science side of the College of Arts and Sciences. This selection of courses will “follow” the student to an eventual chosen major in the college. With the help of an advisor, students can select courses based on their interests and goals. No later than the end of spring term in the first academic year, students are required to select an appropriate major which will lead to a bachelor’s degree.

Students will complete co-ops in accordance with the requirements for the major that they choose.

Admission Requirements

There are no specific requirements for admission into the General Humanities and Social Sciences (GHSS) option beyond those that are required for any student applying to majors in Humanities or Social Sciences at Drexel University.

Program Requirements

Students are required to chose a major by the end of the first year. All students will work closely with their advisor to identify where their interests lie so that they can declare their major as soon as possible. Courses taken during the first year will all count towards the degree requirements for majors in the Humanities and the Social Sciences.

General Education Requirements

| | | |
|-------------|---|-----|
| CIVC 101 | Introduction to Civic Engagement | 1.0 |
| ENGL 101 | Composition and Rhetoric I: Inquiry and Exploratory Research | 3.0 |
| or ENGL 111 | English Composition I | |
| ENGL 102 | Composition and Rhetoric II: Advanced Research and Evidence-Based Writing | 3.0 |
| or ENGL 112 | English Composition II | |
| ENGL 103 | Composition and Rhetoric III: Themes and Genres | 3.0 |
| or ENGL 113 | English Composition III | |
| UNIV H101 | The Drexel Experience | 1.0 |

College Requirements

| | | |
|----------|--|-----|
| SOC 101 | Introduction to Sociology | 3.0 |
| COM 111 | Principles of Communication | 3.0 |
| PSY 101 | General Psychology I | 3.0 |
| PHIL 105 | Critical Reasoning | 3.0 |
| CJS 101 | Introduction to Criminal Justice | 3.0 |
| COM 150 | Mass Media and Society | 3.0 |
| GST 101 | Becoming Global: Language and Cultural Context | 4.0 |
| PSCI 100 | Introduction to Political Science | 4.0 |

MATH or Language Requirement *

8.0

Electives

70.0

Major Requirements **

66.0

Total Credits

181.0

* Two MATH or language courses according to placement

** Declared majors include ENGL, PHIL, HIST, PSCI, SOC, COM, GST, PPE, CJS, PSY

Sample Plan of Study

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-------------------|-----------------------|---------------------|----------------|----------|
| COM 111 | 3.0 CIVC 101 | 1.0 CJS 101 | 3.0 VACATION | |
| ENGL 101 or 111 | 3.0 ENGL 102 or 112 | 3.0 COM 150 | 3.0 | |
| MATH or Language* | 4.0 MATH or Language* | 4.0 ENGL 103 or 113 | 3.0 | |
| SOC 101 | 3.0 PHIL 105 | 3.0 GST 101 | 4.0 | |
| UNIV H101 | 1.0 PSY 101 | 3.0 PSCI 100 | 4.0 | |
| | 14 | 14 | 17 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--------------------------|-------------------------------|-------------------------------|----------------|----------|
| Declared Major Credits** | 12.0 Declared Major Credits** | 12.0 Declared Major Credits** | 9.0 VACATION | |
| UG Elective Credits | 4.0 UG Elective Credits | 3.0 UG Elective Credits | 6.0 | |
| | 16 | 15 | 15 | 0 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--------------------------|------------------------------|------------------------------|----------------|----------|
| Declared Major Credits** | 6.0 Declared Major Credits** | 9.0 Declared Major Credits** | 6.0 VACATION | |
| UG Elective Credits | 9.0 UG Elective Credits | 6.0 UG Elective Credits | 9.0 | |
| | 15 | 15 | 15 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits |
|--------------------------|------------------------------|------------------------------|-----------|
| Declared Major Credits** | 6.0 Declared Major Credits** | 3.0 Declared Major Credits** | 3.0 |
| UG Elective Credits | 9.0 UG Elective Credits | 12.0 UG Elective Credits | 12.0 |
| | 15 | 15 | 15 |

Total Credits 181

* MATH or language courses according to placement

** Declared majors include ENGL, PHIL, HIST, PSCI, SOC, COM, GST, PPE, CJS, PSY

Science (Undeclared)

About the Program

The Science Undeclared program allows students to explore academic options within the College of Arts and Sciences before declaring a major and thereby stay on track during their first year.

Science Undeclared is not a major; however, all the courses in year 1 are required in some form in the various majors in the Sciences in the College of Arts and Sciences. This selection of courses will "follow" the student to an eventual chosen major in the college. With the help of an advisor, students can select courses based on their interests and goals. No later than the end of the first year, students will select a major while being guided toward a future career path.

Students will complete co-ops in accordance with the requirements for the major that they choose.

Degree Requirements

Students are required to choose a major by the end of the first year. All students will work closely with their advisor to identify where their interests lie so that they can declare their major as soon as possible. Courses taken during the first year will all count towards the degree requirements for majors in the Sciences.

General Requirements

| | | |
|-------------------------|---|-----|
| CIVC 101 | Introduction to Civic Engagement | 1.0 |
| ENGL 101 or ENGL 111 | Composition and Rhetoric I: Inquiry and Exploratory Research English Composition I | 3.0 |
| ENGL 102 or ENGL 112 | Composition and Rhetoric II: Advanced Research and Evidence-Based Writing English Composition II | 3.0 |
| ENGL 103 or ENGL 113 | Composition and Rhetoric III: Themes and Genres English Composition III | 3.0 |
| UNIV S101 | The Drexel Experience | 1.0 |
| UNIV S201 | Looking Forward: Academics and Careers | 1.0 |

| | |
|---|--------------|
| Mathematics | 12.0 |
| Major Requirements | |
| Science Major -- requirements in one of BIO, CHEM, ENVS, ENSS, GEO, MATH,PHYS | 94.0 |
| Electives | |
| Liberal Studies Electives | 20.0 |
| Free electives | 42.0 |
| Total Credits | 180.0 |

Sample Plan of Study

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|---------------------|---------------------|----------------|----------|
| BIO 131 | 4.0 BIO 132 | 4.0 BIO 133 | 4.0 VACATION | |
| BIO 134 | 1.0 BIO 135 | 1.0 BIO 136 | 1.0 | |
| CHEM 101 | 3.5 CHEM 102 | 4.5 CHEM 103 | 4.5 | |
| ENGL 101 or 111 | 3.0 CIVC 101 | 1.0 ENGL 103 or 113 | 3.0 | |
| MATH 101 or 121 | 4.0 ENGL 102 or 112 | 3.0 MATH 239 or 123 | 4.0 | |
| UNIV S101 | 1.0 MATH 102 or 122 | 4.0 | | |
| | 16.5 | 17.5 | 16.5 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--|---|---|----------------|----------|
| Credits in declared major: BIO, CHEM, MATH, PHYS, ENVS, GEO, or ENSS | 12.0 Credits in declared major: BIO, CHEM, MATH, PHYS, ENVS, GEO, or ENSS | 12.0 Credits in declared major: BIO, CHEM, MATH, PHYS, ENVS, GEO, or ENSS | 9.0 VACATION | |
| Electives according to declared major | 3.0 Electives according to declared major | 3.0 Liberal Studies electives according to declared major | 3.0 | |
| UNIV S201 | 1.0 | Electives according to declared major | 3.0 | |
| | 16 | 15 | 15 | 0 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--|--|--|----------------|----------|
| Credits in declared major: BIO, CHEM, MATH, PHYS, ENVS, GEO, or ENSS | 9.0 Credits in declared major: BIO, CHEM, MATH, PHYS, ENVS, GEO, or ENSS | 6.0 Credits in declared major: BIO, CHEM, MATH, PHYS, ENVS, GEO, or ENSS | 6.0 VACATION | |
| Liberal Studies electives according to declared major | 3.0 Liberal Studies electives according to declared major | 3.0 Liberal Studies electives according to declared major | 4.0 | |
| Electives according to declared major | 3.0 Electives according to declared major | 6.0 Electives according to declared major | 6.5 | |
| | 15 | 15 | 16.5 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits |
|--|--|--|-----------|
| Credits in declared major: BIO, CHEM, MATH, PHYS, ENVS, GEO, or ENSS | 6.0 Credits in declared major: BIO, CHEM, MATH, PHYS, ENVS, GEO, or ENSS | 3.0 Credits in declared major: BIO, CHEM, MATH, PHYS, ENVS, GEO, or ENSS | 3.0 |
| Electives according to declared major | 6.0 Liberal Studies electives according to declared major | 5.0 Liberal Studies electives according to declared major | 3.0 |
| | Electives according to declared major | 5.0 Electives according to declared major | 6.0 |
| | 12 | 13 | 12 |

Total Credits 180

Biological Sciences BS/ Biological Sciences MS

Major: Biological Sciences

Degree Awarded: Bachelor of Science (BS) and Master of Science (MS)

Calendar Type: Quarter

Minimum Required Credits: 229.5

Co-op Options: One Co-op (Five years)

BS Classification of Instructional Programs (CIP) code: 26.0101

BS Standard Occupational Classification (SOC) code: 19-1029

MS Classification of Instructional Programs (CIP) code: 26.0101

MS Standard Occupational Classification (SOC) code: 19-1029

About the Program

The Accelerated BS/MS in Biological Sciences is designed for academically qualified students who are looking to advance their learning in the discipline by earning both a bachelor's and graduate degree in 5 years. The BS/MS in Biological Sciences is a degree program with both thesis and non-thesis options available.

Requirements for the graduate portion of the program are the same as for the MS in Biological Sciences. The BS/MS program in Biological Sciences is a rigorous and challenging program that builds on a strong undergraduate foundation to allow students to engage in more extensive study of the discipline at a graduate level. Students applying to this program are often advanced in their plans of study, typically arriving with advanced placement credit when they matriculate.

Eligibility

Exceptional students with a cumulative GPA of at least 3.5 and who are enrolled in the four-year or five-year co-op option are eligible for the BS/MS program. Students participating in co-op will need to be on the spring-summer cycle. Students formally apply to the program after they have completed 90.0 credits but before they have completed 120.0 credits. Students are strongly encouraged to begin planning for the program as early as their freshman year.

Application Process

Prior to applying to the program, students are advised to meet with the respective advisor(s) in the department. The application must be accompanied by a Plan of Study prepared in consultation with the undergraduate and graduate advisors in the department. A brief statement of purpose indicating the applicant's academic and professional interest in pursuing the BS/MS degree is required. Applicants are then formally reviewed by the Biology Graduate Committee.

Requirements

Students enrolled in the Accelerated BS/MS in Biological Sciences must complete 180.0 undergraduate quarter credits for the bachelor's degree and at least 45 graduate quarter credits for the master's degree. Courses may not be double-counted for both the BS and MS degree. All undergraduate and graduate course requirements must be satisfied in full, including producing a thesis (if the thesis-option master's program is elected) no later than the Spring Quarter of the final year. Students in the BS/MS program must maintain a cumulative GPA of 3.0 in their undergraduate and graduate coursework to remain in the program.

Additional Information

If you are interested in applying for the BS/MS, please contact Biology Graduate Advisor Kate Pelusi at kp475@drexel.edu and submit your current plan of study, along with your statement of purpose communicating your interest in pursuing the BS/MS degree.

Admission Requirements

Exceptional students with a cumulative GPA of at least 3.5 and who are enrolled in the four-year or five-year co-op option are eligible for the BS/MS program. Students participating in co-op will need to be on the spring-summer cycle. Students formally apply to the program after they have completed 90.0 credits but before they have completed 120.0 credits. Students are strongly encouraged to begin planning for the program as early as their freshman year.

Degree Requirements

Requirements

Humanities and Social Sciences

| | | |
|----------------------------|--|-----|
| CIVC 101 | Introduction to Civic Engagement | 1.0 |
| COM 230 | Techniques of Speaking | 3.0 |
| COM 310 [WJ] or COM 320 | Technical Communication Science Writing | 3.0 |

| | | |
|--|--|--------------------|
| COOP 101 | Career Management and Professional Development * | 1.0 |
| ENGL 101 | Composition and Rhetoric I: Inquiry and Exploratory Research | 3.0 |
| or ENGL 111 | English Composition I | |
| ENGL 102 | Composition and Rhetoric II: Advanced Research and Evidence-Based Writing | 3.0 |
| or ENGL 112 | English Composition II | |
| ENGL 103 | Composition and Rhetoric III: Themes and Genres | 3.0 |
| or ENGL 113 | English Composition III | |
| PHIL 251 | Ethics | 3.0 |
| or PHIL 321 | Biomedical Ethics | |
| UNIV S101 | The Drexel Experience | 1.0 |
| UNIV S201 | Looking Forward: Academics and Careers | 1.0 |
| Humanities and Social Science Electives | | 9.0 |
| Science, Technology, Health and Human Affairs Elective | | 3.0 |
| Mathematics and Statistics | | |
| Select one of the following sequences: | | 12.0 |
| Intro to Analysis | | |
| MATH 101 & MATH 102 & MATH 239 | Introduction to Analysis I and Introduction to Analysis II and Mathematics for the Life Sciences | |
| Calculus | | |
| MATH 121 & MATH 122 & MATH 123 | Calculus I and Calculus II and Calculus III | |
| MATH 410 | Scientific Data Analysis I | 3.0 |
| MATH 411 | Scientific Data Analysis II | 3.0 |
| Physical Sciences | | |
| BIO 311 | Biochemistry | 4.0 |
| or CHEM 243 | Organic Chemistry III | |
| CHEM 101 | General Chemistry I | 3.5 |
| CHEM 102 | General Chemistry II | 4.5 |
| CHEM 103 | General Chemistry III | 4.5 |
| CHEM 241 | Organic Chemistry I | 4.0 |
| CHEM 242 | Organic Chemistry II | 4.0 |
| PHYS 152 | Introductory Physics I | 4.0 |
| PHYS 153 | Introductory Physics II | 4.0 |
| PHYS 154 | Introductory Physics III | 4.0 |
| Core Biology Courses | | |
| BIO 131 | Cells and Biomolecules | 4.0 |
| BIO 134 | Cells and Biomolecules Lab | 1.0-2.0 |
| or BIO 142 | SEA-PHAGES I | |
| BIO 132 | Genetics and Evolution | 4.0 |
| BIO 135 | Genetics and Evolution Lab | 1.0-2.0 |
| or BIO 143 | SEA-PHAGES II | |
| BIO 133 | Physiology and Ecology | 4.0 |
| BIO 136 | Anatomy and Ecology Lab | 1.0-2.0 |
| or BIO 144 | SEA-PHAGES III | |
| BIO 207 | Applications in Biology I | 1.0 |
| BIO 208 | Applications in Biology II | 1.0 |
| BIO 209 | Cell, Molecular & Developmental Biology I | 4.0 |
| BIO 211 | Cell, Molecular & Developmental Biology II | 4.0 |
| BIO 219 [WI] | Techniques in Molecular Biology | 3.0 |
| BIO 224 | Form, Function & Evolution of Vertebrates | 4.0 |
| BIO 225 | Vertebrate Biology and Evolution Laboratory | 2.0 |
| BIO 471 | Seminar in Biological Sciences | 2.0 |
| BIO 472 | Seminar in Biological Sciences | 2.0 |
| BIO 473 [WI] | Seminar in Biological Sciences | 2.0 |
| ENVS 212 | Evolution | 4.0 |
| Concentration Courses | | 28.0-30.0 |
| Free electives | | 24.0 |
| MS Degree Courses | | 45.0 |
| Total Credits | | 229.5-234.5 |

* Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Requirements for MS with Thesis

| | | |
|----------------------|--|-------------|
| BIO 500 | Biochemistry I | 3.0 |
| BIO 632 | Advanced Cell Biology | 3.0 |
| BIO 635 | Advanced Genetics and Molecular Biology | 3.0 |
| BIO 997 | Research in Bioscience | 12.0 |
| ENVS 506 | Biostatistics | 3.0 |
| MS BIO Electives * | | 21.0 |
| RCRG 600 | An Introduction to the Responsible Conduct of Research | 0.0 |
| Total Credits | | 45.0 |

Requirements for Non-thesis MS

| | | |
|----------------------|---|-------------|
| BIO 500 | Biochemistry I | 3.0 |
| BIO 632 | Advanced Cell Biology | 3.0 |
| BIO 635 | Advanced Genetics and Molecular Biology | 3.0 |
| ENVS 506 | Biostatistics | 3.0 |
| MS BIO Electives * | | 33.0 |
| Total Credits | | 45.0 |

* BIO 534, BIO 535, BIO 610, BIO 613, BIO 614, BIO 615, BIO 616, BIO 620, BIO 630, BIO 644, BIO 646, BIO 650, BIO 661, BIO 662, BIO 663, BIO 664, BIO 701, BIO 740

Students select one of five concentration and fulfill the requirements, as outlined below.

1. The Cell/Molecular/Genetics/Biochemistry (CMGB) Concentration

This concentration provides exposure to several vital disciplines within Biology, and will prepare students for a diversity of careers in research, medicine, and industry. Students interested in tailoring their studies more specifically may follow the suggested "focus areas" when selecting their two CMGB Concentration electives.

Cell/Molecular/Genetics/Biochemistry (CMGB) Concentration Requirements

| | | |
|------------|--|-----|
| BIO 244 | Genetics I | 3.0 |
| or BIO 444 | Human Genetics | |
| BIO 314 | Pharmacology | 3.0 |
| or BIO 404 | Structure and Function of Biomolecules | |
| or BIO 416 | Biochemistry of Major Diseases | |
| BIO 318 | Biology of Cancer | 3.0 |
| or BIO 430 | Cell Biology of Disease | |
| BIO 410 | Advanced Molecular Biology | 3.0 |

Cell/Molecular/Genetics/Biochemistry (CMGB) Concentration Electives (See Lists Below)

| | |
|--|-------------|
| Two Cell/Molecular/Genetics/Biochemistry (CMGB) Electives (see list below) | 6.0 |
| Organismal/Physiology Elective (see list below) | 3.0 |
| Ecology/Evolution/Genomics Elective (see list below) | 3.0 |
| Concentration Laboratory Courses | |
| Two Laboratory Electives (see list below) | 4.0 |
| Total Credits | 28.0 |

* Students interested in pursuing a focus area in Neurobiology, Pharmaceuticals, Cell Biology, Biochemistry, Molecular Biology or Genetics should contact the academic advisor in the Biology Department for specific focus recommendations.

Cell/Molecular/Genetics/Biochemistry (CMGB) Electives

| | | |
|---------|------------------|-----|
| BIO 244 | Genetics I | 3.0 |
| BIO 285 | Forensic Biology | 3.0 |
| BIO 311 | Biochemistry | 4.0 |
| BIO 314 | Pharmacology | 3.0 |

| | | |
|---|---|-----|
| BIO 318 | Biology of Cancer | 3.0 |
| BIO 346 | Stem Cell Research | 3.0 |
| BIO 348 | Neuroscience: From Cells to Circuits | 3.0 |
| BIO 404 | Structure and Function of Biomolecules | 4.0 |
| BIO 415 | Proteins | 3.0 |
| BIO 416 | Biochemistry of Major Diseases | 3.0 |
| BIO 421 | Biomembranes | 3.0 |
| BIO 430 | Cell Biology of Disease | 3.0 |
| BIO 433 | Advanced Cell Biology | 3.0 |
| BIO 444 | Human Genetics | 3.0 |
| BIO 447 | Advanced Genetics and Molecular Biology | 3.0 |
| BIO 453 | Protein Dysfunction in Disease | 3.0 |
| BIO 462 | Biology of Neuron Function | 3.0 |
| BIO 463 | Molecular Mechanisms of Neurodegeneration | 3.0 |
| BIO 465 | Neurobiology of Disease | 3.0 |
| ENVS 326 | Molecular Ecology | 3.0 |
| Organismal/Physiology Electives | | |
| BIO 201 | Human Physiology I | 4.0 |
| BIO 221 | Microbiology | 3.0 |
| BIO 256 | Vertebrate Morphology and Physiology | 3.0 |
| BIO 284 | Biology of Stress | 3.0 |
| BIO 286 | Forensic Toxicology | 3.0 |
| BIO 323 | Parasitology | 3.0 |
| BIO 349 | Behavioral Neuroscience | 3.0 |
| BIO 372 | Histology | 4.0 |
| BIO 373 | Developmental Biology | 3.0 |
| BIO 386 | Gross Anatomy I | 2.0 |
| BIO 412 | Biology of Aging | 3.0 |
| BIO 420 | Virology | 3.0 |
| BIO 426 | Immunology | 3.0 |
| BIO 461 | Neurobiology of Autism Disorders | 3.0 |
| ENVS 254 | Invertebrate Morphology and Physiology | 3.0 |
| ENVS 393 | Entomology | 3.0 |
| Ecology/Evolution/Genomics Electives | | |
| BIO 228 | Evolutionary Biology & Human Health | 3.0 |
| BIO 331 | Bioinformatics I | 3.0 |
| BIO 413 | Genomics | 3.0 |
| BIO 436 | Population Genetics | 4.0 |
| ENVS 230 | General Ecology | 3.0 |
| ENVS 247 | Native Plants and Sustainability | 3.0 |
| ENVS 323 | Tropical Field Studies | 3.0 |
| ENVS 328 | Conservation Biology | 3.0 |
| ENVS 333 | Wetland Ecology | 3.0 |
| ENVS 343 | Equatorial Guinea: Field Methods | 3.0 |
| ENVS 352 | Ornithology | 3.0 |
| ENVS 354 | Ichthyology | 3.0 |
| ENVS 355 | Biogeography | 3.0 |
| ENVS 360 | Evolutionary Developmental Biology | 3.0 |
| ENVS 364 | Animal Behavior | 3.0 |
| ENVS 382 | Field Botany of the New Jersey Pine Barrens | 4.0 |
| ENVS 383 | Ecology of the New Jersey Pine Barrens | 4.0 |
| ENVS 391 | Freshwater and Marine Algae | 3.0 |
| ENVS 470 | Advanced Topics in Evolution | 3.0 |
| Laboratory Electives | | |
| BIO 202 | Human Physiology Laboratory | 2.0 |
| BIO 213 | Drosophila Neural Research | 3.0 |
| BIO 215 | Techniques in Cell Biology | 3.0 |
| BIO 222 | Microbiology Laboratory | 2.0 |
| BIO 232 | Discovering Antibiotics | 3.0 |
| BIO 257 | Vertebrate Morphology & Physiology Lab | 2.0 |
| BIO 306 | Biochemistry Laboratory | 2.0 |
| BIO 329 | Dictyostelium Research | 3.0 |

| | | |
|----------|--|----------|
| BIO 374 | Developmental Biology Lab | 2.0 |
| BIO 387 | Gross Anatomy I Laboratory | 2.0 |
| BIO 389 | Gross Anatomy II Lab | 2.0 |
| BIO 497 | Research | 0.5-12.0 |
| ENVS 255 | Invertebrate Morphology and Physiology Lab | 2.0 |
| ENVS 344 | Equatorial Guinea: Field Research | 6.0 |
| ENVS 353 | Field Ornithology Lab | 2.0 |
| ENVS 394 | Entomology Laboratory | 2.0 |

2. The Organismal Biology/Physiology Concentration

This concentration combines courses in organismal biology and physiology with an opportunity to focus on human physiology. The concentration is designed to appeal to students interested in health and medicine, but also accommodates students seeking a wider breadth of knowledge in organismal diversity. Students can focus their electives in human physiology or can choose courses that study non-human organisms.

Organismal Biology/Physiology Concentration Requirements

| | | |
|------------------------------|--|-----|
| BIO 201 | Human Physiology I | 4.0 |
| or ENVS 254 | Invertebrate Morphology and Physiology | |
| BIO 203 | Human Physiology II | 4.0 |
| or BIO 256 | Vertebrate Morphology and Physiology | |
| BIO 373 | Developmental Biology | 3.0 |
| Select one of the following: | | |
| BIO 412 | Biology of Aging | 3.0 |
| or BIO 284 | Biology of Stress | |
| or BIO 466 | Endocrinology | |
| or BIO 468 | Pathophysiology | |

Organismal Biology/Physiology Concentration Concentration Electives (See List Below)

| | |
|--|-----|
| Cell/Molecular/Genetics/Biochemistry (CMGB) Elective | 3.0 |
| Two Organismal/Physiology Electives | 6.0 |
| Ecology/Evolution/Genomics Elective | 3.0 |
| Concentration Laboratory Courses | |
| Two Laboratory Electives | 4.0 |

| | |
|----------------------|-------------|
| Total Credits | 30.0 |
|----------------------|-------------|

* Students interesting in pursuing a focus area in Human Physiology or Organismal Biology should contact the academic advisor in the Biology Department for specific focus recommendations.

*Cell/Molecular/Genetics/Biochemistry (CMGB) electives

| | | |
|----------|---|-----|
| BIO 244 | Genetics I | 3.0 |
| BIO 285 | Forensic Biology | 3.0 |
| BIO 311 | Biochemistry | 4.0 |
| BIO 314 | Pharmacology | 3.0 |
| BIO 318 | Biology of Cancer | 3.0 |
| BIO 346 | Stem Cell Research | 3.0 |
| BIO 348 | Neuroscience: From Cells to Circuits | 3.0 |
| BIO 404 | Structure and Function of Biomolecules | 4.0 |
| BIO 410 | Advanced Molecular Biology | 3.0 |
| BIO 416 | Biochemistry of Major Diseases | 3.0 |
| BIO 430 | Cell Biology of Disease | 3.0 |
| BIO 433 | Advanced Cell Biology | 3.0 |
| BIO 444 | Human Genetics | 3.0 |
| BIO 453 | Protein Dysfunction in Disease | 3.0 |
| BIO 462 | Biology of Neuron Function | 3.0 |
| BIO 463 | Molecular Mechanisms of Neurodegeneration | 3.0 |
| ENVS 326 | Molecular Ecology | 3.0 |

**Organismal/Physiology electives

| | | |
|---------|--------------------------------------|-----|
| BIO 201 | Human Physiology I | 4.0 |
| BIO 203 | Human Physiology II | 4.0 |
| BIO 221 | Microbiology | 3.0 |
| BIO 256 | Vertebrate Morphology and Physiology | 3.0 |
| BIO 264 | Ethnobotany | 3.0 |

| | | |
|----------|--|-----|
| BIO 284 | Biology of Stress | 3.0 |
| BIO 286 | Forensic Toxicology | 3.0 |
| BIO 320 | Microbial Pathogenesis | 3.0 |
| BIO 323 | Parasitology | 3.0 |
| BIO 349 | Behavioral Neuroscience | 3.0 |
| BIO 372 | Histology | 4.0 |
| BIO 386 | Gross Anatomy I | 2.0 |
| BIO 388 | Gross Anatomy II | 2.0 |
| BIO 412 | Biology of Aging | 3.0 |
| BIO 420 | Virology | 3.0 |
| BIO 426 | Immunology | 3.0 |
| BIO 435 | Immunobiology of Disease | 3.0 |
| BIO 461 | Neurobiology of Autism Disorders | 3.0 |
| BIO 466 | Endocrinology | 4.0 |
| BIO 468 | Pathophysiology | 4.0 |
| ENVS 254 | Invertebrate Morphology and Physiology | 3.0 |
| ENVS 393 | Entomology | 3.0 |

***** Ecology/Evolution/Genomics electives**

| | | |
|----------|---|-----|
| BIO 228 | Evolutionary Biology & Human Health | 3.0 |
| BIO 331 | Bioinformatics I | 3.0 |
| BIO 413 | Genomics | 3.0 |
| BIO 436 | Population Genetics | 4.0 |
| ENVS 230 | General Ecology | 3.0 |
| ENVS 247 | Native Plants and Sustainability | 3.0 |
| ENVS 323 | Tropical Field Studies | 3.0 |
| ENVS 328 | Conservation Biology | 3.0 |
| ENVS 333 | Wetland Ecology | 3.0 |
| ENVS 343 | Equatorial Guinea: Field Methods | 3.0 |
| ENVS 352 | Ornithology | 3.0 |
| ENVS 354 | Ichthyology | 3.0 |
| ENVS 355 | Biogeography | 3.0 |
| ENVS 360 | Evolutionary Developmental Biology | 3.0 |
| ENVS 364 | Animal Behavior | 3.0 |
| ENVS 382 | Field Botany of the New Jersey Pine Barrens | 4.0 |
| ENVS 383 | Ecology of the New Jersey Pine Barrens | 4.0 |
| ENVS 388 | Marine Field Methods | 4.0 |
| ENVS 391 | Freshwater and Marine Algae | 3.0 |
| ENVS 438 | Biodiversity | 3.0 |
| ENVS 470 | Advanced Topics in Evolution | 3.0 |

+Laboratory electives

| | | |
|----------|--|-----|
| BIO 202 | Human Physiology Laboratory | 2.0 |
| BIO 213 | Drosophila Neural Research | 3.0 |
| BIO 215 | Techniques in Cell Biology | 3.0 |
| BIO 222 | Microbiology Laboratory | 2.0 |
| BIO 232 | Discovering Antibiotics | 3.0 |
| BIO 257 | Vertebrate Morphology & Physiology Lab | 2.0 |
| BIO 306 | Biochemistry Laboratory | 2.0 |
| BIO 329 | Dictyostelium Research | 3.0 |
| BIO 333 | Bioinformatics Laboratory | 2.0 |
| BIO 374 | Developmental Biology Lab | 2.0 |
| BIO 387 | Gross Anatomy I Laboratory | 2.0 |
| BIO 389 | Gross Anatomy II Lab | 2.0 |
| ENVS 255 | Invertebrate Morphology and Physiology Lab | 2.0 |
| ENVS 344 | Equatorial Guinea: Field Research | 6.0 |
| ENVS 353 | Field Ornithology Lab | 2.0 |
| ENVS 394 | Entomology Laboratory | 2.0 |

3. The Ecology/Evolution/Genomics Concentration

This concentration focuses on ecological and evolutionary aspects of biology for biology majors who also have specific interests in ecology, evolution or genomics. This concentration is designed to maintain a breadth of knowledge in biology, but also allows students to tailor their course work more specifically to reflect their specific area of interest.

Ecology/Evolution/Genomics Concentration requirements

| | | |
|--|---|---------|
| BIO 228 | Evolutionary Biology & Human Health | 3.0 |
| or BIO 331 | Bioinformatics I | |
| BIO 436 | Population Genetics | 3.0-4.0 |
| or ENVS 230 | General Ecology | |
| ENVS 326 | Molecular Ecology | 3.0 |
| Select one of the following: | | 3.0-5.0 |
| BIO 221 | Microbiology | |
| BIO 256 | Vertebrate Morphology and Physiology | |
| BIO 323 | Parasitology | |
| BIO 413 | Genomics | |
| BIO 420 | Virology | |
| ENVS 254 | Invertebrate Morphology and Physiology | |
| ENVS 360 | Evolutionary Developmental Biology | |
| ENVS 382 | Field Botany of the New Jersey Pine Barrens | |
| ENVS 391 | Freshwater and Marine Algae | |
| ENVS 393 | Entomology | |
| ENVS 438 | Biodiversity | |
| Ecology/Evolution/Genomics concentration electives | | |
| Select one Cell/Molecular/Genetics/Biochemistry (CMGB) elective (see list below) | | 3.0 |
| Select one Organismal/Physiology elective (see list below) | | 3.0 |
| Select two Ecology/Evolution/Genomics electives (see list below) | | 6.0 |
| Concentration Laboratory Courses | | |
| Select two Laboratory electives (see list below) | | 4.0 |

Total Credits

28.0-31.0

* Students interested in pursuing a focus area in Ecology, Evolutionary Biology or Genomics should contact the academic advisor in the Biology Department for specific focus recommendations.

Cell/Molecular/Genetics/Biochemistry (CMGB) electives

| | | |
|---------|---|-----|
| BIO 244 | Genetics I | 3.0 |
| BIO 285 | Forensic Biology | 3.0 |
| BIO 311 | Biochemistry | 4.0 |
| BIO 314 | Pharmacology | 3.0 |
| BIO 318 | Biology of Cancer | 3.0 |
| BIO 346 | Stem Cell Research | 3.0 |
| BIO 348 | Neuroscience: From Cells to Circuits | 3.0 |
| BIO 404 | Structure and Function of Biomolecules | 4.0 |
| BIO 410 | Advanced Molecular Biology | 3.0 |
| BIO 415 | Proteins | 3.0 |
| BIO 416 | Biochemistry of Major Diseases | 3.0 |
| BIO 421 | Biomembranes | 3.0 |
| BIO 430 | Cell Biology of Disease | 3.0 |
| BIO 433 | Advanced Cell Biology | 3.0 |
| BIO 444 | Human Genetics | 3.0 |
| BIO 453 | Protein Dysfunction in Disease | 3.0 |
| BIO 462 | Biology of Neuron Function | 3.0 |
| BIO 463 | Molecular Mechanisms of Neurodegeneration | 3.0 |

Organismal/Physiology electives

| | | |
|---------|--------------------------------------|-----|
| BIO 201 | Human Physiology I | 4.0 |
| BIO 221 | Microbiology | 3.0 |
| BIO 256 | Vertebrate Morphology and Physiology | 3.0 |
| BIO 264 | Ethnobotany | 3.0 |
| BIO 284 | Biology of Stress | 3.0 |
| BIO 286 | Forensic Toxicology | 3.0 |

| | | |
|----------|--|-----|
| BIO 323 | Parasitology | 3.0 |
| BIO 349 | Behavioral Neuroscience | 3.0 |
| BIO 372 | Histology | 4.0 |
| BIO 373 | Developmental Biology | 3.0 |
| BIO 386 | Gross Anatomy I | 2.0 |
| BIO 388 | Gross Anatomy II | 2.0 |
| BIO 412 | Biology of Aging | 3.0 |
| BIO 420 | Virology | 3.0 |
| BIO 426 | Immunology | 3.0 |
| BIO 461 | Neurobiology of Autism Disorders | 3.0 |
| ENVS 254 | Invertebrate Morphology and Physiology | 3.0 |
| ENVS 393 | Entomology | 3.0 |

Ecology/Evolution/Genomics electives

| | | |
|----------|---|-----|
| BIO 228 | Evolutionary Biology & Human Health | 3.0 |
| BIO 331 | Bioinformatics I | 3.0 |
| BIO 332 | Bioinformatics II | 3.0 |
| BIO 413 | Genomics | 3.0 |
| BIO 436 | Population Genetics | 4.0 |
| ENVS 230 | General Ecology | 3.0 |
| ENVS 247 | Native Plants and Sustainability | 3.0 |
| ENVS 284 | Physiological and Population Ecology | 3.0 |
| ENVS 286 | Community and Ecosystem Ecology | 3.0 |
| ENVS 315 | Plant Animal Interactions | 3.0 |
| ENVS 322 | Tropical Ecology | 3.0 |
| ENVS 328 | Conservation Biology | 3.0 |
| ENVS 330 | Aquatic Ecology | 3.0 |
| ENVS 333 | Wetland Ecology | 3.0 |
| ENVS 343 | Equatorial Guinea: Field Methods | 3.0 |
| ENVS 352 | Ornithology | 3.0 |
| ENVS 354 | Ichthyology | 3.0 |
| ENVS 355 | Biogeography | 3.0 |
| ENVS 360 | Evolutionary Developmental Biology | 3.0 |
| ENVS 364 | Animal Behavior | 3.0 |
| ENVS 382 | Field Botany of the New Jersey Pine Barrens | 4.0 |
| ENVS 383 | Ecology of the New Jersey Pine Barrens | 4.0 |
| ENVS 390 | Marine Ecology | 3.0 |
| ENVS 391 | Freshwater and Marine Algae | 3.0 |
| ENVS 410 | Physiological Ecology | 3.0 |
| ENVS 412 | Biophysical Ecology | 3.0 |
| ENVS 438 | Biodiversity | 3.0 |
| ENVS 470 | Advanced Topics in Evolution | 3.0 |

Laboratory electives

| | | |
|----------|---|----------|
| BIO 202 | Human Physiology Laboratory | 2.0 |
| BIO 213 | Drosophila Neural Research | 3.0 |
| BIO 215 | Techniques in Cell Biology | 3.0 |
| BIO 222 | Microbiology Laboratory | 2.0 |
| BIO 232 | Discovering Antibiotics | 3.0 |
| BIO 257 | Vertebrate Morphology & Physiology Lab | 2.0 |
| BIO 306 | Biochemistry Laboratory | 2.0 |
| BIO 329 | Dictyostelium Research | 3.0 |
| BIO 333 | Bioinformatics Laboratory | 2.0 |
| BIO 374 | Developmental Biology Lab | 2.0 |
| BIO 387 | Gross Anatomy I Laboratory | 2.0 |
| BIO 389 | Gross Anatomy II Lab | 2.0 |
| BIO 497 | Research (by permission of the department) | 0.5-12.0 |
| ENVS 255 | Invertebrate Morphology and Physiology Lab | 2.0 |
| ENVS 327 | Molecular Ecology Laboratory | 2.0 |
| ENVS 344 | Equatorial Guinea: Field Research | 6.0 |
| ENVS 353 | Field Ornithology Lab | 2.0 |
| ENVS 382 | Field Botany of the New Jersey Pine Barrens | 4.0 |

| | | |
|----------|--|-----|
| ENVS 383 | Ecology of the New Jersey Pine Barrens | 4.0 |
| ENVS 388 | Marine Field Methods | 4.0 |
| ENVS 394 | Entomology Laboratory | 2.0 |

4. The Pathobiology Concentration

The Pathobiology concentration focuses on pathogenesis, and provides a unique option for students that differs from the more traditional disciplines in cell/molecular/genetics/biochemistry. This concentration is designed to appeal to students with an interest in pursuing careers in areas of public and allied health.

| | | |
|--|--------------------------|-------------|
| BIO 221 | Microbiology | 3.0 |
| BIO 320 | Microbial Pathogenesis | 3.0 |
| BIO 323 | Parasitology | 3.0 |
| or BIO 420 | Virology | |
| or BIO 435 | Immunobiology of Disease | |
| BIO 426 | Immunology | 3.0 |
| Select one Cell/Molecular/Genetics/Biochemistry (CMGB) elective (see list below) | | 3.0 |
| Select two Organismal/Physiology electives (see list below) | | 6.0 |
| Select one Evolutionary Bio/Ecology elective (see list below) | | 3.0 |
| Concentration Laboratory Courses | | |
| Two Laboratory electives (see list below) | | 4.0 |
| Total Credits | | 28.0 |

Cell/Molecular/Genetics/Biochemistry (CMGB) electives

| | | |
|----------|---|-----|
| BIO 244 | Genetics I | 3.0 |
| BIO 285 | Forensic Biology | 3.0 |
| BIO 311 | Biochemistry | 4.0 |
| BIO 314 | Pharmacology | 3.0 |
| BIO 318 | Biology of Cancer | 3.0 |
| BIO 346 | Stem Cell Research | 3.0 |
| BIO 348 | Neuroscience: From Cells to Circuits | 3.0 |
| BIO 404 | Structure and Function of Biomolecules | 4.0 |
| BIO 410 | Advanced Molecular Biology | 3.0 |
| BIO 415 | Proteins | 3.0 |
| BIO 416 | Biochemistry of Major Diseases | 3.0 |
| BIO 421 | Biomembranes | 3.0 |
| BIO 430 | Cell Biology of Disease | 3.0 |
| BIO 433 | Advanced Cell Biology | 3.0 |
| BIO 444 | Human Genetics | 3.0 |
| BIO 453 | Protein Dysfunction in Disease | 3.0 |
| BIO 462 | Biology of Neuron Function | 3.0 |
| BIO 463 | Molecular Mechanisms of Neurodegeneration | 3.0 |
| ENVS 326 | Molecular Ecology | 3.0 |

Organismal/Physiology electives

| | | |
|---------|--------------------------------------|-----|
| BIO 201 | Human Physiology I | 4.0 |
| BIO 203 | Human Physiology II | 4.0 |
| BIO 221 | Microbiology | 3.0 |
| BIO 256 | Vertebrate Morphology and Physiology | 3.0 |
| BIO 284 | Biology of Stress | 3.0 |
| BIO 286 | Forensic Toxicology | 3.0 |
| BIO 323 | Parasitology | 3.0 |
| BIO 349 | Behavioral Neuroscience | 3.0 |
| BIO 372 | Histology | 4.0 |
| BIO 373 | Developmental Biology | 3.0 |
| BIO 386 | Gross Anatomy I | 2.0 |
| BIO 388 | Gross Anatomy II | 2.0 |
| BIO 412 | Biology of Aging | 3.0 |
| BIO 420 | Virology | 3.0 |
| BIO 435 | Immunobiology of Disease | 3.0 |
| BIO 461 | Neurobiology of Autism Disorders | 3.0 |
| BIO 466 | Endocrinology | 4.0 |

| | | |
|----------|--|-----|
| BIO 468 | Pathophysiology | 4.0 |
| ENVS 254 | Invertebrate Morphology and Physiology | 3.0 |

Ecology/Evolution/Genomics electives

| | | |
|----------|---|-----|
| BIO 228 | Evolutionary Biology & Human Health | 3.0 |
| BIO 331 | Bioinformatics I | 3.0 |
| BIO 413 | Genomics | 3.0 |
| BIO 436 | Population Genetics | 4.0 |
| ENVS 230 | General Ecology | 3.0 |
| ENVS 247 | Native Plants and Sustainability | 3.0 |
| ENVS 323 | Tropical Field Studies | 3.0 |
| ENVS 328 | Conservation Biology | 3.0 |
| ENVS 333 | Wetland Ecology | 3.0 |
| ENVS 343 | Equatorial Guinea: Field Methods | 3.0 |
| ENVS 352 | Ornithology | 3.0 |
| ENVS 354 | Ichthyology | 3.0 |
| ENVS 355 | Biogeography | 3.0 |
| ENVS 360 | Evolutionary Developmental Biology | 3.0 |
| ENVS 364 | Animal Behavior | 3.0 |
| ENVS 382 | Field Botany of the New Jersey Pine Barrens | 4.0 |
| ENVS 383 | Ecology of the New Jersey Pine Barrens | 4.0 |
| ENVS 391 | Freshwater and Marine Algae | 3.0 |
| ENVS 438 | Biodiversity | 3.0 |
| ENVS 470 | Advanced Topics in Evolution | 3.0 |

Laboratory electives

| | | |
|----------|--|----------|
| BIO 202 | Human Physiology Laboratory | 2.0 |
| BIO 213 | Drosophila Neural Research | 3.0 |
| BIO 215 | Techniques in Cell Biology | 3.0 |
| BIO 222 | Microbiology Laboratory | 2.0 |
| BIO 232 | Discovering Antibiotics | 3.0 |
| BIO 257 | Vertebrate Morphology & Physiology Lab | 2.0 |
| BIO 306 | Biochemistry Laboratory | 2.0 |
| BIO 329 | Dictyostelium Research | 3.0 |
| BIO 333 | Bioinformatics Laboratory | 2.0 |
| BIO 374 | Developmental Biology Lab | 2.0 |
| BIO 387 | Gross Anatomy I Laboratory | 2.0 |
| BIO 389 | Gross Anatomy II Lab | 2.0 |
| BIO 497 | Research (by permission of the department) | 0.5-12.0 |
| ENVS 255 | Invertebrate Morphology and Physiology Lab | 2.0 |
| ENVS 344 | Equatorial Guinea: Field Research | 6.0 |
| ENVS 353 | Field Ornithology Lab | 2.0 |

5. The General Biology Concentration

This concentration will allow maximum flexibility for students who want to develop their own unique plan of study. The concentration is designed for students who may not have one specific area of interest, but who are looking to be well-rounded in the biological sciences. Students pursuing careers in education, where a wider breadth of knowledge in biology is desirable, may choose to select this concentration.

| | |
|---|-------------|
| General Biology Concentration Electives | 24.0 |
| 2 or 3 Cell/Molecular/Genetics/Biochemistry (CMGB) electives (see list below) | |
| 2 or 3 Organismal/Physiology electives (see list below) | |
| 2 or 3 Ecology/Evolution/Genomics electives (see list below) | |
| Concentration Laboratory Courses | |
| Two Laboratory electives (see list below) | 4.0 |
| Total Credits | 28.0 |

Cell/Molecular/Genetics/Biochemistry (CMGB) electives

| | | |
|---------|-------------------|-----|
| BIO 244 | Genetics I | 3.0 |
| BIO 285 | Forensic Biology | 3.0 |
| BIO 311 | Biochemistry | 4.0 |
| BIO 314 | Pharmacology | 3.0 |
| BIO 318 | Biology of Cancer | 3.0 |

| | | |
|----------|---|-----|
| BIO 331 | Bioinformatics I | 3.0 |
| BIO 332 | Bioinformatics II | 3.0 |
| BIO 346 | Stem Cell Research | 3.0 |
| BIO 348 | Neuroscience: From Cells to Circuits | 3.0 |
| BIO 404 | Structure and Function of Biomolecules | 4.0 |
| BIO 413 | Genomics | 3.0 |
| BIO 415 | Proteins | 3.0 |
| BIO 421 | Biomembranes | 3.0 |
| BIO 430 | Cell Biology of Disease | 3.0 |
| BIO 433 | Advanced Cell Biology | 3.0 |
| BIO 444 | Human Genetics | 3.0 |
| BIO 447 | Advanced Genetics and Molecular Biology | 3.0 |
| BIO 453 | Protein Dysfunction in Disease | 3.0 |
| BIO 462 | Biology of Neuron Function | 3.0 |
| BIO 465 | Neurobiology of Disease | 3.0 |
| ENVS 326 | Molecular Ecology | 3.0 |

Organismal/Physiology electives

| | | |
|----------|--|-----|
| BIO 201 | Human Physiology I | 4.0 |
| BIO 203 | Human Physiology II | 4.0 |
| BIO 221 | Microbiology | 3.0 |
| BIO 256 | Vertebrate Morphology and Physiology | 3.0 |
| BIO 264 | Ethnobotany | 3.0 |
| BIO 284 | Biology of Stress | 3.0 |
| BIO 286 | Forensic Toxicology | 3.0 |
| BIO 320 | Microbial Pathogenesis | 3.0 |
| BIO 323 | Parasitology | 3.0 |
| BIO 349 | Behavioral Neuroscience | 3.0 |
| BIO 372 | Histology | 4.0 |
| BIO 373 | Developmental Biology | 3.0 |
| BIO 386 | Gross Anatomy I | 2.0 |
| BIO 388 | Gross Anatomy II | 2.0 |
| BIO 412 | Biology of Aging | 3.0 |
| BIO 420 | Virology | 3.0 |
| BIO 426 | Immunology | 3.0 |
| BIO 435 | Immunobiology of Disease | 3.0 |
| BIO 461 | Neurobiology of Autism Disorders | 3.0 |
| BIO 466 | Endocrinology | 4.0 |
| BIO 468 | Pathophysiology | 4.0 |
| ENVS 254 | Invertebrate Morphology and Physiology | 3.0 |
| ENVS 393 | Entomology | 3.0 |

Ecology/Evolution/Genomics electives

| | | |
|----------|--------------------------------------|-----|
| BIO 228 | Evolutionary Biology & Human Health | 3.0 |
| BIO 331 | Bioinformatics I | 3.0 |
| BIO 332 | Bioinformatics II | 3.0 |
| BIO 413 | Genomics | 3.0 |
| ENVS 230 | General Ecology | 3.0 |
| ENVS 247 | Native Plants and Sustainability | 3.0 |
| ENVS 284 | Physiological and Population Ecology | 3.0 |
| ENVS 286 | Community and Ecosystem Ecology | 3.0 |
| ENVS 315 | Plant Animal Interactions | 3.0 |
| ENVS 322 | Tropical Ecology | 3.0 |
| ENVS 323 | Tropical Field Studies | 3.0 |
| ENVS 328 | Conservation Biology | 3.0 |
| ENVS 330 | Aquatic Ecology | 3.0 |
| ENVS 333 | Wetland Ecology | 3.0 |
| ENVS 343 | Equatorial Guinea: Field Methods | 3.0 |
| ENVS 352 | Ornithology | 3.0 |
| ENVS 354 | Ichthyology | 3.0 |
| ENVS 355 | Biogeography | 3.0 |
| ENVS 360 | Evolutionary Developmental Biology | 3.0 |

| | | |
|----------|---|-----|
| ENVS 364 | Animal Behavior | 3.0 |
| ENVS 382 | Field Botany of the New Jersey Pine Barrens | 4.0 |
| ENVS 383 | Ecology of the New Jersey Pine Barrens | 4.0 |
| ENVS 388 | Marine Field Methods | 4.0 |
| ENVS 390 | Marine Ecology | 3.0 |
| ENVS 391 | Freshwater and Marine Algae | 3.0 |
| ENVS 410 | Physiological Ecology | 3.0 |
| ENVS 412 | Biophysical Ecology | 3.0 |
| ENVS 438 | Biodiversity | 3.0 |
| ENVS 470 | Advanced Topics in Evolution | 3.0 |

Laboratory electives

| | | |
|----------|---|----------|
| BIO 202 | Human Physiology Laboratory | 2.0 |
| BIO 213 | Drosophila Neural Research | 3.0 |
| BIO 215 | Techniques in Cell Biology | 3.0 |
| BIO 222 | Microbiology Laboratory | 2.0 |
| BIO 232 | Discovering Antibiotics | 3.0 |
| BIO 257 | Vertebrate Morphology & Physiology Lab | 2.0 |
| BIO 306 | Biochemistry Laboratory | 2.0 |
| BIO 329 | Dictyostelium Research | 3.0 |
| BIO 333 | Bioinformatics Laboratory | 2.0 |
| BIO 374 | Developmental Biology Lab | 2.0 |
| BIO 387 | Gross Anatomy I Laboratory | 2.0 |
| BIO 389 | Gross Anatomy II Lab | 2.0 |
| BIO 497 | Research (by permission of the department) | 0.5-12.0 |
| ENVS 255 | Invertebrate Morphology and Physiology Lab | 2.0 |
| ENVS 327 | Molecular Ecology Laboratory | 2.0 |
| ENVS 344 | Equatorial Guinea: Field Research | 6.0 |
| ENVS 353 | Field Ornithology Lab | 2.0 |
| ENVS 382 | Field Botany of the New Jersey Pine Barrens | 4.0 |
| ENVS 383 | Ecology of the New Jersey Pine Barrens | 4.0 |
| ENVS 388 | Marine Field Methods | 4.0 |
| ENVS 394 | Entomology Laboratory | 2.0 |

Note about laboratory credits: ENVS 382 and ENVS 388 have both a lecture and laboratory component.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

5 years, 1 co-op

| First Year | | | | |
|-----------------|---------------------|---------------------|----------------|----------|
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| BIO 131 | 4.0 BIO 132 | 4.0 BIO 133 | 4.0 VACATION | |
| BIO 134 | 1.0 BIO 135 | 1.0 BIO 136 | 1.0 | |
| CHEM 101 | 3.5 CHEM 102 | 4.5 CHEM 103 | 4.5 | |
| ENGL 101 | 3.0 CIVC 101 | 1.0 COOP 101* | 1.0 | |
| MATH 101 or 121 | 4.0 ENGL 102 | 3.0 ENGL 103 | 3.0 | |
| UNIV S101 | 1.0 MATH 102 or 122 | 4.0 MATH 239 or 123 | 4.0 | |
| | 16.5 | 17.5 | 17.5 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|----------|---------------------------------|------------------------|--|-----------|
| BIO 207 | 1.0 BIO 208 | 1.0 BIO 311 | 4.0 BIO 224 | 4.0 |
| BIO 209 | 4.0 BIO 211 | 4.0 ENVS 212 | 4.0 BIO 225 | 2.0 |
| BIO 219 | 3.0 CHEM 242 | 4.0 PHIL 251 | 3.0 (UG) BIO/ENVS Elective | 3.0 |
| CHEM 241 | 4.0 PHYS 153 | 4.0 PHYS 154 | 4.0 (UG) Humanities/Social Science Elective | 3.0 |
| PHYS 152 | 4.0 UNIV S201 | 1.0 (UG) Free elective | 3.0 (UG) Sci/Tech/Human Affairs Elective | 3.0 |
| | (UG) Biology Lab Requirement | 2.0 | | |
| | 16 | 16 | 18 | 15 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|---------------------------|-------------------------------------|----------------------------|----------------------------|----------|
| COM 230 | 3.0 COM 310 | 3.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| MATH 410 | 3.0 MATH 411 | 3.0 (GR) Graduate Elective | 3.0 (GR) Graduate Elective | 3.0 |
| (UG) BIO/ENVS Elective | 3.0 (UG) BIO/ENVS Elective | 3.0 | | |
| (UG) Free Electives | 6.0 (UG) Biology Lab Requirement | 2.0 | | |
| | (UG) Free Elective | 3.0 | | |
| | 15 | 14 | 3 | 3 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--|--|--|---------------------------------------|----------|
| BIO 471 | 2.0 BIO 472 | 2.0 BIO 473 | 2.0 Student Classified as Graduate | |
| (UG) BIO/ENVS Electives | 6.0 (UG) BIO/ENVS Electives | 6.0 (UG) BIO/ENVS Elective | 3.0 | |
| (UG) Free Elective | 4.0 (UG) Free Elective | 3.0 (UG) Free Electives | 5.0 | |
| BIO 500 | 3.0 (UG) Humanities/Social Science Elective | 3.0 (UG) Humanities/Social Science Elective | 3.0 | |
| BIO 540 (or (GR) Graduate Elective)** | 3.0 BIO 635 | 3.0 Student graduates with BS Degree | | |
| | RCRG 600** | 0.0 BIO 632 | 3.0 | |
| | 18 | 17 | 16 | 0 |

Fifth Year

| Fall | Credits Winter | Credits Spring | Credits |
|--|--|-----------------------------|----------|
| BIO 601 (or (GR) Graduate Elective)** | 3.0 BIO 997 (or (GR) Graduate Elective) | 3.0 ENVS 506 | 3.0 |
| (GR) Graduate Electives | 6.0 (GR) Graduate Elective | 6.0 (GR) Graduate Electives | 6.0 |
| | 9 | 9 | 9 |

Total Credits 229.5

* COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

** This course is for thesis students only.

Chemistry BS / Chemistry MS

Major: Chemistry

Degree Awarded: Bachelor of Science (BS) and Master of Science (MS)

Calendar Type: Quarter

Minimum Required Credits: 226.0

Co-op Options: Three Co-op (Five years)

Classification of Instructional Programs (CIP) code: 40.0501

Standard Occupational Classification (SOC) code: 19-2031

About the Program

The Accelerated Bachelor's/Master's (BS + MS) in Chemistry provides academically qualified students with the opportunity to earn both a bachelor's and master's degree in five years, which is the time normally required to finish the co-op option bachelor's degree alone.

Eligibility

Exceptional students with a cumulative GPA of at least 3.0 and who are enrolled in the five-year co-op option are eligible for the BS + MS program. Students formally apply to the program after they have completed 90.0 credits but before they have completed 120.0 credits. Students are strongly encouraged to begin planning for the program as early as their freshman year. Students who have more than 120.0 credits are not eligible.

Transfer students are eligible to join the BS + MS program, but they must be able to complete the program in the time it would take to complete the BS degree alone. International transfer students must be able to meet the required minimum TOEFL score for the department graduate program (currently 550) in order to be admitted to the BS + MS program.

Application Process

Students need to formally apply to the accelerated chemistry program. Applications are available in the Office of Graduate Admissions or in the College of Arts and Sciences advisor's office. Applications must be accompanied by a plan of study prepared in consultation with the undergraduate and graduate advisor in the department, and must be officially approved by both the department head and the dean.

Additional Information

For more information, contact:

Daniel King, PhD
Undergraduate Affairs Committee Chair
Department of Chemistry
Drexel University
dk68@drexel.edu

Admission Requirements

Students enrolled in the Accelerated BS + MS in Chemistry must complete 180.0 undergraduate quarter credits for the bachelor's degree and at least 45.0 graduate quarter credits for the master's degree. All graduate departmental requirements must be satisfied in full, including producing a thesis, if the thesis-option master's program is elected. Master's thesis requirements must be completed no later than the spring quarter of the final year. Students in the BS + MS program must maintain a cumulative GPA of 3.0 in their undergraduate and graduate coursework to remain in the program.

Exceptional students with a cumulative GPA of at least 3.0 and who are enrolled in the five-year co-op option are eligible for the BS + MS program. Students formally apply to the program after they have completed 90.0 credits but before they have completed 120.0 credits. Students are strongly encouraged to begin planning for the program as early as their freshman year. Students who have more than 120.0 credits are not eligible.

BS/MS Requirements

Students enrolled in the BS/MS dual degree program must complete 180-181 undergraduate quarter credits for the BS degree and at least 45.0 graduate quarter credits for the MS degree. All graduate departmental requirements must be satisfied in full, including producing a thesis, if the thesis-option master's program is elected. Master's thesis requirements may be completed in the summer term of the final year with prior approval of the department. Students in the BS/MS program must maintain a cumulative GPA of 3.0 in their undergraduate and graduate coursework to remain in the program. Further questions about the BS/MS degree program should be directed to the departmental graduate advisor.

Degree Requirements

General Education Requirements - BS

| | | |
|------------------------------|---|-----|
| CIVC 101 | Introduction to Civic Engagement | 1.0 |
| COOP 101 | Career Management and Professional Development * | 1.0 |
| ENGL 101 or ENGL 111 | Composition and Rhetoric I: Inquiry and Exploratory Research English Composition I | 3.0 |
| ENGL 102 or ENGL 112 | Composition and Rhetoric II: Advanced Research and Evidence-Based Writing English Composition II | 3.0 |
| ENGL 103 or ENGL 113 | Composition and Rhetoric III: Themes and Genres English Composition III | 3.0 |
| UNIV S101 | The Drexel Experience | 1.0 |
| UNIV S201 | Looking Forward: Academics and Careers | 1.0 |
| Technical electives ** | | 6.0 |
| Liberal Studies electives ** | | 6.0 |

Chemistry Requirements ***

| | | |
|---------------|----------------------------------|-----|
| CHEM 121 | Majors Chemistry I | 5.0 |
| CHEM 122 | Majors Chemistry II | 5.0 |
| CHEM 123 | Majors Chemistry III | 5.5 |
| CHEM 230 | Quantitative Analysis | 4.0 |
| CHEM 231 [WI] | Quantitative Analysis Laboratory | 2.0 |

| | | |
|---------------|---|-----|
| CHEM 246 | Organic Chemistry for Majors I | 6.5 |
| CHEM 248 | Organic Chemistry for Majors II | 6.5 |
| CHEM 249 | Organic Chemistry for Majors III | 7.0 |
| CHEM 253 | Thermodynamics and Kinetics | 4.0 |
| CHEM 270 | Software Skills for Chemists | 3.0 |
| CHEM 346 | Qualitative Organic Chemistry | 5.5 |
| CHEM 355 | Physical Chemistry IV | 3.0 |
| CHEM 357 [WI] | Physical Chemistry Laboratory I | 2.5 |
| CHEM 358 | Physical Chemistry Laboratory II | 2.5 |
| CHEM 359 | Atomic and Molecular Spectroscopy | 3.0 |
| CHEM 420 | Molecular Symmetry and Group Theory Applied Chemistry | 3.0 |
| CHEM 421 | Inorganic Chemistry I | 3.0 |
| CHEM 422 | Inorganic Chemistry II | 3.0 |
| CHEM 425 | Inorganic Chemistry Laboratory | 4.0 |
| CHEM 430 | Analytical Chemistry I | 3.0 |
| CHEM 431 [WI] | Analytical Chemistry II | 4.0 |
| CHEM 493 | Senior Research Project | 3.0 |

6.0 credits of CHEM 493 are satisfied by 6.0 credits of CHEM 997 as shared coursework

Biology Requirements

| | | |
|---------|----------------------------|-----|
| BIO 131 | Cells and Biomolecules | 4.0 |
| BIO 134 | Cells and Biomolecules Lab | 1.0 |
| BIO 214 | Principles of Cell Biology | 4.0 |

Biochemistry Requirements †

| | | |
|-------------|--|---------|
| BIO 306 | Biochemistry Laboratory | 2.0 |
| BIO 311 | Biochemistry | 3.0-4.0 |
| or BIO 404 | Structure and Function of Biomolecules | |
| or CHEM 371 | Chemistry of Biomolecules | |

Computer/Mathematics Requirements

| | | |
|-------------|------------------------|-----|
| MATH 121 | Calculus I | 4.0 |
| MATH 122 | Calculus II | 4.0 |
| MATH 123 | Calculus III | 4.0 |
| MATH 200 | Multivariate Calculus | 4.0 |
| MATH 201 | Linear Algebra | 4.0 |
| or MATH 210 | Differential Equations | |

Physics Requirements

| | | |
|----------|-----------------------------|-----|
| PHYS 101 | Fundamentals of Physics I | 4.0 |
| PHYS 102 | Fundamentals of Physics II | 4.0 |
| PHYS 201 | Fundamentals of Physics III | 4.0 |

Free Electives

21.0

MS Major Sequence

9.0

Select one of the following sequences:

Inorganic Chemistry

| | | |
|----------|-------------------------|--|
| CHEM 521 | Inorganic Chemistry I | |
| CHEM 522 | Inorganic Chemistry II | |
| CHEM 523 | Inorganic Chemistry III | |

Analytical Chemistry

| | | |
|----------|-------------------------|--|
| CHEM 530 | Analytical Chemistry I | |
| CHEM 531 | Analytical Chemistry II | |
| CHEM 755 | Mass Spectrometry | |

Organic Chemistry

| | | |
|----------|-----------------------|--|
| CHEM 541 | Organic Chemistry I | |
| CHEM 542 | Organic Chemistry II | |
| CHEM 543 | Organic Chemistry III | |

Physical Chemistry ††

| | | |
|----------|----------------------------------|--|
| CHEM 555 | Quantum Chemistry Of Molecules I | |
| CHEM 557 | Physical Chemistry I | |
| CHEM 558 | Physical Chemistry II | |

Polymer Chemistry

| | | |
|----------|-----------------------|--|
| CHEM 561 | Polymer Chemistry I | |
| CHEM 562 | Polymer Chemistry II | |
| CHEM 563 | Polymer Chemistry III | |

| | | |
|--|--------------------------------|--------------------|
| CHEM 767 | Chemical Information Retrieval | 3.0 |
| CHEM 367 is satisfied by CHEM 767 as shared coursework | | |
| CHEM 865 | Chemistry Research Seminar | 3.0 |
| Electives † | | 18.0 |
| Total Credits | | 225.0-226.0 |

* Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

** Technical electives are defined as 200+ level courses from Science, Mathematics, Business, Engineering or Information Studies. Liberal studies electives are defined as courses (at any level) from all other areas.

*** If the GR equivalent of any UG course(s) is taken (e.g., CHEM 555 instead of CHEM 355, CHEM 521 instead of CHEM 421), the UG course(s) in the plan of study must be replaced with a technical elective.

† The American Chemical Society requires ACS-certified students to take a specified number of biochemistry courses. To fulfill this requirement in the BS curriculum, students should take a combination of one lecture and one lab course from the choice of: BIO 311, BIO 306, BIO 404, or CHEM 371 to fulfill the biochemistry requirement. Students may also choose to take the two lecture courses (BIO 311, BIO 404, or CHEM 371) rather than a lecture/laboratory combination.

†† Every course can be replaced by CHEM 554 or CHEM 752.

‡ The remaining 18.0 credits may be satisfied by any graduate Chemistry courses. Students may take one graduate-level course during applicable co-op terms. In some cases, course substitutions may be made with courses from other departments. Elective courses taken outside the department must receive prior departmental approval in order to be counted toward the degree. It is recommended that students take 7.0 credits of CHEM 997 as part of the 18.0 elective credits.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|---------------------|---------------------|----------------|----------|
| BIO 131 | 4.0 CHEM 122 | 5.0 CHEM 123 | 5.5 VACATION | |
| BIO 134 | 1.0 CIVC 101 | 1.0 COOP 101* | 1.0 | |
| CHEM 121 | 5.0 ENGL 102 or 112 | 3.0 ENGL 103 or 113 | 3.0 | |
| ENGL 101 or 111 | 3.0 MATH 122 | 4.0 MATH 123 | 4.0 | |
| MATH 121 | 4.0 PHYS 101 | 4.0 PHYS 102 | 4.0 | |
| UNIV S101 | 1.0 | | | |
| | 18 | 17 | 17.5 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|---------------------|-----------------------------------|---------------------|-----------------|----------|
| CHEM 230 & CHEM 231 | 6.0 CHEM 248 | 6.5 COOP EXPERIENCE | COOP EXPERIENCE | |
| CHEM 246 | 6.5 MATH 200 | 4.0 | | |
| PHYS 201 | 4.0 (UG) Technical elective** | 3.0 | | |
| (UG) Free elective | 3.0 (UG) Liberal Studies elective | 3.0 | | |
| | 19.5 | 16.5 | 0 | 0 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--------------------|--|---------------------|-----------------|----------|
| BIO 214 | 4.0 CHEM 270 | 3.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| CHEM 249 | 7.0 CHEM 357 | 2.5 | | |
| CHEM 253 | 4.0 MATH 210 | 4.0 | | |
| (UG) Free elective | 3.0 (UG) Liberal Studies elective | 3.0 | | |
| | CHEM 532 or 562 [†] | 3.0 | | |
| | CHEM 865 | 3.0 | | |
| | (GR) Graduate CHEM course [‡] | 1.0 | | |
| | 18 | 19.5 | 0 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--|--|---------------------|-----------------|----------|
| CHEM 355 | 3.0 BIO 306 | 2.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| CHEM 421 | 3.0 CHEM 359 | 3.0 | | |
| CHEM 430 | 3.0 CHEM 420 | 3.0 | | |
| CHEM 493 | 1.0 CHEM 431 | 4.0 | | |
| UNIV S201 | 1.0 CHEM 522, 531, 542, 558, or 562 [†] | 3.0 | | |
| (UG) Free elective | 3.0 (GR) Graduate CHEM course [‡] | 5.0 | | |
| CHEM 521, 530, 541, 557, or 561 [†] | 3.0 | | | |
| CHEM 767 | 3.0 | | | |
| | 20 | 20 | 0 | 0 |

Fifth Year

| Fall | Credits Winter | Credits Spring | Credits |
|---|---|--|-----------|
| BIO 311 or 404 ^{***} | 4.0 (UG) Technical elective | 3.0 CHEM 422 | 3.0 |
| CHEM 346 | 5.5 (UG) Free electives | 9.0 CHEM 425 | 4.0 |
| CHEM 358 | 2.5 (GR) Graduate CHEM courses [‡] | 8.0 CHEM 493 | 2.0 |
| (GR) Graduate CHEM courses [‡] | 8.0 | (UG) Free elective | 3.0 |
| | | CHEM 523, 755, 543, 555, or 563 [†] | 3.0 |
| | | (GR) Graduate CHEM course [‡] | 5.0 |
| | 20 | 20 | 20 |

Total Credits 226

* Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

** Technical electives are defined as 200+ level courses from Science, Mathematics, Business, Engineering or Information Studies. Liberal studies electives are defined as courses (at any level) from all other areas.

*** *Biochemistry Requirement:* The American Chemical Society requires ACS-certified students to take a specified number of biochemistry courses. To fulfill this requirement in the BS curriculum, you should take a combination of one lecture and one lab course from the choice of: BIO 311, BIO 306, BIO 404 or CHEM 371 to fulfill the biochemistry requirement. Students may also choose to take the two lecture courses (BIO 404, BIO 311 or CHEM 371) rather than a lecture/laboratory combination.

† Students must complete three courses in one of the major areas: Analytical, Inorganic, Organic, Physical, or Polymer Chemistry. For the Physical Chemistry major area, CHEM 554 or CHEM 752 can replace CHEM 557, CHEM 558 or CHEM 555.

‡ SUGGESTED OPTIONS: major area electives and non-major area electives not previously taken, CHEM 997 (up to 9.0 credits). At least one sequence course from each of the major areas, a total of 12.0 credits, should be completed as part of the required CHEM electives.

Co-op/Career Opportunities

Opportunities for Chemistry majors include working in research and development in corporate and government laboratories in the chemical, pharmaceutical, and agricultural (e.g., U.S. Department of Agriculture) sectors. There is a remarkably high concentration of chemical and pharmaceutical

companies in the Philadelphia region. Other options include entering medical, dental, law, or other professional schools. The major in Chemistry is sufficiently flexible to allow students to prepare to teach at the secondary level. With proper selection of electives, students can meet teacher certification requirements.

Sample Co-op Opportunities

A five-year co-op degree is offered. When students complete their co-op jobs, they are asked to write an overview of their experiences. These brief quotes are taken from some recent student reports:

Assistant chemist, pharmaceuticals manufacturer: "My position involved the synthesis and characterization of target compounds in the endothelium project. Involved the development of synthetic routes to the prescribed target. This would include the investigation of reactions which were going to be used...the position was very independent...great working environment. "

Co-op chemist, petroleum refiner: "Performed synthesis of ligands and metal complexes. Operated FT-IR spectrometer for sample analysis. Submitted samples for analysis by mass spectrometer and NMR...The position allowed me to develop the skills necessary for independent research in organic synthesis. "

Assistant lab technician, pharmaceuticals manufacturer: "I was an assistant technician in a mass spectrometry lab...I was responsible for the development of SDS-gel electrophoresis techniques for gels and gel membranes...I developed the methods independently and my employer encouraged me to be an expert on the technique and explore any method I found that would benefit the lab. "

Visit the Drexel Steinbright Career Development Center (<http://www.drexel.edu/scdc/>) page for more detailed information on co-op and post-graduate opportunities.

Facilities

There are nine undergraduate teaching laboratories in the department: three Freshman Chemistry labs, three Organic Chemistry labs, a Physical Chemistry lab, an Analytical Instrumentation Laboratory, and a combined Analytical/Inorganic Chemistry lab.

Mass Spectrometry Laboratory

The department maintains a professionally staffed mass spectrometry facility available to all members of the university community. Currently available instrumentation consists of a Waters Autospec M high resolution magnetic-sector mass spectrometer, a Bruker Autoflex III MALDI Time-of-Flight Mass Spectrometer, a Thermo LTQ-FT Fourier Transform Mass Spectrometer, a Sciex API-3000 triple-quadrupole mass spectrometer, and a Varian Saturn 2000 Gas Chromatograph/Ion-trap mass spectrometer system.

Nuclear Magnetic Resonance Laboratory

The professionally staffed Chemistry department NMR facility is equipped with 300MHz and 500MHz Varian Unity INNOVA NMR systems; both instruments have multi-nuclear capability. The probe on the 500MHz instrument is a cryogenically cooled triple resonance model (1H {13C/15N}) suitable for protein analysis. A Varian X-band 12" EPR spectrometer is also available.

Analytical Instrumentation Laboratory

The open-access departmental Analytical Instrumentation Laboratory includes two Perkin-Elmer (PE) Spectrum One Fourier-transform infrared absorption spectrometers each with a universal diamond ATR accessory, a PE Lambda-35 UV/visible spectrometer, a PE Lambda-950 UV/visible/NIR spectrometer with a 60-mm-diameter diffuse reflectance integrating sphere, a PE model 343 polarimeter, a PE LS55B luminescence spectrometer, a PE Clarus 500 capillary-column GC with dual FID detectors, a Clarus 500 capillary-column GC/MS system (with electron impact capability), a PE Series 200 Quaternary HPLC development system with UV/visible photodiode array detector, a PE Series 200 binary HPLC system interfaced to a Sciex 2000 triple-quadrupole mass spectrometer, a PE Series 2000 binary Gel Permeation Chromatography system with refractive index detector, and a Varian AA240FS flame atomic absorption spectrometer equipped with a GTA 120 Graphite Furnace Accessory.

Organic Instrumentation Laboratory

The Organic Instrumentation Laboratory (co-located with the organic synthesis teaching laboratories in the Papdakis Integrated Sciences Building) is equipped with two Perkin-Elmer (PE) Spectrum Two Fourier-transform infrared absorption spectrometers each with a universal diamond ATR accessory, a PE Clarus 500 capillary-column GC with one FID and one TCD detector, and an Anasazi EFT-90 FT-NMR system.

Other Departmental Facilities

The department has a VEECO INNOVA N3 Multimode Scanning Probe Microscope and also maintains a computational chemistry laboratory equipped with nine Dell Optiplex 790 computers running Hyperchem v 8.0. Research laboratories for each of the department faculty members are located in Disque and Stratton Halls. Instrumentation available in the research laboratories is described on individual faculty web pages. Full-time professional support includes two electronic instrument specialists (for NMR and MS- Chemistry department), two electronics specialists (College of Arts & Sciences Electronics Shop), and four machinists (Drexel University Machine Shop).

Chemistry Faculty

Reza Farasat, PhD (*University of Alabama*). Assistant Teaching Professor. Modification of polymers for diverse applications; utilizing Thermoanalysis techniques to study polymeric and non-polymeric materials; nanotechnology; applying Multi-detector Size Exclusion Chromatography for characterization of polymers; creating composites to improve materials' properties.

Fraser Fleming, PhD (*University of British Columbia (Canada)*). Professor. Nitriles, Isonitriles, Stereochemistry, Organometallics

Joe P. Foley, PhD (*University of Florida*) *Department Head*. Professor. Separation science, especially the fundamentals and biomedical/pharmaceutical applications of the following voltage- or pressure-driven separation techniques: capillary electrophoresis (CE), electrokinetic chromatography, supercritical fluid chromatography, and high-performance and two-dimensional liquid chromatography (LC). Within these techniques, we explore novel separation modes (e.g., dual-opposite-injection CE and sequential elution LC), novel surfactant aggregate pseudophases, and chiral separations.

Lee Hoffman, PhD (*Flinders University, Adelaide, South Australia*). Assistant Teaching Professor. Interfacial studies on the self-assembly of natural organic materials, understanding the nature of each component, and development of a mechanism describing this process; Dendrimer/metal nanocomposite design and synthesis hosting metal nanoparticles, utilizing the multivalent dendritic polymer architecture for further exploitation with other molecules such as antibodies and other targeting species.

Monica Ilies, PhD (*Polytechnic University of Bucharest*). Associate Teaching Professor. Bioorganic chemistry and chemical biology; bioinorganic chemistry and biochemistry.

Haifeng Frank Ji, PhD (*Chinese Academy of Sciences*). Professor. Micromechanical sensors for biological and environmental applications; Nanomechanical drug screening technology.

Daniel B. King, PhD (*University of Miami*). Associate Professor. Assessment of active learning methods and technology in chemistry courses; incorporation of environmental data into chemistry classroom modules; development of hands-on activities and laboratory experiments.

Jamie Ludwig, PhD (*UT Southwestern Medical Center*). Discovery and optimization of biocatalytic transformations for use inorganic synthesis.

Dionicio Martinez-Solario, PhD (*University of Alabama*). Assistant Professor. Total synthesis of complex biologically active natural products serving as inspirational platforms for the discovery and development of new reactions and synthetic methods.

Craig McClure, PhD (*University of Michigan*). Associate Teaching Professor. Promotion of quantitative literacy in introductory courses; development of guided inquiry activities for introductory chemistry; outreach programs in STEM fields.

Kevin G. Owens, PhD (*Indiana University*). Associate Professor. Mass spectrometry research, including the development of sample preparation techniques for quantitative analysis and mass spectrometric imaging using matrix-assisted laser desorption/ionization (MALDI) time-of-flight mass spectrometry (TOFMS) techniques for both biological and synthetic polymer systems, the development of laser spectroscopic techniques for combustion analysis, and the development of correlation analysis and other chemometric techniques for automating the analysis of mass spectral information.

Susan A. Rutkowsky, PhD (*Drexel University*) *Associate Department Head*. Associate Teaching Professor. Development of labs and lecture demonstrations for general and organic chemistry courses; STEM outreach programs.

Jeremiah Scepaniak, PhD (*New Mexico State University*). Assistant Professor. Design transition metal-based contrast agents for MRI & synthesis of bimetallic complexes to activate small molecules.

Karl Sohlberg, PhD (*University of Delaware*). Associate Professor. Computational and theoretical materials-related chemistry: (1) complex catalytic materials; (2) mechanical and electrical molecular devices.

Anthony Wambsgans, PhD (*Rice University*). Associate Teaching Professor.

Ezra Wood, PhD (*University of California-Berkeley*). Associate Professor. Radical chemistry and formation of secondary pollutants in urban and forest environments, impacts of biomass burning on air pollution and climate change, pollutant emissions, and design and deployment of novel instrumentation for field studies.

Jun Xi, PhD (*Cornell University*). Associate Teaching Professor. Biomacromolecular interactions both in solution and in confined environment; mechanisms of DNA replication and DNA repair; structure and function of molecular chaperones; drug target identification and new therapeutic development; single molecule enzymology; DNA directed organic synthesis.

Emeritus Faculty

Anthony W. Addison, PhD (*University of Kent at Canterbury, England*). Professor Emeritus. Design and synthesis of novel biomimetic and oligonuclear chelates of copper, nickel, iron, ruthenium and vanadium; their interpretation by magnetochemical, electrochemical and spectroscopic methods, including electron spin resonance; CD and ESR spectroscopy and kinetics for elucidation of molecular architecture of derivatives (including NO) of oxygen-binding and electron-transfer heme- and non-heme iron metalloproteins of vertebrate and invertebrate origins; energy-transfer by Ru, Ir and lanthanide-containing molecules and assemblies.

Amar Nath, PhD (*Moscow State University, Moscow USSR*). Professor Emeritus.

Reinhard Schweitzer-Stenner, PhD (*Universität Bremen (Germany)*). Professor. Exploring conformational ensembles of unfolded or partially folded peptides and proteins; determining the parameters governing peptide self-aggregation; structure and function of heme proteins; investigating protein-membrane interactions; use of IR, VCD, Raman, NMR and absorption spectroscopy for structure analysis.

Peter A. Wade, PhD (*Purdue University*). Professor Emeritus. Exploration of a newly discovered [3,3]-sigmatropic rearrangement in which O-allyl nitronic esters are thermally converted to β,β -unsaturated nitro compounds; development and exploitation of a carbon-based hemiacetal mimic; and exploration of cycloaddition reactions involving nitroethylene derivatives and novel nitrile oxides.

Communication BA / Strategic & Digital Communication MS

Major: Communication and Strategic & Digital Communication

Degree Awarded: Bachelor of Science (BA) and Master of Science (MS)

Calendar Type: Quarter

Minimum Required Credits: 225.0

Co-op Options: One Co-op (Five years); Three Co-ops (Five years)

BA Classification of Instructional Programs (CIP) code: 09.0199; 09.0900; 09.000

BA Standard Occupational Classification (SOC) code: 11-2011

MS Classification of Instructional Programs (CIP) code: 09.0909

MS Standard Occupational Classification (SOC) code: 11-2011

About the Program

The ability to communicate effectively is one of the most sought-after skills by prospective employers industry wide. Drexel University is committed to building this strong foundation through the Accelerated Communication degree, which enables academically qualified students to earn both a bachelor's and master's degree—graduating sooner than they would in traditional programs. Graduates of the accelerated degree enter the workforce one year sooner with the benefits of a master's degree in Strategic and Digital Communication, using the year saved to gain full-time experience and earn a salary in the field.

The BA in Communication program requires 180.0 UG credits and is committed to helping students become broadly educated and professionally competent communicators. Students are exposed to a variety of media and are guided in the development of their interpretive and expressive skills. Students may complete the BA in Communication with a concentration in Public Relations, Journalism, or open Communication. Independent of their chosen concentration, all BA in Communication majors take a common core of courses that emphasize communication theory and methods, as well as a modern language.

Students in the Public Relations concentration take courses and pursue careers in public relations, event planning, media relations, social media, and corporate communication. Journalism students take courses and pursue careers as reporters, copywriters, editors, and media specialists. Students in the open Communication concentration have the flexibility of crafting their path through the major and thus have career possibilities in any of the areas listed here.

Drexel's Master of Science in Strategic and Digital Communication requires 45.0 credits, and prepares students for careers in a wide range of professional activities relating to communication in both media environments and communication contexts that are characterized by advanced digitization.

With a robust core curriculum consisting of seven courses (21.0 credits), the program provides a strong foundation in theoretical approaches to communication, ethics, and media/communication policy. This theoretical basis is designed to ensure that, as the field changes, students will continue to have an intellectual framework for evaluating and implementing new technology and changing media environments. Furthermore, the program trains students in leadership skills that will help them to lead teams to be innovative communication professionals in digitized media environments and different organizational communication contexts.

The program emphasizes flexibility, encouraging each student, in consultation with a faculty advisor, to craft an individual course of study tailored to the student's individual interests and career goals. Throughout the curriculum, students use four Communication electives (12.0 credits) to increase communication skills or to further develop areas of specialization. An additional four free elective courses (12.0 credits) can be taken in Communication or in other departments across the university, allowing students to continue to tailor their plan of study.

The program specializes in two areas:

- Strategic Communication (public relations)
- Digital and Social Media Communication

Strategic Communication

Strategic Communication has much to offer for those looking to work in public relations as well as for-profit and nonprofit organizations. Students typically choose from courses such as PR Writing and Planning courses, Crisis Communication, Media Relations, Nonprofit Communication, and others.

Digital Communication

With Communication being an area characterized by ongoing digitization, the program offers courses such as Strategic Social Media Communication, Digital Publishing, Digital Media Environments, Social Media Concepts That Matter, and others.

Additional Information

For more information, visit the MS in Strategic and Digital Communication webpage (<https://drexel.edu/coas/academics/graduate-programs/communication/>).

Contact Julia May, Director of the MS in Strategic and Digital Communication program, at julia.may@drexel.edu for additional information.

Admission Requirements

Both incoming freshmen and current Communication majors are eligible to apply for this program. Students who are already matriculated may apply after completing a minimum of 90.0 credits but no more than 120.0 credits. Applicants must have a minimum 3.0 GPA and maintain this GPA throughout the accelerated program.

In addition to formally applying, **already matriculated applicants** must provide:

- The name of two faculty references who can speak to the applicant's academic qualifications and preparedness for graduate studies.
- A writing sample consisting of a written response to a series of questions about the applicant's interest in the program.
- A brief 2-3 minute video in which the applicant introduces himself/herself to the admissions committee and discusses their career goals.

Applicants who already received preliminary acceptance in the accelerated degree program as freshmen should finish the application process after completing a minimum of 90.0 undergraduate credits but no more than 120.0 credits with a GPA of 3.0. Students accepted as **incoming freshmen** need to submit:

- The name of one faculty reference who can speak to the applicant's academic qualifications and preparedness for graduate studies. The admissions committee might request the name of a second reference as needed.
- A writing sample consisting of a written response to a series of questions about the applicant's interest in the program.

Applications are due by the end of week 6 for a program start in the following quarter. Example: If you intend to start the program in the Winter quarter, your application is due by the end of week 6 in the Fall quarter. Please reach out to the program director, Dr. Julia May, as soon as you decide to apply so we can assist you throughout the application process.

Additional Information

For more information, contact Dr. Julia May, Director of the MS in Strategic and Digital Communication program, at julia.may@drexel.edu.

Degree Requirements

BA Communication Requirements

University Requirements

| | | |
|-------------|---|-----|
| CIVC 101 | Introduction to Civic Engagement | 1.0 |
| COOP 101 | Career Management and Professional Development * | 1.0 |
| ENGL 101 | Composition and Rhetoric I: Inquiry and Exploratory Research | 3.0 |
| or ENGL 111 | English Composition I | |
| ENGL 102 | Composition and Rhetoric II: Advanced Research and Evidence-Based Writing | 3.0 |
| or ENGL 112 | English Composition II | |
| ENGL 103 | Composition and Rhetoric III: Themes and Genres | 3.0 |
| or ENGL 113 | English Composition III | |
| UNIV H101 | The Drexel Experience | 1.0 |
| UNIV H201 | Looking Forward: Academics and Careers | 1.0 |

College of Arts and Sciences Core Curriculum **

| | | |
|---|-------------------|---------|
| Developing Quantitative Reasoning ** | | 6.0-8.0 |
| Two courses in MATH based on placement exams OR | | |
| PHIL 111 | Symbolic Logic I | |
| or PHIL 121 | Symbolic Logic II | |
| Engaging the Natural World ** | | 6.0-8.0 |
| Analyzing Cultures & Histories ** | | 6.0-8.0 |

| | |
|---|---------|
| Understanding Society & Human Behavior ** | 6.0-8.0 |
| Cultivating Global Competence ** | 6.0-8.0 |
| Perspectives in Diversity ** | 3.0-4.0 |

Communication Major Requirements**Theory and Key Concepts** **12.0**

| | |
|-------------|------------------------------------|
| COM 101 | Human Communication |
| COM 150 | Mass Media and Society |
| COM 210 | Theory and Models of Communication |
| LING 101 | Introduction to Linguistics |
| or LING 102 | Language and Society |

Methods Sequence **6.0**

| | |
|------------|---|
| COM 220 | Qualitative Research Methods |
| COM 221 | Quantitative Research Methods in Communication |
| or COM 284 | Public Relations Research, Measurement and Evaluation |

Application Sequence **6.0**

| | |
|---------|------------------------------------|
| COM 491 | Senior Project in Communication I |
| COM 492 | Senior Project in Communication II |

Concentration Requirements **21.0-24.0****Communication and Media Studies Concentration Requirements**

| | |
|--|--|
| COM 215 [WI] | Communication Resources for Media Studies |
| COM 341 | Communication Past and Present |
| Select five communication and media studies electives from the list below: | |
| COM 200 | Current Events in Media and Communication |
| COM 211 | Children and Media |
| COM 246 | Media and Identity |
| COM 250 | Diversity in Media |
| COM 290 | Sports and the Mass Media |
| COM 317 [WI] | Environmental Communication |
| COM 318 | Film, Celebrity and the Environmental Movement |
| COM 325 | Celebrity and Authenticity |
| COM 342 | English Worldwide |
| COM 355 | Ethnography of Communication |
| COM 365 | Journalists, the Courts, and the Law |
| COM T180 | Special Topics in Communication Theory |
| COM T380 | Special Topics in Communication Theory |
| COM T480 | Special Topics in Communication Theory |
| AFAS 255 | Gender & Black Popular Culture |
| AFAS 301 | Politics of Hip Hop |
| GST 251 | Introduction to Global Media, Arts, and Cultures |
| PHIL 305 | Ethics and the Media |

Public Relations Concentration Requirements

| | |
|--------------|---|
| COM 160 [WI] | Introduction to Journalism |
| COM 181 | Public Relations Principles and Theory |
| COM 247 | Strategic Social Media Communication |
| COM 248 | Reputation Management in Public Relations |
| COM 282 [WI] | Public Relations Writing in the Digital Age |
| COM 286 | Public Relations Strategies and Tactics |
| COM 386 | Public Relations Campaign Planning |

Journalism Concentration Requirements

| | |
|--------------|--|
| COM 160 [WI] | Introduction to Journalism |
| COM 216 | Sourcing Challenges in Journalism |
| COM 261 [WI] | Advanced Journalism |
| COM 263 | Multiplatform Journalism |
| COM 266 | Copy Editing for the Media |
| COM 315 [WI] | Investigative Journalism |
| COM 365 | Journalists, the Courts, and the Law |
| COM 391 | Critiques of Journalism and News Media |

Communication Electives **21.0-18.0**

| | |
|--|--|
| Select an additional six or seven COM (100-499) courses depending on the concentration | |
|--|--|

Free Electives **68.0****MS Strategic & Digital Communication Requirements****Required Core Courses**

| | | |
|---------------------------------------|---|--------------------|
| COM 500 | Reading & Research in Communication | 3.0 |
| COM 574 | Organizational Communication in Project Management | 3.0 |
| COM 610 | Theories of Communication and Persuasion | 3.0 |
| COM 613 | Ethics for Professional Communication | 3.0 |
| COM 615 | Media Environments in a Digital World | 3.0 |
| COM 651 | Media and Communication Policy in a Digitized World | 3.0 |
| COM 698 | Managing Communication Professional Identities in a Digital Age | 3.0 |
| Program Electives | | 12.0 |
| Choose four of the following courses: | | |
| COM 516 | Campaigns for Health and Environment | |
| COM 518 | Communicating Health and Risk in a 'Fake News' World | |
| COM 520 | Science Writing | |
| COM 525 | Document Design and Usability | |
| COM 533 | Modern Desktop Publishing | |
| COM 535 | Digital Publishing | |
| COM 536 | Strategic Social Media Communication | |
| COM 538 | Copy Editing | |
| COM 541 | Foundations of Public Relations | |
| COM 542 | Public Relations Writing | |
| COM 543 | Public Relations Planning | |
| COM 544 | Media Relations in a Digital Age | |
| COM 545 | Crisis Communication | |
| COM 551 | Creative Content Production | |
| COM 561 | Fundamentals of Journalism & Newswriting | |
| COM 562 | International Negotiations | |
| COM 563 | Event Planning | |
| COM 570 | Technical, Science and Health Editing | |
| COM 575 | Grant Writing | |
| COM 576 | Nonprofit Communications | |
| COM 577 | Communication for Civic Engagement | |
| COM 578 | Focus Groups | |
| COM 586 | Strategic International Communication | |
| COM 600 | Graduate Seminar in Communication | |
| COM 614 | Social Media Concepts that Matter | |
| COM 660 | Investigative Journalism | |
| COM 670 | Medical Writing | |
| COM 673 | Medical Journalism | |
| COM I599 | Independent Study in COM | |
| COM I699 | Independent Study in COM | |
| COM T580 | Special Topics in Communication | |
| COM T680 | Special Topics in Communication | |
| Graduate Electives *** | | 12.0 |
| Total Credits | | 225.0-236.0 |

* Students not participating in co-op will take one additional credit of free elective instead of COOP 001.

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

** See Core Curriculum List (p. 5) for complete list of course options.

*** Students can select up to 12.0 credits of graduate-level electives (500-799) in the following subject areas (AADM, AAML, ACCT, BUSN, CCM, CHP, COM, CRTV, CW, DIGM, ECON, EDAM, EDHE, EDLT, EDUC, ENTP, ENVP, ENVS, EOH, HMP, HRM, LING, MGMT, MGMT, MKTG, MUSL, NPM, ORGB, PBHL, PLCY, PROJ, PRST, RMER, SCRIP, SCTS, SMT, TVMN). Other graduate courses outside these areas might be taken pending approval from the graduate advisor or program director.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore

year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

4+1, 1 co-op (Accelerated program completed in 5 years)

Students complete undergraduate requirements in four years, then convert to graduate status in the fifth and final year.

| First Year | | | | |
|-----------------------------------|--|--|---|--------------|
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| COM 101 | 3.0 CIVC 101 | 1.0 ENGL 103 or 113 | 3.0 VACATION | |
| COM 150 | 3.0 COOP 101* | 1.0 Analyzing Cultures & Histories | 3.0-4.0 | |
| ENGL 101 or 111 | 3.0 ENGL 102 or 112 | 3.0 (UG) COM Elective | 3.0 | |
| UNIV H101 | 1.0 (UG) Concentration Requirements | 6.0 (UG) Concentration Requirement | 3.0 | |
| Cultivating Global Competence | 3.0-4.0 Developing Quantitative Reasoning | 3.0-4.0 Engaging the Natural World | 3.0-4.0 | |
| Developing Quantitative Reasoning | 3.0-4.0 | | | |
| 16-18 | | 14-15 | | 15-17 |
| 0 | | | | |
| Second Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| COM 210 | 3.0 COM 221 or 284 | 3.0 (UG) COM Elective | 3.0 Cultivating Global Competence | 3.0-4.0 |
| COM 220 | 3.0 LING 101 or 102 | 3.0 (UG) Free Electives | 9.0 (UG) Free Electives | 14.0 |
| Analyzing Cultures & Histories | 3.0-4.0 (UG) COM Elective | 3.0 Understanding Society & Human Behavior | 3.0-4.0 | |
| (UG) COM Elective | 3.0 (UG) Concentration Requirement | 3.0 | | |
| Engaging the Natural World | 3.0-4.0 Understanding Society & Human Behavior | 3.0-4.0 | | |
| 15-17 | | 15-16 | | 17-18 |
| Third Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| COOP EXPERIENCE | COOP EXPERIENCE | UNIV H201 | 1.0 (UG) COM Elective | 3.0 |
| | | (UG) Concentration Requirement | 3.0 (UG) Concentration Requirement | 3.0 |
| | | (UG) Free Electives | 9.0 (UG) Free Electives | 9.0 |
| | | Perspectives in Diversity | 3.0-4.0 COM 574 | 3.0 |
| | | (GR) SDC Program Elective | 3.0 | |
| 0 | | 0 | | 19-20 |
| 18 | | | | |
| Fourth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| COM 491 | 3.0 COM 492 | 3.0 (UG) COM Elective | 3.0 Student converts to Graduate Status | |
| (UG) Concentration Requirement | 3.0 (UG) COM Elective | 3.0 (UG) Free Electives | 9.0 | |
| (UG) Free Electives | 9.0 (UG) Free Electives | 9.0 COM 615 | 3.0 | |
| COM 613 | 3.0 COM 651 | 3.0 (GR) SDC Program Elective | 3.0 | |
| | | Student graduates with BA degree | | |
| 18 | | 18 | | 0 |

Fifth Year

| Fall | Credits Winter | Credits Spring | Credits |
|---------------------------|-------------------------------|-----------------------------|----------|
| COM 500 | 3.0 COM 610 | 3.0 COM 698 | 3.0 |
| (GR) Graduate Elective | 3.0 (GR) Graduate Elective | 3.0 (GR) Graduate Electives | 6.0 |
| (GR) SDC Program Elective | 3.0 (GR) SDC Program Elective | 3.0 | |
| | 9 | 9 | 9 |

Total Credits 225-236

* Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

5+0, 3 co-op, Co-terminal (Accelerated program completed in 5 years)

Students take graduate courses in the third, fourth, and fifth years, while finishing their undergraduate requirements. They receive both BA and MS at the end of the fifth year.

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------------------------|---|------------------------------------|----------------|----------|
| COM 101 | 3.0 CIVC 101 | 1.0 ENGL 103 or 113 | 3.0 VACATION | |
| COM 150 | 3.0 COOP 101* | 1.0 Analyzing Cultures & Histories | 3.0-4.0 | |
| ENGL 101 or 111 | 3.0 ENGL 102 or 112 | 3.0 (UG) COM Electives | 6.0 | |
| UNIV H101 | 1.0 (UG) Concentration Requirements | 6.0 (UG) Concentration Requirement | 3.0 | |
| Cultivating Global Competence | 3.0-4.0 Cultivating Global Competence | 3.0-4.0 Engaging the Natural World | 3.0-4.0 | |
| Developing Quantitative Reasoning | 3.0-4.0 Developing Quantitative Reasoning | 3.0-4.0 | | |
| | 16-18 | 17-19 | 18-20 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|-----------------|--------------------------------|--|--------------|
| COOP EXPERIENCE | COOP EXPERIENCE | COM 210 | 3.0 COM 221 or 284 | 3.0 |
| | | COM 220 | 3.0 LING 101 or 102 | 3.0 |
| | | Analyzing Cultures & Histories | 3.0-4.0 (UG) COM Elective | 3.0 |
| | | (UG) COM Elective | 3.0 (UG) Concentration Requirement | 3.0 |
| | | Engaging the Natural World | 3.0-4.0 (UG) Free Elective | 3.0 |
| | | | Understanding Society & Human Behavior | 3.0-4.0 |
| | 0 | 0 | 15-17 | 18-19 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|-----------------|--|------------------------------------|--------------|
| COOP EXPERIENCE | COOP EXPERIENCE | (UG) COM Elective | 3.0 (UG) Concentration Requirement | 3.0 |
| COM 500 | 3.0 COM 610 | 3.0 (UG) Concentration Requirement | 3.0 (UG) Free Electives | 9.0 |
| | | (UG) Free Electives | 6.0 Perspectives in Diversity | 3.0-4.0 |
| | | Understanding Society & Human Behavior | 3.0-4.0 COM 574 | 3.0 |
| | | (GR) SDC Program Elective | 3.0 | |
| | 3 | 3 | 18-19 | 18-19 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|-----------------|------------------------------------|-------------------------------|---------|
| COOP EXPERIENCE | COOP EXPERIENCE | UNIV H201 | 1.0 (UG) COM Elective | 3.0 |
| COM 613 | 3.0 COM 651 | 3.0 (UG) Concentration Requirement | 3.0 (UG) Free Electives | 12.0 |
| | | (UG) Free Electives | 9.0 (GR) SDC Program Elective | 3.0 |

| | | | | |
|---------------------------|-----------------------------|---------------------------|----------------|----|
| | | COM 615 | 3.0 | |
| | | (GR) SDC Program Elective | 3.0 | |
| | 3 | 3 | 19 | 18 |
| Fifth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits | |
| COM 491 | 3.0 COM 492 | 3.0 (UG) COM Elective | 3.0 | |
| (UG) Free Electives | 9.0 (UG) Free Electives | 9.0 (UG) Free Electives | 11.0 | |
| (GR) Graduate Elective | 3.0 (GR) Graduate Electives | 6.0 COM 698 | 3.0 | |
| (GR) SDC Program Elective | 3.0 | (GR) Graduate Elective | 3.0 | |
| | 18 | 18 | 20 | |

Total Credits 225-236

* Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Communication Faculty

Ronald Bishop, III, PhD (*Temple University*). Professor. Investigative reporting, sports journalism, journalism history, journalism sourcing patterns, textual narrative and ideological analysis, cultural history of fame.

Karen Cristiano, MS (*Temple University*) *Assistant Department Head of Communication*. Teaching Professor. Journalism, medical writing, feature writing, copy editing, mass media and society.

Richard Forney Assistant Teaching Professor. Broadcast journalism technology and the effects of new technologies on personal and corporate communication skills.

Ernest A. Hakanen, PhD (*Temple University*) *Director, Graduate Programs in Communication, Culture & Media*. Professor. Telecommunications policy, adolescent media use, communication theory and history, global media, and semiotics.

Barbara Hoekje, PhD (*University of Pennsylvania*). Associate Professor. Sociolinguistic theory, discourse analysis, applied linguistics (language teaching, learning, and testing).

Alexander Jenkins, PhD (*Drexel University*). Assistant Teaching Professor. Digital games, video games, emotion, morality, online fan communities, emerging media, convergence.

Hyunmin Lee, PhD (*University of Missouri*) *Director, Undergraduate Programs in Communication*. Associate Professor. Social media strategies for relationship and reputation management in public relations; media messages of public health issues and its psychological and behavioral effects on the public.

Susan Magee, MFA *Director Online Teaching*. Instructor. Digital Publishing, Content creation, Blogging, Strategic Social Media, Public Relations, Business and Technical Communication

Julia May, PhD (*Drexel University*) *Director, Strategic and Digital Communication MS Program*. Associate Teaching Professor. Political communication; international politics and its news coverage; public opinion; transatlantic relations; war, torture and human rights; debate in the public sphere.

Alexander Nikolaev, PhD (*Florida State University*). Associate Professor. Public relations, political communication, organizational communication, mass communication, international communications and negotiations, communications theory.

Rakhmiel Peltz, PhD (*University of Pennsylvania*). Professor. Judaic studies, Yiddish culture and linguistics, ethnography of communication, immigrant cultural studies.

Douglas V. Porpora, PhD (*Temple University*). Professor. War, genocide, torture, and human rights; macro-moral reasoning in public sphere debate; contemporary social theory moral and political communication; religion.

Rachel R. Reynolds, PhD (*University of Illinois*). Associate Professor. Sociolinguistics, ethnography of communication and discourse analysis; violence against women in mass media; political economy of migration; semiotics including the textual, the visual and multimodal.

Rosemary Rys, MA (*Rowan University*). Assistant Teaching Professor. Public relations and marketing.

Wesley Shumar, PhD (*University of Pennsylvania*). Professor. Digital media and learning; culture of higher education; entrepreneurship education; craft culture; semiotic of consumer culture.

Allan Stegeman, MA (*University of Houston*). Teaching Professor. Communication, technology and mass media, video.

Scott Tattar, BA (*York College of Pennsylvania*) *Faculty Advisor, Drexel PRSSA, Communication Department Recruitment Liaison*. Instructor. Public relations

Hilde Van den Bulck, PhD (*Katholieke Universiteit Leuven*) *Department Head of Communication*. Professor. Political economy of media structures; media policies for digitized media ecologies; stakeholders and coalitions in media policies; digitization; convergence and legacy media; public (service) media; celebrity culture and industry; fandom and anti-fandom.

Asta Zelenkauskaitė, PhD (*Indiana University*). Associate Professor. Social media; user-generated content; computer-mediated communication; interactivity; active audience analysis; mobile communication; gender and online identity; prosumer culture; internet of things; quantitative/qualitative research.

Emeritus Faculty

Alexander Friedlander, PhD (*Carnegie Mellon University*). Associate Professor. Rhetorical theory and practice, document design, writing and technology.

Lawrence Souder, PhD (*Temple University*) *Director, Drexel Edits*. Teaching Professor. Science and technical writing, communication ethics, nonprofit communication.

English BA / Strategic & Digital Communication MS

Major: English and Strategic & Digital Communications

Degree Awarded: Bachelor of Arts (BA) and Master of Science (MS)

Calendar Type: Quarter

Minimum Required Credits: 225.0

Co-op Options: One Co-op (Five Years); Three Co-ops (Five years)

BA Classification of Instructional Programs (CIP) code: 23.9999

BA Standard Occupational Classification (SOC) code: 25-1123

MS Classification of Instructional Programs (CIP) code: 09.0909

MS Standard Occupational Classification (SOC) code: 11-2011

About the Program

The ability to communicate effectively is one of the most sought-after skills by prospective employers industry wide. Drexel University is committed to building this strong foundation through the accelerated degree option, which enables academically qualified students to earn both a bachelor's and master's degree—graduating sooner than they would in traditional programs. Graduates of the accelerated degree enter the workforce one year sooner with the benefits of both a bachelor's degree in English and a master's degree in Strategic and Digital Communication, using the year saved to gain full-time experience and earn a salary in the field.

The BA in English focuses on three areas:

- A rich academic core grounded in disciplinary expertise that promotes literary exploration, sophisticated textual literacy, excellent writing, and other transferable skills;
- Applied learning opportunities using skills in research, interpretation, analysis, and writing to solve real-world problems;
- Opportunities for civic engagement, connecting with community partners to promote social justice and the common good.

Drexel's Master of Science in Strategic and Digital Communication requires 45.0 credits, and prepares students for careers in a wide range of professional activities relating to communication in both media environments and communication contexts that are characterized by advanced digitization.

With a robust core curriculum consisting of seven courses (21.0 credits), the program provides a strong foundation in theoretical approaches to communication, ethics, and media/communication policy. This theoretical basis is designed to ensure that, as the field changes, students will continue to have an intellectual framework for evaluating and implementing new technology and changing media environments. Furthermore, the program trains students in leadership skills that will help them to lead teams to be innovative communication professionals in digitized media environments and different organizational communication contexts.

The program emphasizes flexibility, encouraging each student, in consultation with a faculty advisor, to craft an individual course of study tailored to the student's individual interests and career goals. Throughout the curriculum, students use four Communication electives (12.0 credits) to increase communication skills or to further develop areas of specialization. An additional four free elective courses (12.0 credits) can be taken in Communication or in other departments across the university, allowing students to continue to tailor their plan of study.

The program specializes in two areas:

- Strategic Communication (public relations)
- Digital and Social Media Communication

Strategic Communication

Strategic Communication has much to offer for those looking to work in public relations as well as for-profit and nonprofit organizations. Students typically choose from courses such as PR Writing and Planning courses, Crisis Communication, Media Relations, Nonprofit Communication, and others.

Digital Communication

With Communication being an area characterized by ongoing digitization, the program offers courses such as Strategic Social Media Communication, Digital Publishing, Digital Media Environments, Social Media Concepts That Matter, and others.

Additional Information

For more information, visit the MS in Strategic and Digital Communication webpage (<https://drexel.edu/coas/academics/graduate-programs/communication/>).

Contact Julia May, Director of the MS in Strategic and Digital Communication program, at julia.may@drexel.edu for more information.

Admission Requirements

Already matriculated English majors may apply after completing a minimum of 90.0 credits but no more than 120.0 credits. Applicants must have a minimum 3.0 GPA and maintain this GPA throughout the program.

In addition to formally applying, applicants must provide:

- The name of two faculty references who can speak to the applicant's academic qualifications and preparedness for graduate studies.
- A writing sample consisting of a written response to a series of questions about the applicant's interest in the program.
- A brief 2-3-minute video in which the applicant introduces himself/herself to the admissions committee and discusses their career goals.

Applications are due by the end of week 6 for a program start in the following quarter. Example: If you intend to start the program in the Winter quarter, your application is due by the end of week 6 in the Fall quarter. Please reach out to the program director, Dr. Julia May, as soon as you decide to apply so we can assist you throughout the application process.

Additional Information

For more information, contact Julia May, Director of the MS in Strategic and Digital Communication program, at julia.may@drexel.edu.

Degree Requirements

University Requirements

| | | |
|-------------------------|---|-----|
| CIVC 101 | Introduction to Civic Engagement | 1.0 |
| COOP 101 | Career Management and Professional Development * | 1.0 |
| ENGL 101 or ENGL 111 | Composition and Rhetoric I: Inquiry and Exploratory Research English Composition I | 3.0 |
| ENGL 102 or ENGL 112 | Composition and Rhetoric II: Advanced Research and Evidence-Based Writing English Composition II | 3.0 |
| ENGL 103 or ENGL 113 | Composition and Rhetoric III: Themes and Genres English Composition III | 3.0 |
| UNIV H101 | The Drexel Experience | 1.0 |
| UNIV H201 | Looking Forward: Academics and Careers | 1.0 |

College of Arts and Sciences Core Curriculum **

| | | |
|---|---|---------|
| Developing Quantitative Reasoning ** | Two courses in MATH based on placement exams OR PHIL 111 Symbolic Logic I or PHIL 121 Symbolic Logic II | 6.0-8.0 |
| Engaging the Natural World ** | | 6.0-8.0 |
| Understanding Society and Human Behavior ** | | 6.0-8.0 |
| Analyzing Cultures and Histories ** | | 6.0-8.0 |
| Cultivating Global Competence ** | | 6.0-8.0 |
| Perspectives in Diversity ** | | 3.0-4.0 |
| Language Requirement (two consecutive courses in a foreign language, reaching at least 103) *** | | 8.0 |

Major Requirements

Core Courses, Required for All Concentrations

| | | |
|---------------|---|-----|
| ENGL 195 | English Freshman Seminar | 3.0 |
| ENGL 207 [WI] | African American Literature | 3.0 |
| ENGL 301 | English Major Colloquium † | 3.0 |
| ENGL 315 [WI] | Shakespeare | 3.0 |
| ENGL 325 | Topics in World Literature | 3.0 |
| ENGL 355 [WI] | Women and Literature | 3.0 |
| ENGL 495 | Senior Project in Literature | 3.0 |
| WRIT 195 | Threshold Concepts in Writing | 3.0 |
| WRIT 200 | Language Puzzles and Word Games: Issues in Modern Grammar | 3.0 |
| WRIT 225 [WI] | Creative Writing | 3.0 |

Concentrations (Choose 1)**36.0****A) Literary Studies Concentration**

Literature Surveys - Select four for a minimum of 12.0 credits

| | |
|---------------|----------------------------------|
| ENGL 200 [WI] | Classical to Medieval Literature |
| ENGL 201 | Renaissance to the Enlightenment |
| ENGL 202 [WI] | Romanticism to Modernism |
| ENGL 203 [WI] | Survey of World Literature |
| ENGL 204 | Post-Colonial Literature |
| ENGL 205 [WI] | American Literature I |
| ENGL 206 [WI] | American Literature II |
| ENGL 211 [WI] | British Literature I |
| ENGL 212 | British Literature II |

Authors and Periods - Select one for a minimum of 3.0 credits

| | |
|---------------|----------------|
| ENGL 310 [WI] | Period Studies |
| or ENGL 320 | Major Authors |

Literary Impacts - Select one for a minimum of 3.0 credits

| | |
|---------------|---------------------------|
| ENGL 300 [WI] | Literature & Science |
| or ENGL 323 | Literature and Other Arts |
| or ENGL 360 | Literature and Society |

Literary Traditions - Select one for a minimum of 3.0 credits

| | |
|-------------|-------------------------|
| ENGL 330 | The Bible as Literature |
| or ENGL 335 | Mythology |

Literary Theory - 3.0 credits

| | |
|----------|-----------------|
| ENGL 380 | Literary Theory |
|----------|-----------------|

Literature Seminars - Take both for a minimum of 6.0 credits

| | |
|----------|--|
| ENGL 490 | Seminar in English and American Literature |
| ENGL 492 | Seminar in World Literature |

English Electives - minimum of 6.0 credits

Choose any additional 2 courses (300+) in ENGL or WRIT for a minimum of 6.0 credits

B) Writing Concentration

Foundations - Select one for a minimum of 3.0 credits

| | |
|---------------|----------------------------|
| WRIT 210 [WI] | The Peer Reader in Context |
| or WRIT 211 | Advanced Composition |

Rhetoric and Technique - Select one for a minimum of 3.0 credits

| | |
|-------------|-----------------------|
| WRIT 212 | Argument and Rhetoric |
| or WRIT 295 | Forms Seminar |

Audience Awareness - Select one for a minimum of 3.0 credits

| | |
|---------------|------------------------------|
| WRIT 312 [WI] | Writing for Target Audiences |
| or WRIT 315 | Writing for Social Change |

Writing Practices - Select seven additional courses for a minimum of 21.0 credits (at least 5 must be WRIT or ENGL courses)

| | |
|----------------|------------------------------|
| COM 160 [WI] | Introduction to Journalism |
| COM 270 [WI] | Business Communication |
| COM 310 [WI] | Technical Communication |
| COM 375 [WI] | Grant Writing |
| ENGL 312 | Research Project Development |
| SCRIP 220 | Playwriting I |
| SCRIP 270 [WI] | Screenwriting I |
| WRIT 210 [WI] | The Peer Reader in Context |
| WRIT 211 | Advanced Composition |
| WRIT 212 | Argument and Rhetoric |
| WRIT 215 [WI] | Story Medicine |

| | |
|---------------|--|
| WRIT 220 [WI] | Creative Nonfiction Writing |
| WRIT 226 | Writing in Public Spaces |
| WRIT 250 | "Mistakes Were Made": Truth, Writing, and Responsibility |
| WRIT 295 | Forms Seminar |
| WRIT 301 [WI] | Writing Poetry |
| WRIT 302 [WI] | Writing Fiction |
| WRIT 303 | Writing Humor and Comedy |
| WRIT 305 | Life is Beautiful |
| WRIT 306 | Writing About the Media |
| WRIT 310 | Literary Editing & Publication |
| WRIT 311 | Writing and Reading the Memoir |
| WRIT 312 [WI] | Writing for Target Audiences |
| WRIT 315 | Writing for Social Change |
| WRIT 400 [WI] | Writing in Cyberspace: Writing for/about the Web |
| WRIT 401 | Advanced Poetry Workshop |
| WRIT 402 | Advanced Fiction Workshop |
| WRIT 405 | Internship in Publishing |
| WRIT T380 | Special Topics in Writing |

English Electives - minimum of 6.0 credits

Choose any additional two courses (300+) in WRIT or ENGL for a minimum of 6.0 credits

Electives

60.0-62.0

MS Strategic & Digital Communication Requirements

Required Core Courses

| | | |
|---------|---|-----|
| COM 500 | Reading & Research in Communication | 3.0 |
| COM 574 | Organizational Communication in Project Management | 3.0 |
| COM 610 | Theories of Communication and Persuasion | 3.0 |
| COM 613 | Ethics for Professional Communication | 3.0 |
| COM 615 | Media Environments in a Digital World | 3.0 |
| COM 651 | Media and Communication Policy in a Digitized World | 3.0 |
| COM 698 | Managing Communication Professional Identities in a Digital Age | 3.0 |

Program Electives

12.0

Choose four of the following courses:

| | |
|----------|--|
| COM 516 | Campaigns for Health and Environment |
| COM 518 | Communicating Health and Risk in a 'Fake News' World |
| COM 520 | Science Writing |
| COM 525 | Document Design and Usability |
| COM 533 | Modern Desktop Publishing |
| COM 535 | Digital Publishing |
| COM 536 | Strategic Social Media Communication |
| COM 538 | Copy Editing |
| COM 541 | Foundations of Public Relations |
| COM 542 | Public Relations Writing |
| COM 543 | Public Relations Planning |
| COM 544 | Media Relations in a Digital Age |
| COM 545 | Crisis Communication |
| COM 551 | Creative Content Production |
| COM 561 | Fundamentals of Journalism & Newswriting |
| COM 562 | International Negotiations |
| COM 563 | Event Planning |
| COM 570 | Technical, Science and Health Editing |
| COM 575 | Grant Writing |
| COM 576 | Nonprofit Communications |
| COM 577 | Communication for Civic Engagement |
| COM 578 | Focus Groups |
| COM 586 | Strategic International Communication |
| COM 600 | Graduate Seminar in Communication |
| COM 614 | Social Media Concepts that Matter |
| COM 660 | Investigative Journalism |
| COM 670 | Medical Writing |
| COM 673 | Medical Journalism |
| COM I599 | Independent Study in COM |
| COM I699 | Independent Study in COM |

| | | |
|------------------------------|---------------------------------|--------------------|
| COM T580 | Special Topics in Communication | |
| COM T680 | Special Topics in Communication | |
| Graduate Electives †† | | 12.0 |
| Total Credits | | 225.0-238.0 |

- * Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.
COOP 101 registration is determined by the co-op cycle and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.
- ** See Core Curriculum List (p. 5) for complete list of course options.
- *** Select two consecutive courses at the 102-499 level within the same subject code: ARBC, CHIN, FREN, GER, JAPN, KOR, SPAN.
Language courses may count toward the College Core Curriculum requirements in Cultivating Global Competence, in which case students may take a corresponding number of free electives.
- † 1.0 credit course taken three times for a total of 3.0 credits.
- †† Students can select up to 12.0 credits of graduate-level electives (500-799) in the following subject areas: AADM, AAML, ACCT, BUSN, CCM, CHP, COM, CRTV, CW, DIGM, ECON, EDAM, EDHE, EDLT, EDUC, ENTP, ENVP, ENVS, EOH, HMP, HRM, LING, MGMT, MKTG, MUSL, NPM, ORGB, PBHL, PLCY, PROJ, PRST, RMER, SCRIP, SCTS, SMT, TVMN. Other graduate courses outside these areas might be taken pending approval from the graduate advisor or program director.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

Literary Studies Concentration

4 year, 1 co-op

| First Year | | | | |
|---|---|---|----------------------------|--------------|
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| ENGL 101 or 111 | 3.0 CIVC 101 | 1.0 COOP 101* | 1.0 VACATION | |
| ENGL 195 | 3.0 ENGL 102 or 112 | 3.0 ENGL 103 or 113 | 3.0 | |
| UNIV H101 | 1.0 WRIT 200 | 3.0 ENGL 207 | 3.0 | |
| (UG) Foreign Language Course | 4.0 (UG) Foreign Language Course (level 103+) | 4.0 WRIT 195 | 3.0 | |
| (UG) Developing Quantitative Reasoning | 3.0-4.0 (UG) Developing Quantitative Reasoning | 3.0-4.0 (UG) Free Elective | 3.0 | |
| (UG) Understanding Society and Human Behavior | 3.0-4.0 (UG) Understanding Society and Human Behavior | 3.0-4.0 (UG) Engaging the Natural World | 3.0-4.0 | |
| | 17-19 | 17-19 | 16-17 | 0 |
| Second Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| ENGL 301 | 1.0 (UG) Literature Survey | 3.0 ENGL 301 | 1.0 ENGL 325 | 3.0 |
| WRIT 225 | 3.0 (UG) Authors & Periods | 3.0 ENGL 315 | 3.0 (UG) Literature Survey | 3.0 |
| (UG) Engaging the Natural World | 3.0-4.0 (UG) Diversity Studies | 3.0 (UG) Literature Survey | 3.0 (UG) Literary Impacts | 3.0 |
| (UG) Literature Survey | 3.0 (UG) Cultivating Global Competence | 3.0-4.0 (UG) Free Elective | 3.0 (UG) Free Electives | 6.0-9.0 |
| (UG) Cultivating Global Competence | 3.0-4.0 (UG) Analyzing Cultures and Histories | 3.0-4.0 (UG) Analyzing Cultures and Histories | 3.0-4.0 | |
| (UG) Free Elective | 3.0 | (UG) Free Elective | 3.0 | |
| | 16-18 | 15-17 | 16-17 | 15-18 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|---------------------|-------------------------|----------------------|-----------------|----------|
| ENGL 301 | 1.0 (UG) Free Electives | 12.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| ENGL 380 | 3.0 COM 610 | 3.0 | COM 574 | 3.0 |
| (UG) Free Electives | 9.0 | | | |
| COM 500 | 3.0 | | | |
| | 16 | 15 | 0 | 3 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--------------------------|--|--------------------------------------|------------------------------------|----------|
| ENGL 490 | 3.0 ENGL 355 | 3.0 ENGL 495 | 3.0 Student classified as Graduate | |
| UNIV H201 | 1.0 ENGL 492 | 3.0 (UG) Free Electives | 9.0 | |
| (UG) Literary Traditions | 3.0 (UG) English Elective (ENGL or WRIT) | 3.0 COM 615 | 3.0 | |
| (UG) English Elective | 3.0 (UG) Free Electives | 6.0 (GR) SDC Program Elective | 3.0 | |
| (UG) Free Electives | 6.0 COM 651 | 3.0 Student graduates with BA degree | | |
| COM 613 | 3.0 | | | |
| | 19 | 18 | 18 | 0 |

Fifth Year

| Fall | Credits Winter | Credits Spring | Credits |
|----------------------------|-------------------------------|-----------------------------|----------|
| (GR) SDC Program Electives | 6.0 (GR) SDC Program Elective | 3.0 COM 698 | 3.0 |
| (GR) Graduate Elective | 3.0 (GR) Graduate Electives | 6.0 (GR) Graduate Electives | 3.0 |
| | 9 | 9 | 6 |

Total Credits 225-238

* COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

5 year, 3 co-op**First Year**

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|---|---|---|----------------|----------|
| ENGL 101 or 111 | 3.0 CIVC 101 | 1.0 COOP 101* | 1.0 VACATION | |
| ENGL 195 | 3.0 ENGL 102 or 112 | 3.0 ENGL 103 or 113 | 3.0 | |
| UNIV H101 | 1.0 WRIT 200 | 3.0 ENGL 207 | 3.0 | |
| (UG) Foreign Language Course | 4.0 (UG) Foreign Language Course (level 103+ or higher) | 4.0 WRIT 195 | 3.0 | |
| (UG) Developing Quantitative Reasoning | 3.0-4.0 (UG) Developing Quantitative Reasoning | 3.0-4.0 (UG) Free Elective | 3.0 | |
| (UG) Understanding Society and Human Behavior | 3.0-4.0 (UG) Understanding Society and Human Behavior | 3.0-4.0 (UG) Engaging the Natural World | 3.0-4.0 | |
| | | (UG) Free Elective | 3.0 | |
| | 17-19 | 17-19 | 19-20 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|------------------------|-------------------------------------|--|--------------|
| COOP EXPERIENCE | COOP EXPERIENCE | WRIT 225 | 3.0 (UG) Diversity Studies | 3.0-4.0 |
| | (UG) Literature Survey | 3.0 (UG) Engaging the Natural World | 3.0-4.0 (UG) Cultivating Global Competence | 3.0-4.0 |
| | | (UG) Literature Survey | 3.0 (UG) Analyzing Cultures and Histories | 3.0-4.0 |
| | | (UG) Cultivating Global Competence | 3.0-4.0 (UG) Free Electives | 6.0 |
| | | (UG) Free Elective | 3.0 | |
| | | (UG) Free Elective | 3.0 | |
| | 0 | 3 | 18-20 | 15-18 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|-----------------|---------------------|----------------|---------|
| COOP EXPERIENCE | COOP EXPERIENCE | ENGL 301 (2nd of 3) | 1.0 ENGL 325 | 3.0 |

| | | | | |
|--------------------------------------|--|---------------------------------------|-------------------------------|----------------|
| | COM 610 | 3.0 ENGL 315 | 3.0 (UG) Literature Survey | 3.0 |
| | | (UG) Literature Survey | 3.0 (UG) Free Electives | 6.0-9.0 |
| | | (UG) Authors and Periods | 3.0 COM 574 | 3.0 |
| | | (UG) Free Elective | 3.0 | |
| | | (UG) Analyzing Cultures and Histories | 3.0 | |
| | | (GR) SDC Program Elective | 3.0 | |
| | 0 | 3 | 19 | 15-18 |
| Fourth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| COOP EXPERIENCE | COOP EXPERIENCE | ENGL 301 | 1.0 (UG) Free Electives | 12.0 |
| COM 615 | 3.0 (GR) Graduate Elective | 3.0 ENGL 355 | 3.0 COM 651 | 3.0 |
| | | (UG) Literary Impacts | 3.0 (GR) SDC Program Elective | 3.0 |
| | | (UG) Literary Traditions | 3.0 | |
| | | (UG) Free Elective | 3.0 | |
| | | COM 613 | 3.0 | |
| | | (GR) SDC Program Elective | 3.0 | |
| | 3 | 3 | 19 | 18 |
| Fifth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits | |
| ENGL 301 | 1.0 ENGL 492 | 3.0 ENGL 495 | 3.0 | |
| ENGL 380 | 3.0 (UG) English Elective (ENGL or WRIT) | 3.0 (UG) Free Electives | 9.0 | |
| ENGL 490 | 3.0 (UG) Free Electives | 6.0 COM 698 | 3.0 | |
| UNIV H201 | 1.0 (GR) SDC Program Elective | 3.0 (GR) Graduate Elective | 3.0 | |
| (UG) English Elective (ENGL or WRIT) | 3.0 (GR) Graduate Elective | 3.0 | | |
| (UG) Free Elective | 3.0 | | | |
| COM 500 | 3.0 | | | |
| (GR) Graduate Elective | 3.0 | | | |
| | 20 | 18 | 18 | |

Total Credits 225-238

* COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Writing Concentration

4 year, 1 co-op

| | | | | |
|---|---|---|---|----------------|
| First Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| ENGL 101 or 111 | 3.0 CIVC 101 | 1.0 COOP 101* | 1.0 VACATION | |
| ENGL 195 | 3.0 ENGL 102 or 112 | 3.0 ENGL 103 or 113 | 3.0 | |
| UNIV H101 | 1.0 WRIT 200 | 3.0 ENGL 207 | 3.0 | |
| (UG) Foreign Language Course | 4.0 (UG) Foreign Language Course (level 103+) | 4.0 WRIT 195 | 3.0 | |
| (UG) Developing Quantitative Reasoning | 3.0-4.0 (UG) Developing Quantitative Reasoning | 3.0-4.0 (UG) Free Elective | 3.0 | |
| (UG) Understanding Society and Human Behavior | 3.0-4.0 (UG) Understanding Society and Human Behavior | 3.0-4.0 (UG) Engaging the Natural World | 3.0-4.0 | |
| | 17-19 | 17-19 | 16-17 | 0 |
| Second Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| ENGL 301 | 1.0 WRIT 212 or 295 | 3.0 ENGL 301 | 1.0 ENGL 325 | 3.0 |
| WRIT 210 or 211 | 3.0 (UG) Writing Practice Course (1 of 7) | 3.0 ENGL 315 | 3.0 (UG) Writing Practice Course (3 of 7) | 3.0 |

| | | | | |
|------------------------------------|---|---|---|----------------|
| WRIT 225 | 3.0 (UG) Diversity Studies | 3.0 (UG) Writing Practice Course (2 of 7) | 3.0 (UG) Writing Practice Course (4 of 7) | 3.0 |
| (UG) Engaging the Natural World | 3.0-4.0 (UG) Cultivating Global Competence | 3.0-4.0 (UG) Free Elective | 3.0 (UG) Free Electives | 6.0-9.0 |
| (UG) Cultivating Global Competence | 3.0-4.0 (UG) Analyzing Cultures and Histories | 3.0-4.0 (UG) Analyzing Cultures and Histories | 3.0-4.0 | |
| (UG) Free Elective | 3.0 | (UG) Free Elective | 3.0 | |
| | 16-18 | 15-17 | 16-17 | 15-18 |
| Third Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| ENGL 301 | 1.0 (UG) Free Electives | 12.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| ENGL 380 | 3.0 COM 610 | 3.0 | COM 574 | 3.0 |
| (UG) Free Electives | 9.0 | | | |
| COM 500 | 3.0 | | | |
| | 16 | 15 | 0 | 3 |
| Fourth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| ENGL 490 | 3.0 ENGL 355 | 3.0 ENGL 495 | 3.0 Student classified as Graduate | |
| UNIV H201 | 1.0 ENGL 492 | 3.0 (UG) Free Electives | 9.0 | |
| (UG) Literary Traditions | 3.0 (UG) English Elective (ENGL or WRIT) | 3.0 COM 615 | 3.0 | |
| (UG) English Elective | 3.0 (UG) Free Electives | 6.0 (GR) SDC Program Elective | 3.0 | |
| (UG) Free Electives | 6.0 COM 651 | 3.0 Student graduates with BA degree | | |
| COM 613 | 3.0 | | | |
| | 19 | 18 | 18 | 0 |
| Fifth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits | |
| (GR) SDC Program Electives | 6.0 (GR) SDC Program Elective | 3.0 COM 698 | 3.0 | |
| (GR) Graduate Elective | 3.0 (GR) Graduate Electives | 6.0 (GR) Graduate Electives | 3.0 | |
| | 9 | 9 | 6 | |

Total Credits 225-238

* COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

5 year, 3 co-op

| | | | | |
|---|---|---|--|----------------|
| First Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| ENGL 101 or 111 | 3.0 CIVC 101 | 1.0 COOP 101* | 1.0 VACATION | |
| ENGL 195 | 3.0 ENGL 102 or 112 | 3.0 ENGL 103 or 113 | 3.0 | |
| UNIV H101 | 1.0 WRIT 200 | 3.0 ENGL 207 | 3.0 | |
| (UG) Foreign Language Course | 4.0 (UG) Foreign Language Course (level 103+ or higher) | 4.0 WRIT 195 | 3.0 | |
| (UG) Developing Quantitative Reasoning | 3.0-4.0 (UG) Developing Quantitative Reasoning | 3.0-4.0 (UG) Free Elective | 3.0 | |
| (UG) Understanding Society and Human Behavior | 3.0-4.0 (UG) Understanding Society and Human Behavior | 3.0-4.0 (UG) Engaging the Natural World | 3.0-4.0 | |
| | | (UG) Free Elective | 3.0 | |
| | 17-19 | 17-19 | 19-20 | 0 |
| Second Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| COOP EXPERIENCE | COOP EXPERIENCE | WRIT 225 | 3.0 (UG) Literature Survey | 3.0 |
| | | (UG) Engaging the Natural World | 3.0-4.0 (UG) Diversity Studies | 3.0 |
| | | (UG) Literature Survey | 3.0 (UG) Cultivating Global Competence | 3.0-4.0 |

| | | | | |
|--------------------------------------|--|---------------------------------------|---|----------------|
| | | (UG) Cultivating Global Competence | 3.0-4.0 (UG) Analyzing Cultures and Histories | 3.0-4.0 |
| | | (UG) Free Elective | 3.0 (UG) Free Electives | 6.0 |
| | | (UG) Free Elective | 3.0 | |
| | 0 | 0 | 18-20 | 18-20 |
| Third Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| COOP EXPERIENCE | COOP EXPERIENCE | ENGL 301 | 1.0 ENGL 325 | 3.0 |
| | COM 610 | 3.0 ENGL 315 | 3.0 (UG) Literature Survey | 3.0 |
| | | (UG) Literature Survey | 3.0 (UG) Free Electives | 6.0-9.0 |
| | | (UG) Authors and Periods | 3.0 COM 574 | 3.0 |
| | | (UG) Free Elective | 3.0 | |
| | | (UG) Analyzing Cultures and Histories | 3.0-4.0 | |
| | | (GR) SDC Program Elective | 3.0 | |
| | 0 | 3 | 19-20 | 15-18 |
| Fourth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| COOP EXPERIENCE | COOP EXPERIENCE | ENGL 301 | 1.0 (UG) Free Electives | 12.0 |
| COM 615 | 3.0 (GR) Graduate Elective | 3.0 ENGL 355 | 3.0 COM 651 | 3.0 |
| | | (UG) Literary Impacts | 3.0 (GR) SDC Program Elective | 3.0 |
| | | (UG) Literary Traditions | 3.0 | |
| | | (UG) Free Elective | 3.0 | |
| | | COM 613 | 3.0 | |
| | | (GR) SDC Program Elective | 3.0 | |
| | 3 | 3 | 19 | 18 |
| Fifth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits | |
| ENGL 301 | 1.0 ENGL 492 | 3.0 ENGL 495 | 3.0 | |
| ENGL 380 | 3.0 (UG) English Elective (ENGL or WRIT) | 3.0 (UG) Free Electives | 9.0 | |
| ENGL 490 | 3.0 (UG) Free Electives | 6.0 COM 698 | 3.0 | |
| UNIV H201 | 1.0 (GR) SDC Program Elective | 3.0 (GR) Graduate Elective | 3.0 | |
| (UG) English Elective (ENGL or WRIT) | 3.0 (GR) Graduate Elective | 3.0 | | |
| (UG) Free Elective | 3.0 | | | |
| COM 500 | 3.0 | | | |
| (GR) Graduate Elective | 3.0 | | | |
| | 20 | 18 | 18 | |

Total Credits 225-238

* COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Environmental Science BS / Environmental Policy MS

Major: Environmental Science and Environmental Policy

Degree Awarded: Bachelor of Science (BS) and Master of Science in Environmental Policy (MSEP)

Calendar Type: Quarter

Minimum Required Credits: 224.5

Co-op Options: One Co-op (Five years)

BS Classification of Instructional Programs (CIP) code: 03.0104

BS Standard Occupational Classification (SOC) code: 19-2041

MS Classification of Instructional Programs (CIP) code: 44.0599

MS Standard Occupational Classification (SOC) code: 19-1031

About the Program

The BS/MS program in Environmental Science (BS) and Environmental Policy (MS) is designed to bring two distinct but mutually enhancing disciplines together in one program. It provides an opportunity for highly motivated and qualified undergraduates to begin pursuing a graduate degree prior to completion of their bachelor's degree in the 4+1 co-op program.

Environmental policy pairs naturally with environmental science by helping students bridge the gap between their strength in science and their interest in making change through policy. Science without an effective avenue toward working with decision makers and supporting public policy runs short of its reach and potential benefit. The BS/MS in ENVS-ENVP prepares students both as scientists and professionals who can communicate science and translate environmental data into actionable environmental policy with tangible impact. Students can also conduct real-world research writing through a case study thesis, select elective courses tailored to their interests, or complete their degree with research experience.

The accelerated program is appropriate for Environmental Science majors interested in learning about public policy and who have a desire to work in environmental policy, such as in government, advocacy work, consulting, or the nonprofit sector.

Admission Requirements

To be eligible for the BS/MS program, students must apply between 90.0-120.0 credits and have a minimum 3.25 cumulative GPA. Applicants should meet with their advisor to create a plan of study and email that plan of study and a one-page essay to the director of the ENVP program along with a short email of introduction including their current major and proposed ENVP track. After a review of the initial plan of study, the director and the student will have a 20-minute interview. If accepted, the student will receive an Accelerated Degree Program Application form and will use it to obtain permission from all approving parties listed on the form.

Degree Requirements

Degree Requirements

Humanities and Social Science

| | | |
|-------------------------------------|---|-----|
| CIVC 101 | Introduction to Civic Engagement | 1.0 |
| COM 230 | Techniques of Speaking | 3.0 |
| COM 310 [WJ] | Technical Communication | 3.0 |
| COOP 101 | Career Management and Professional Development * | 1.0 |
| ENGL 101 | Composition and Rhetoric I: Inquiry and Exploratory Research | 3.0 |
| or ENGL 111 | English Composition I | |
| ENGL 102 | Composition and Rhetoric II: Advanced Research and Evidence-Based Writing | 3.0 |
| or ENGL 112 | English Composition II | |
| ENGL 103 | Composition and Rhetoric III: Themes and Genres | 3.0 |
| or ENGL 113 | English Composition III | |
| PHIL 340 | Environmental Ethics | 3.0 |
| or PHIL 341 | Environmental Philosophy | |
| UNIV S101 | The Drexel Experience | 1.0 |
| Humanities/Social Science electives | | 6.0 |
| UNIV S201 | Looking Forward: Academics and Careers | 1.0 |

Mathematics, Statistics & Computing

21.0

Select one of the following sequences:

Calculus sequence

MATH 121 Calculus I

MATH 122 Calculus II

MATH 123 Calculus III

Analysis sequence

MATH 101 Introduction to Analysis I

MATH 102 Introduction to Analysis II

MATH 239 Mathematics for the Life Sciences

Additional required math & computing courses:

CS 171 Computer Programming I

MATH 410 Scientific Data Analysis I

MATH 411 Scientific Data Analysis II

Physical Sciences

| | | |
|----------|-----------------------|-----|
| CHEM 101 | General Chemistry I | 3.5 |
| CHEM 102 | General Chemistry II | 4.5 |
| CHEM 103 | General Chemistry III | 4.5 |

Choose two chemistry electives from:

CHEM 241 Organic Chemistry I

ENVS 302 Environmental Chemistry Laboratory

| | | |
|---|--|-------------|
| ENVS 310 | Introduction to Environmental Chemistry | |
| Physics sequence | | |
| PHYS 152 | Introductory Physics I | 4.0 |
| PHYS 153 | Introductory Physics II | 4.0 |
| PHYS 154 | Introductory Physics III | 4.0 |
| Biological Sciences | | |
| BIO 131 | Cells and Biomolecules | 4.0 |
| BIO 132 | Genetics and Evolution | 4.0 |
| BIO 133 | Physiology and Ecology | 4.0 |
| BIO 134 | Cells and Biomolecules Lab | 1.0 |
| BIO 135 | Genetics and Evolution Lab | 1.0 |
| BIO 136 | Anatomy and Ecology Lab | 1.0 |
| Geoscience Requirements | | |
| GEO 101 | Physical Geology | 4.0 |
| GEO 103 | Introduction to Field Methods in Earth Science | 2.0 |
| GEO 201 [WI] | Earth Systems Processes | 3.0 |
| Environmental Science Core Requirements | | |
| ENVS 101 | Introduction to Environmental Science | 5.0 |
| ENVS 102 | Natural History, Research and Collections | 2.0 |
| ENVS 201 | Practical Identification of Plants and Animals | 2.0 |
| ENVS 212 | Evolution | 4.0 |
| ENVS 284 | Physiological and Population Ecology | 3.0 |
| ENVS 286 | Community and Ecosystem Ecology | 3.0 |
| ENVS 308 | GIS and Environmental Modeling | 3.0 |
| ENVS 441 [WI] | Issues in Global Change I: Seminar | 2.0 |
| ENVS 442 | Issues in Global Change II: Research | 2.0 |
| ENVS 443 | Issues in Global Change III: Synthesis | 2.0 |
| Choose one of the following: | | 3.0 |
| ENSS 283 | Introduction to Environmental Policy | |
| ENSS 326 | Cities and Sustainability | |
| ENSS 348 | Delaware River Issues and Policy | |
| PSCI 284 | Environmental Politics | |
| Environmental Science Lab Requirements | | 2.0 |
| Environmental Concentration Requirements | | 14.0 |
| See list of concentration requirements below. | | |
| Environmental Electives (plus 6crs shared with ENVP 522 and ENVS 528 or 538) | | 6.0 |
| Free Electives | | 24.0 |
| MS Environmental Policy | | |
| Public Policy Core Graduate Courses | | 12.0 |
| PLCY 503 | Theory and Practice of Policy Analysis | |
| PLCY 504 | Methods of Policy Analysis | |
| PLCY 506 | Institutional Dynamics of the Policy Process | |
| PLCY 507 | Nonprofit Organizations | |
| Environmental Core Graduate Courses | | 9.0 |
| ENVP 522 | Environmental Law | |
| ENVP 572 | Environmental Policy | |
| ENVS 506 | Biostatistics | |
| Environmental Science or Environmental and Occupational Health Track | | 6.0 |
| Environmental Science Track (2 of the following courses): | | |
| ENVS 501 | Chemistry of the Environment | |
| ENVS 528 | Conservation Biology | |
| ENVS 538 | Biodiversity | |
| Environmental and Occupational Health Track (EOH 510 and one of the following 600-level EOH courses): | | |
| EOH 510 | Principles and Practice of Environmental and Occupational Health | |
| EOH 605 | Evidence Evaluation for Identification of Environmental Hazards | |
| EOH 610 | Environmental and Occupational Toxicology | |
| EOH 615 | Environmental and Occupational Health Policy | |
| EOH 630 | Environmental Health Risk and Impact Assessment | |
| EOH 665 | Quantitative Risk Analysis for Environmental Health | |
| Economics Core | | 6.0 |
| BUSN 502 | Essentials of Economics | |
| or ECON 601 | Managerial Economics | |

| | | |
|---|--|--------------|
| ECON 616 | Public Finance and Cost Benefit Analysis | |
| Research Experience and/or Approved Courses in Environmental Policy | | 12.0 |
| Case Study Sequence (optional 9 credits) | | |
| Approved Electives: The remaining 3-12 credits may be any graduate ENVP or PLCY courses. ** | | |
| Total Credits | | 224.5 |

* Students not participating in co-op will not take COOP 101; 1 credit of Free Elective will be added in place of COOP 101.

** In some cases, course substitutions may be made with courses from other departments. Elective courses taken outside the department must receive prior departmental approval in order to be counted toward the degree.

Environmental Science Concentrations

Ecology & Evolution Concentration 14.0-15.0

Choose 5 from below:

| | |
|----------|------------------------------|
| BIO 244 | Genetics I |
| BIO 436 | Population Genetics |
| ENVS 202 | Tree of Life |
| ENVS 312 | Systematic Biology |
| ENVS 328 | Conservation Biology |
| ENVS 470 | Advanced Topics in Evolution |

Total Credits **14.0-15.0**

Applied Environmental Science Concentration 14.0-15.0

Required Courses

| | |
|----------|--------------------------|
| ENVS 203 | The Watershed Approach |
| ENVS 275 | Global Climate Change |
| ENVS 372 | Environmental Assessment |

Choose 2 from below:

| | |
|----------|--|
| ENVS 376 | Environmental and Ecological Remediation |
| ENVS 401 | Chemistry of the Environment |
| GEO 306 | Environmental Geology |

Total Credits **14.0-15.0**

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

4+1 (4COP), 1 co-op

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|---------------------|---------------------|----------------|----------|
| CHEM 101 | 3.5 BIO 132 | 4.0 BIO 136 | 1.0 VACATION | |
| ENGL 101 or 111 | 3.0 BIO 135 | 1.0 BIO 133 | 4.0 | |
| ENVS 101 | 5.0 CHEM 102 | 4.5 CHEM 103 | 4.5 | |
| MATH 101 or 121 | 4.0 CIVC 101 | 1.0 COOP 101 | 1.0 | |
| UNIV S101 | 1.0 ENGL 102 or 112 | 3.0 GEO 103 | 2.0 | |
| | MATH 102 or 122 | 4.0 MATH 239 or 123 | 4.0 | |
| | 16.5 | 17.5 | 16.5 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|------------------------------------|---|---|-----------|
| BIO 131 | 4.0 CS 171 | 3.0 ENVS 212 | 4.0 COM 230 | 3.0 |
| BIO 134 | 1.0 ENVS 286 | 3.0 GEO 101 | 4.0 PHYS 153 | 4.0 |
| ENGL 103 or 113 | 3.0 GEO 201 | 3.0 PHYS 152 | 4.0 (UG) ENVS Lab elective | 2.0 |
| ENVS 102 | 2.0 UNIV S201 | 1.0 (UG) Free elective | 3.0 (UG) Humanities/Social Science elective | 3.0 |
| ENVS 201 | 2.0 (UG) ENVS Concentration course | 2.0 (UG) Humanities/Social Science elective | 3.0 (UG) Free elective | 3.0 |
| ENVS 284 | 3.0 (UG) Free elective | 3.0 | | |
| | 15 | 15 | 18 | 15 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--------------------------------|------------------------------------|-------------------------|-----------------|----------|
| MATH 410 | 3.0 ENSS 283 or PSCI 284 | 3.0-4.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| PHIL 340 or 341 | 3.0 ENVS 308 | 3.0 | | |
| PHYS 154 | 4.0 MATH 411 | 3.0 | | |
| (UG) CHEM elective | 3.0 (UG) CHEM elective | 2.0 | | |
| (UG) ENVS Concentration course | 3.0 (UG) ENVS Concentration course | 3.0 | | |
| | 16 | 14-15 | 0 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--------------------------------|---|---------------------------------|--|----------|
| COM 310 | 3.0 ENVS 442 | 2.0 ENVS 443 | 2.0 Student converted to Graduate status | |
| ENVS 441 | 2.0 (UG) ENVS Concentration course | 3.0 (UG) ENVS electives | 3.0 | |
| (UG) ENVS Concentration course | 3.0 (UG) ENVS elective | 3.0 (UG) Free elective | 7.0 | |
| (UG) Free elective | 4.0 (UG) Free elective | 4.0 ENVS 506 | 3.0 | |
| ENVP 522 (Shared UG/GR course) | 3.0 ENVS 528 or 538 (Shared UG/GR Course) | 3.0 PLCY 510 (or [GR] elective) | 3.0 | |
| ENVS 501 or EOH 510 | 3.0 ENVP 572 | 3.0 | | |
| | 18 | 18 | 18 | 0 |

Fifth Year

| Fall | Credits Winter | Credits Spring | Credits |
|-----------------------------|---------------------------------|---------------------------------|----------|
| PLCY 506 | 3.0 BUSN 502 | 3.0 ECON 616 | 3.0 |
| PLCY 516 (or [GR] elective) | 3.0 PLCY 503 | 3.0 PLCY 504 | 3.0 |
| (GR) elective | 3.0 PLCY 517 (or [GR] elective) | 3.0 PLCY 507 (or [GR] elective) | 3.0 |
| | 9 | 9 | 9 |

Total Credits 224.5-225.5

Environmental Studies & Sustainability BA / Environmental Policy MSEP

Major: Environmental Studies & Sustainability and Environmental Policy

Degree Awarded: Bachelor of Arts (BA) and Master of Science in Environmental Policy (MSEP)

Calendar Type: Quarter

Minimum Required Credits: 225.0

Co-op Options: One Co-op (Five years)

BA Classification of Instructional Programs (CIP) code: 03.0103

BA Standard Occupational Classification (SOC) code: 19-2041

MS Classification of Instructional Programs (CIP) code: 44.0599

MS Standard Occupational Classification (SOC) code: 19-1031

About the Program

The BAMS program in Environmental Studies and Sustainability (BA) and Environmental Policy (MS) is designed to provide an opportunity for highly motivated and qualified undergraduates to begin pursuing a graduate degree prior to completion of their bachelor's degree. The MS in Environmental

Policy builds on the knowledge that undergraduates gain in the Environmental Studies and Sustainability program and provides advanced training for careers in environmental law, research, advocacy, and more.

Creating public policy that supports environmental stewardship is a challenging and critical endeavor. The BAMS program prepares students to critically engage with complex environmental challenges; devise and communicate innovative policy solutions; and work with decision makers to effect policy change. Coursework spans the disciplines of law, political science, economics, engineering, business, and public health. Students have the opportunity to select elective courses tailored to their interests, gain hands-on research experience, and complete a case-based thesis with real-world impact.

The BAMS ENSS-ENVP program is appropriate for environmental studies and sustainability majors interested in advanced studies in public policy, and who have a desire to work in a range of environmental sectors.

Admission Requirements

To be eligible for the BAMS program, students must apply between 90.0-120.0 credits and have a minimum 3.25 cumulative GPA. Applicants should meet with their advisor to create a plan of study and email that plan of study and a 1-page essay to the Director of the ENVP Program along with a short email of introduction including their current major and proposed ENVP track. After a review of the initial plan of study, the director and the student will have a 20-minute interview. If accepted, the student will receive an Accelerated Degree Program Application form and will use it to obtain permission from all approving parties listed on the form.

Degree Requirements

General Requirements

| | | |
|-------------|---|-----|
| CIVC 101 | Introduction to Civic Engagement | 1.0 |
| COOP 101 | Career Management and Professional Development | 1.0 |
| ENGL 101 | Composition and Rhetoric I: Inquiry and Exploratory Research | 3.0 |
| or ENGL 111 | English Composition I | |
| ENGL 102 | Composition and Rhetoric II: Advanced Research and Evidence-Based Writing | 3.0 |
| or ENGL 112 | English Composition II | |
| ENGL 103 | Composition and Rhetoric III: Themes and Genres | 3.0 |
| or ENGL 113 | English Composition III | |
| MATH 101 | Introduction to Analysis I | 4.0 |
| MATH 107 | Probability and Statistics for Liberal Arts | 3.0 |
| UNIV S101 | The Drexel Experience | 1.0 |
| UNIV H201 | Looking Forward: Academics and Careers | 1.0 |

Social and Behavioral Sciences

| | | |
|--------------------------|------------------------------------|-----|
| SOC 101 | Introduction to Sociology | 3.0 |
| or ANTH 101 | Introduction to Cultural Diversity | |
| PSY 101 | General Psychology I | 3.0 |
| PSCI 110 | American Government | 4.0 |
| Social Behavior elective | | 3.0 |

Physical and Natural Sciences

| | | |
|--------------|--|-----|
| BIO 109 | Biological Diversity, Ecology & Evolution | 3.0 |
| BIO 110 | Biological Diversity, Ecology and Evolution Laboratory | 1.0 |
| ENVS 101 | Introduction to Environmental Science | 5.0 |
| ENVS 230 | General Ecology | 3.0 |
| ENSS 275 | Global Climate Change | 3.0 |
| or ENVS 289 | Global Warming, Biodiversity and Your Future | |
| GEO 201 [WI] | Earth Systems Processes | 3.0 |

Humanities and Fine Arts

| | | |
|----------------------------------|-----------------------------|-----|
| Humanities & Fine Arts Electives | | 6.0 |
| COM 317 [WI] | Environmental Communication | 3.0 |
| or COM 320 | Science Writing | |
| PHIL 340 | Environmental Ethics | 3.0 |
| or PHIL 341 | Environmental Philosophy | |

Diversity Electives

| | | |
|-----------------------|--|-----|
| International Studies | | 6.0 |
|-----------------------|--|-----|

Foreign Language

| | | |
|------------------|--|-----|
| Foreign Language | | 8.0 |
|------------------|--|-----|

Students must complete at least 8 credits of a foreign language and, at minimum, must complete the 103 level of the target language (or beyond if they place higher).

ENSS Core Requirements

| | | |
|----------|---------------------------------------|-----|
| ECON 201 | Principles of Microeconomics | 4.0 |
| ECON 202 | Principles of Macroeconomics | 4.0 |
| ENSS 120 | Introduction to Environmental Studies | 3.0 |
| ENSS 244 | Sociology of the Environment | 4.0 |

| | | |
|--|--|--------------|
| ENSS 283 | Introduction to Environmental Policy | 3.0 |
| ENSS 285 | Introduction to Urban Planning | 3.0 |
| ENSS 326 | Cities and Sustainability | 3.0 |
| ENSS 346 | Environmental Justice | 4.0 |
| ENVS 260 | Environmental Science and Society | 3.0 |
| PBHL 101 | Public Health 101 | 3.0 |
| PSCI 284 | Environmental Politics | 4.0 |
| Modeling and Research | | |
| ENVS 308 | GIS and Environmental Modeling | 3.0 |
| SOC 241 | Research Design: Qualitative Methods | 4.0 |
| SOC 242 | Research Design: Quantitative Methods | 4.0 |
| ENSS Electives (plus 3crs shared GR course ENVP 522) | | 18.0 |
| Senior Sequence | | |
| ENVS 441 [WI] | Issues in Global Change I: Seminar | 2.0 |
| ENVS 442 | Issues in Global Change II: Research | 2.0 |
| ENVS 443 | Issues in Global Change III: Synthesis | 2.0 |
| Free Electives | | 24.0 |
| MS Environmental Policy | | |
| Public Policy Core Graduate Courses | | 12.0 |
| PLCY 503 | Theory and Practice of Policy Analysis | |
| PLCY 504 | Methods of Policy Analysis | |
| PLCY 506 | Institutional Dynamics of the Policy Process | |
| PLCY 507 | Nonprofit Organizations | |
| Environmental Core Graduate Courses | | 9.0 |
| ENVP 522 | Environmental Law | |
| ENVP 572 | Environmental Policy | |
| ENVS 506 | Biostatistics | |
| Environmental Science or Environmental and Occupational Health Track | | 6.0 |
| Environmental Science Track (2 of the following courses): | | |
| ENVS 501 | Chemistry of the Environment | |
| ENVS 528 | Conservation Biology | |
| ENVS 538 | Biodiversity | |
| Environmental and Occupational Health Track (EOH 510 and one of the following 600-level EOH courses): | | |
| EOH 510 | Principles and Practice of Environmental and Occupational Health | |
| EOH 605 | Evidence Evaluation for Identification of Environmental Hazards | |
| EOH 610 | Environmental and Occupational Toxicology | |
| EOH 615 | Environmental and Occupational Health Policy | |
| EOH 630 | Environmental Health Risk and Impact Assessment | |
| EOH 665 | Quantitative Risk Analysis for Environmental Health | |
| Economics Core | | 6.0 |
| BUSN 502 | Essentials of Economics | |
| or ECON 601 | Managerial Economics | |
| ECON 616 | Public Finance and Cost Benefit Analysis | |
| Research Experience and/or Approved Courses in Environmental Policy | | 12.0 |
| Case Study Sequence (optional 9 credits) | | |
| Approved Electives: The remaining 3-12 credits may be any graduate ENVP or PLCY courses. In some cases, course substitutions may be made with courses from other departments. Elective courses taken outside the department must receive prior departmental approval in order to be counted toward the degree. | | |
| Total Credits | | 225.0 |

* Students not participating in co-op will not take COOP 101; 1 credit of Free Elective will be added in place of COOP 101.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>)

program/drexel-writing-center/) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

4+1 (4COP), 1 co-op

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|-----------------------|---------------------------|----------------|----------|
| ENSS 120 | 3.0 BIO 109 | 3.0 COOP 101 | 1.0 VACATION | |
| ENVS 101 | 5.0 BIO 110 | 1.0 ENGL 103 or 113 | 3.0 | |
| ENGL 101 or 111 | 3.0 CIVC 101 | 1.0 MATH 107 | 3.0 | |
| MATH 101 | 4.0 ENGL 102 or 112 | 3.0 SOC 101 or ANTH 101 | 3.0 | |
| UNIV S101 | 1.0 PSY 101 | 3.0 (UG) Foreign Language | 4.0 | |
| | (UG) Foreign Language | 4.0 (UG) Free elective | 3.0 | |
| | 16 | 15 | 17 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------|--------------------------|---------------------------------|--|-----------|
| ENSS 283 | 3.0 ENSS 244 | 4.0 ECON 201 | 4.0 ECON 202 | 4.0 |
| ENVS 260 | 3.0 ENSS 275 or ENVS 289 | 3.0 ENVS 230 | 3.0 (UG) ENSS elective | 3.0 |
| PBHL 101 | 3.0 GEO 201 | 3.0 (UG) ENSS elective | 3.0 (UG) Humanities/Fine Arts elective | 3.0 |
| PSCI 110 | 4.0 (UG) ENSS elective | 3.0 (UG) International elective | 3.0 (UG) Diversity elective | 3.0 |
| UNIV H201 | 1.0 (UG) Free elective | 3.0 (UG) Diversity elective | 3.0 (UG) Free elective | 4.0 |
| | 14 | 16 | 16 | 17 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|------------------------------------|------------------------|---------------------|-----------------|----------|
| ENSS 285 | 3.0 COM 317 | 3.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| PHIL 340 or 341 | 3.0 ENVS 308 | 3.0 | | |
| SOC 241 | 4.0 PSCI 284 | 4.0 | | |
| (UG) Humanities/Fine Arts elective | 3.0 SOC 242 | 4.0 | | |
| (UG) Free elective | 3.0 (UG) Free elective | 3.0 | | |
| | 16 | 17 | 0 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|---------------------------------------|-------------------------------------|---------------------------------|------------------------------------|----------|
| ENSS 346 | 4.0 ENSS 326 | 3.0 ENVS 443 | 2.0 Student Classified as Graduate | |
| ENVS 441 | 2.0 ENVS 442 | 2.0 (UG) ENSS elective | 3.0 | |
| (UG) ENSS elective | 3.0 (UG) ENSS elective | 3.0 (UG) International elective | 3.0 | |
| (UG) Social/Behavior Science elective | 3.0 (UG) Free elective | 4.0 (UG) Free elective | 4.0 | |
| ENVP 522 (Shared UG/GR course) | 3.0 ENVP 572 | 3.0 ENVS 506 | 3.0 | |
| ENVS 501 or EOH 510 | 3.0 ENVS 528 (or [GR] EOH elective) | 3.0 PLCY 510 (or [GR] elective) | 3.0 | |
| | 18 | 18 | 18 | 0 |

Fifth Year

| Fall | Credits Winter | Credits Spring | Credits |
|-----------------------------|---------------------------------|---------------------------------|----------|
| PLCY 506 | 3.0 BUSN 502 | 3.0 ECON 616 | 3.0 |
| PLCY 516 (or [GR] elective) | 3.0 PLCY 503 | 3.0 PLCY 504 | 3.0 |
| (GR) elective | 3.0 PLCY 517 (or [GR] elective) | 3.0 PLCY 507 (or [GR] elective) | 3.0 |
| | 9 | 9 | 9 |

Total Credits 225

Global Studies BA / Business Administration MBA

Major: Global Studies

Degree Awarded: Bachelor of Arts (BA) and Master of Business Administration (MBA)

Calendar Type: Quarter

Minimum Required Credits: 229.0

Co-op Options: One Co-op (Five Years)

BA Classification of Instructional Programs (CIP) code: 30.2001

BA Standard Occupational Classification (SOC) code: 19-3094

MS Classification of Instructional Programs (CIP) code: 52.0201

MS Standard Occupational Classification (SOC) code: 11-1021

About the Program

To further prepare students for careers in the international sphere, Drexel University now offers an accelerated degree that allows students to complete an accelerated bachelor's degree (BA) in Global Studies and an MBA. Students apply in their third year to Drexel's LeBow College of Business. Those accepted begin working on their MBA as they complete their BA, getting their MBA a year earlier than if they had done the two degrees separately. They also have a chance to complete an undergraduate co-op and gain valuable work experience as they go.

The Drexel BA degree prepares students for exciting international careers or at home working with diverse international populations. It prepares them by giving them foreign language fluency and offers a wide variety of courses in the social sciences, humanities, philosophy, hard sciences, cultural studies, and other fields. While working on their Global Studies degree, students also are encouraged to study abroad, adding to their global perspective as well as perfecting their foreign language skills. There are also many opportunities for doing co-op abroad: a chance to live overseas for six months while gaining valuable work experience and getting the opportunity to truly be part of the culture of the place where they are working. Study abroad opportunities exist in many countries in Europe, Africa, Latin America, and across Asia. Co-op abroad employers can also be found in almost any part of the world.

Added to this is the chance to get an accelerated degree with an MBA, a much-in-demand professional degree with many uses. Students interested in business, trade, accounting, and corporate careers, for example, can gain skills that make them attractive to international development agencies like the US Agency for International Development, the World Bank, or many government agencies, private multinational corporations, and regional companies. Students who want to work domestically can use their language and cultural skills in a wide variety of settings here, working with the diverse population within the US. A degree in Business Administration allows graduates to make a real impact on society, improving the lives of people around the world. To learn more about the Drexel LeBow MBA (<https://www.lebow.drexel.edu/academics/graduate/mba/>) please visit their website.

Drexel Global Studies students have won a wide variety of international fellowships, including Fulbright, Boren, and other US government programs. They have studied abroad in countries as diverse as France, Senegal, Equatorial Guinea, Argentina, Costa Rica, China, Japan, and Korea. They have gone on to work with the US State Department and other government agencies, with large Silicon Valley tech firms, and with private corporations and nonprofits around the world. Adding an MBA will open even more doors for students interested in making a difference at home and abroad.

Admission Requirements

Same as regular requirements for Global Studies majors.

Degree Requirements

General Requirements

| | | |
|--|---|---------|
| CIVC 101 | Introduction to Civic Engagement | 1.0 |
| COOP 101 | Career Management and Professional Development * | 1.0 |
| ECON 201 | Principles of Microeconomics | 4.0 |
| ECON 202 | Principles of Macroeconomics | 4.0 |
| ENGL 101 or ENGL 111 | Composition and Rhetoric I: Inquiry and Exploratory Research English Composition I | 3.0 |
| ENGL 102 or ENGL 112 | Composition and Rhetoric II: Advanced Research and Evidence-Based Writing English Composition II | 3.0 |
| ENGL 103 or ENGL 113 | Composition and Rhetoric III: Themes and Genres English Composition III | 3.0 |
| PSCI 150 | International Politics | 4.0 |
| UNIV H101 | The Drexel Experience | 1.0 |
| UNIV H201 | Looking Forward: Academics and Careers | 1.0 |
| Two mathematics (MATH 100-499) courses | | 6.0-8.0 |
| Two science courses: BIO, CHEM, ENSS, ENVS, FDSC, GEO, NFS, PHEV, PHYS (100-499) | | 6.0-8.0 |

Global Studies Core Requirements

| | | |
|--|--|-----------|
| GST 101 | Becoming Global: Language and Cultural Context | 4.0 |
| GST 102 | Understanding Global: Markets and Governance | 4.0 |
| Three 200+ level GST courses | | 12.0 |
| GST 400 | Senior Project in Global Studies | 4.0 |
| Language minor in Spanish, French, or Japanese, or minor in Asian Studies or Middle East and North Africa Studies ** | | 24.0 |
| Concentration (Select one from below) | | 95.0-91.0 |

MBA Requirements

| | | |
|---|---|--------------|
| ACCT 510 | Essentials of Financial Reporting | 2.0 |
| BLAW 510 | Analyzing Legal Options in Decision-Making | 2.0 |
| BSAN 601 | Business Analytics for Managers | 3.0 |
| ECON 601 | Managerial Economics | 3.0 |
| FIN 601 | Corporate Financial Management | 3.0 |
| MGMT 520 | Strategy Analysis | 2.0 |
| MGMT 530 | Managing and Leading the Total Enterprise | 2.0 |
| MGMT 770 | MBA Capstone | 2.0 |
| MKTG 510 | Marketing Strategy | 2.0 |
| ORGB 511 | Leading in Dynamic Environments: A Personal, Relational, and Strategic Approach | 3.0 |
| POM 510 | Operations and Supply Chain Management | 2.0 |
| Experiential Requirements - Select one course: | | 3.0 |
| BUSN 615 | Graduate Internship | |
| INTB 790 | International Business Seminar and Residency | |
| MGMT 680 | Leading for Innovation | |
| MGMT 715 | Business Consulting | |
| MIS 652 | Business Agility and IT | |
| ORGB 640 | Negotiations for Leaders | |
| TAX 715 | Tax Experiential Learning | |
| MBA Concentration Requirements (Select one concentration from the list below) | | 9.0 |
| Graduate Free Electives | | 11.0 |
| Total Credits | | 229.0 |

* Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

** Students must complete at least 24.0 credits above the 103 language level to earn a language minor. Language courses could count towards free electives in some instances; consult with an advisor.

Global Justice and Human Rights Concentration

Global Justice and Human Rights Distribution Requirements

| | | |
|---------------|--|---------|
| ENGL 360 [WI] | Literature and Society | 3.0 |
| PHIL 335 | Global Ethical Issues | 3.0-4.0 |
| or PSCI 352 | Ethics and International Relations | |
| PSCI 120 | History of Political Thought | 4.0 |
| or PSCI 229 | Theories of Justice | |
| PSCI 351 | The United Nations in World Politics | 4.0 |
| PSCI 353 | International Human Rights | 4.0 |
| SOC 330 | Development and Underdevelopment in the Global South | 4.0 |
| or SOC 340 | Globalization | |

Global Justice and Human Rights Distribution Options

24.0

Students must complete at least 24 distribution credits from the approved list

| | | |
|--------------|---|--|
| AFAS T280 | Special Topics in Africana Studies <small>course must have a global theme</small> | |
| CJS 210 | Race, Crime, and Justice | |
| CJS 260 | Justice in Our Community | |
| CJS 261 | Prison, Society and You | |
| CJS 262 | Places of Justice | |
| CJS 289 | Terrorism | |
| CJS 320 | Comparative Justice Systems | |
| COM 360 | Strategic International Communication | |
| COM 362 | International Negotiations | |
| COM 375 [WI] | Grant Writing | |
| CULA 426 | The Kitchen Garden: Summer | |
| or CULA 427 | The Kitchen Garden: Fall | |
| ECON 301 | Microeconomics | |
| ECON 321 | Macroeconomics | |
| ECON 342 | Economic Development | |
| ECON 351 | Resource and Environmental Economics | |

| | | |
|----------------------|--|------------------|
| ENGL 325 | Topics in World Literature | |
| GST 221 | Introduction to Global Capital and Development | |
| GST 231 | Introduction to Identities and Communities | |
| GST 241 | Introduction to Power and Resistance | |
| GST 251 | Introduction to Global Media, Arts, and Cultures | |
| GST 261 | Introduction to Global Health and Sustainability | |
| GST 321 | Advanced Studies in Global Capital and Development | |
| GST 331 | Advanced Studies in Identities and Communities | |
| GST 341 | Advanced Studies in Power and Resistance (Model Organization of American States) | |
| GST 351 | Advanced Studies in Global Media, Arts, and Cultures | |
| GST 361 | Advanced Studies in Global Health and Sustainability | |
| GST T280 | Special Topics in Global Studies | |
| GST T380 | Special Topics in Global Studies | |
| HIST 385 | Transnational History of Science, Technology and Environment | |
| LAW 304 | Comparative Legal Institutions | |
| LAW 312 | Immigration Law | |
| PHIL 241 | Social & Political Philosophy | |
| PHIL 335 | Global Ethical Issues | |
| PHIL 341 | Environmental Philosophy | |
| PHIL 385 | Philosophy of Law | |
| PHIL 391 | Philosophy of Religion | |
| PBHL 303 | Overview of Issues in Global Health | |
| PBHL 304 | Introduction to Health & Human Rights | |
| PSCI 229 | Theories of Justice | |
| PSCI 240 | Comparative Politics II | |
| PSCI 250 | American Foreign Policy | |
| PSCI 252 | Global Governance | |
| PSCI 255 | International Political Economy | |
| PSCI 260 [WI] | Power in Protest: Social Movements in Comparative Perspective | |
| PSCI 305 | Social Development: A Global Approach | |
| PSCI 310 | Civilians in Armed Conflict | |
| PSCI 351 | The United Nations in World Politics | |
| PSCI 352 | Ethics and International Relations | |
| PSCI 361 | The Politics of LGBT Movements and Rights | |
| SCTS 202 | Innovation and Social Justice | |
| SOC 210 | Race, Ethnicity and Social Inequality | |
| SOC 220 | Wealth and Power | |
| SOC 340 | Globalization | |
| SOC 346 | Environmental Justice | |
| SOC 355 [WI] | Classical Social Theory | |
| SOC 444 | Social Movements | |
| WGST 240 | Women and Society in a Global Context | |
| WGST T280 | Special Topics in Women's and Gender Studies <small>must have a global theme</small> | |
| Electives | | 47.0-49.0 |
| Total Credits | | 93.0-96.0 |

Global Health and Sustainability Concentration

Global Health and Sustainability Concentration Requirements

| | | |
|--|-------------------------------------|------------|
| PBHL 101 | Public Health 101 | 3.0 |
| PBHL 303 | Overview of Issues in Global Health | 3.0 |
| PSCI 334 | Politics of Environment and Health | 4.0 |
| or SOC 346 | Environmental Justice | |
| SOC 244 | Sociology of the Environment | 4.0 |
| or SOC 340 | Globalization | |
| Choose one of the following English classes | | 3.0 |
| ENGL 300 [WI] | Literature & Science | |
| ENGL 302 | Environmental Literature | |
| ENGL 370 | Topics in Literature and Medicine | |
| Choose one of the following Ethics courses | | 3.0 |
| PBHL 309 | Public Health Ethics | |
| PHIL 321 | Biomedical Ethics | |

| | |
|--|---|
| PHIL 340 | Environmental Ethics |
| Global Health and Sustainability Distribution Options | |
| 24.0 | |
| Students must complete at least 24.0 distribution credits from the approved list | |
| BIO 109 | Biological Diversity, Ecology & Evolution |
| BIO 264 | Ethnobotany |
| CJS 373 | Environmental Crime |
| COM 316 | Campaigns for Health & Environment |
| COM 317 [WI] | Environmental Communication |
| COM 320 [WI] | Science Writing |
| COM 375 [WI] | Grant Writing |
| CULA 426 | The Kitchen Garden: Summer |
| CULA 427 | The Kitchen Garden: Fall |
| ECON 301 | Microeconomics |
| ECON 321 | Macroeconomics |
| ECON 351 | Resource and Environmental Economics |
| ENGL 300 [WI] | Literature & Science |
| ENGL 302 | Environmental Literature |
| ENGL 370 | Topics in Literature and Medicine |
| ENSS 285 | Introduction to Urban Planning |
| ENSS 326 | Cities and Sustainability |
| ENTP 390 | Energy Entrepreneurship |
| ENVS 169 | Environmental Science |
| ENVS 247 | Native Plants and Sustainability |
| ENVS 275 | Global Climate Change |
| ENVS 289 | Global Warming, Biodiversity and Your Future |
| ENVS 328 | Conservation Biology |
| GST 221 | Introduction to Global Capital and Development |
| GST 231 | Introduction to Identities and Communities |
| GST 241 | Introduction to Power and Resistance |
| GST 251 | Introduction to Global Media, Arts, and Cultures |
| GST 261 | Introduction to Global Health and Sustainability |
| GST 321 | Advanced Studies in Global Capital and Development |
| GST 331 | Advanced Studies in Identities and Communities |
| GST 341 | Advanced Studies in Power and Resistance |
| GST 351 | Advanced Studies in Global Media, Arts, and Cultures |
| GST 361 | Advanced Studies in Global Health and Sustainability |
| GST T280 | Special Topics in Global Studies |
| GST T380 | Special Topics in Global Studies |
| HIST 287 | History of Science: Ancient to Medieval |
| HIST 288 | History of Science: Medieval to Enlightenment |
| HIST 289 | History of Science: Enlightenment to Modernity |
| HIST 321 | Themes in Global Environmental History |
| HIST 322 | Empire and Environment |
| HIST 385 | Transnational History of Science, Technology and Environment |
| HSAD 312 | Development of World Health Care |
| HSAD 316 | Health Care across Cultures |
| NFS 345 | Foods and Nutrition of World Cultures |
| NFS 446 | Perspectives in World Nutrition |
| PBHL 301 | Epidemiology in Public Health |
| PBHL 302 | Introduction to the History of Public Health |
| PBHL 304 | Introduction to Health & Human Rights |
| PBHL 305 | Women and Children: Health & Society |
| PBHL 306 | Introduction to Community Health |
| PBHL 317 | The World's Water |
| PBHL 320 | Exploring the HIV/AIDS Pandemic |
| PBHL 321 | Disease Outbreak Investigations |
| PBHL 333 | Health Inequality |
| PBHL 457 | Adapting to a Hotter Climate: Protecting Health of Vulnerable Populations |
| PHIL 321 | Biomedical Ethics |
| PHIL 335 | Global Ethical Issues |
| PHIL 340 | Environmental Ethics |
| PHIL 341 | Environmental Philosophy |

| | | |
|----------------------|--|------------------|
| PHIL 351 | Philosophy of Technology | |
| PHIL 361 | Philosophy of Science | |
| PSCI 252 | Global Governance | |
| PSCI 284 | Environmental Politics | |
| PSCI 305 | Social Development: A Global Approach | |
| PSCI 334 | Politics of Environment and Health | |
| PSCI 336 | Political Economy of Climate Change | |
| PSCI 338 | Cities and Climate Change | |
| PSCI 351 | The United Nations in World Politics | |
| PSCI 352 | Ethics and International Relations | |
| PSCI 353 | International Human Rights | |
| PSY 352 | Psychology of Sustainability | |
| SCTS 202 | Innovation and Social Justice | |
| SOC 235 | Sociology of Health and Illness | |
| SOC 313 | Sociology of Global Health | |
| SOC 330 | Development and Underdevelopment in the Global South | |
| SOC 340 | Globalization | |
| WGST 240 | Women and Society in a Global Context | |
| WGST 275 | Women's Health and Human Rights | |
| Electives | | 51.0-47.0 |
| Total Credits | | 95.0-91.0 |

Global Business, Economics, and Development Concentration

Global Business, Economics, and Development Concentration Requirements

| | | |
|------------------------------------|---------------------------------|------------|
| BLAW 340 | International Business Law | 4.0 |
| ECON 342 | Economic Development | 4.0 |
| ENGL 308 [WI] | The Literature of Business | 3.0 |
| PHIL 301 | Business Ethics | 3.0 |
| PSCI 255 | International Political Economy | 4.0 |
| Select one of the following | | 4.0 |
| INTB 332 | Multinational Corporations | |
| INTB 334 | International Trade | |
| INTB 336 | International Money and Finance | |

Global Business, Economics, and Development Distribution Options 24.0

Students must complete at least 24.0 distribution credits from the approved list

| | | |
|---------------|--|--|
| COM 270 [WI] | Business Communication | |
| COM 345 | Intercultural Communication | |
| COM 360 | Strategic International Communication | |
| COM 362 | International Negotiations | |
| COM 375 [WI] | Grant Writing | |
| ECON 270 | Using Big Data to Solve Economic and Social Problems | |
| ECON 301 | Microeconomics | |
| ECON 321 | Macroeconomics | |
| ECON 326 [WI] | Economic Ideas | |
| ECON 331 | International Macroeconomics | |
| ECON 351 | Resource and Environmental Economics | |
| ENGL 325 | Topics in World Literature | |
| ENGL 360 [WI] | Literature and Society | |
| ENTP 270 | Social Entrepreneurship | |
| ENTP 370 | Global Entrepreneurship | |
| ENTP 375 | 3BL - Triple Bottom Line | |
| ENTP 390 | Energy Entrepreneurship | |
| FIN 301 | Introduction to Finance | |
| FIN 346 | Global Financial Management | |
| GST 221 | Introduction to Global Capital and Development | |
| GST 231 | Introduction to Identities and Communities | |
| GST 241 | Introduction to Power and Resistance | |
| GST 251 | Introduction to Global Media, Arts, and Cultures | |
| GST 261 | Introduction to Global Health and Sustainability | |
| GST 321 | Advanced Studies in Global Capital and Development | |
| GST 331 | Advanced Studies in Identities and Communities | |

| | |
|--------------|--|
| GST 341 | Advanced Studies in Power and Resistance |
| GST 351 | Advanced Studies in Global Media, Arts, and Cultures |
| GST 361 | Advanced Studies in Global Health and Sustainability |
| GST T280 | Special Topics in Global Studies |
| GST T380 | Special Topics in Global Studies |
| HIST 315 | History of Capitalism |
| INTB 332 | Multinational Corporations |
| INTB 334 | International Trade |
| INTB 336 | International Money and Finance |
| INTB 338 | Regional Studies in Economic Policies and International Business |
| MGMT 370 | For-Profit Business Consulting |
| MGMT 371 | Nonprofit Business Consulting |
| MGMT 380 | International Business Consulting |
| MKTG 201 | Introduction to Marketing Management |
| MKTG 322 | Advertising & Integrated Marketing Communications |
| MKTG 351 | Marketing for Non-Profit Organizations |
| MKTG 357 | Global Marketing |
| PSCI 336 | Political Economy of Climate Change |
| PSCI 351 | The United Nations in World Politics |
| PSCI 352 | Ethics and International Relations |
| SOC 220 | Wealth and Power |
| SOC 330 | Development and Underdevelopment in the Global South |
| SOC 340 | Globalization |
| SOC 355 [WI] | Classical Social Theory |
| SOC 410 | Imagining Multiple Democracies |
| STAT 201 | Introduction to Business Statistics |
| STAT 202 | Business Statistics II |
| WGST 240 | Women and Society in a Global Context |

Electives **49.0-45.0**

Total Credits **95.0-91.0**

Global Media, Arts, and Cultures Concentration

Media, Arts, and Cultures Distribution Requirements

| | | |
|-------------|--------------------------------------|-----|
| ANTH 330 | Media Anthropology | 3.0 |
| ENGL 325 | Topics in World Literature | 3.0 |
| LING 102 | Language and Society | 3.0 |
| or ENGL 323 | Literature and Other Arts | |
| PHIL 305 | Ethics and the Media | 3.0 |
| WEST 100 | Introduction to Digital Design Tools | 3.0 |

Select one of the following: **3.0**

| | |
|----------|------------------------|
| ARTH 301 | Asian Art and Culture |
| ARTH 302 | Art of India |
| ARTH 304 | Art of Japan |
| ARTH 312 | Nineteenth Century Art |
| ARTH 313 | 20th Century Art |
| ARTH 314 | Contemporary Art |
| ARTH 315 | African-American Art |
| ARTH 316 | African Art |
| ARTH 318 | Latin American Art |

Media, Arts, and Cultures Distribution Options **24.0**

Students must complete at least 24.0 distribution credits from the approved list

| | |
|---------------|---|
| ANTH 375 | Digital Ethnography |
| ARCH 141 | Architecture and Society I |
| ARTH 331 [WI] | Global Material Culture |
| COM 200 | Current Events in Media and Communication |
| COM 210 | Theory and Models of Communication |
| COM 246 | Media and Identity |
| COM 250 | Diversity in Media |
| COM 342 | English Worldwide |
| COM 345 | Intercultural Communication |
| COM 355 | Ethnography of Communication |

| | |
|----------------------|--|
| COM 360 | Strategic International Communication |
| COM 375 [WI] | Grant Writing |
| COM 376 | Nonprofit Communication |
| COM 377 | Communication for Civic Engagement |
| COM 385 | Media Effects |
| CULA 405 [WI] | Culture and Gastronomy I |
| ENGL 200 [WI] | Classical to Medieval Literature |
| ENGL 201 | Renaissance to the Enlightenment |
| ENGL 203 [WI] | Survey of World Literature |
| ENGL 204 | Post-Colonial Literature |
| ENGL 300 [WI] | Literature & Science |
| ENGL 323 | Literature and Other Arts |
| ENGL 325 | Topics in World Literature |
| ENGL 335 | Mythology |
| ENGL 355 [WI] | Women and Literature |
| ENGL 360 [WI] | Literature and Society |
| FMST T280 | Special Topics in Film Studies |
| GST 221 | Introduction to Global Capital and Development |
| GST 231 | Introduction to Identities and Communities |
| GST 241 | Introduction to Power and Resistance |
| GST 251 | Introduction to Global Media, Arts, and Cultures |
| GST 261 | Introduction to Global Health and Sustainability |
| GST 321 | Advanced Studies in Global Capital and Development |
| GST 331 | Advanced Studies in Identities and Communities |
| GST 341 | Advanced Studies in Power and Resistance |
| GST 351 | Advanced Studies in Global Media, Arts, and Cultures |
| GST 361 | Advanced Studies in Global Health and Sustainability |
| GST T280 | Special Topics in Global Studies |
| GST T380 | Special Topics in Global Studies |
| MUSC 130 | Introduction to Music |
| MUSC 331 | World Musics |
| MUSC 333 | Afro-American Music USA |
| NFS 446 | Perspectives in World Nutrition |
| PHIL 211 | Metaphysics: Philosophy of Reality |
| PHIL 231 | Aesthetics: Philosophy of Art |
| PHIL 241 | Social & Political Philosophy |
| PHIL 335 | Global Ethical Issues |
| PHIL 391 | Philosophy of Religion |
| PSCI 120 | History of Political Thought |
| PSCI 330 | Public Opinion & Propaganda |
| PSCI 335 | Political Communication |
| SOC 210 | Race, Ethnicity and Social Inequality |
| SOC 340 | Globalization |
| WGST 240 | Women and Society in a Global Context |
| WRIT 310 | Literary Editing & Publication |
| Electives | 49.0-53.0 |
| Total Credits | 91.0-95.0 |

MBA Concentrations

Business Analytics Concentration

Select three of the following:

9.0

| | |
|----------|--|
| MIS 612 | Aligning Information Systems and Business Strategies |
| MIS 630 | Inter-Active Decision Support Systems |
| MIS 632 | Database Analysis and Design for Business |
| MKTG 606 | Customer Analytics |
| MKTG 607 | Marketing Experiments |
| OPR 601 | Managerial Decision Models and Simulation |
| POM 645 | Supply Chain Analytics |
| STAT 610 | Statistics for Business Analytics |
| STAT 632 | Datamining for Managers |
| STAT 645 | Time Series Forecasting |

| | | |
|----------------------|------------------------|------------|
| STAT T680 | Special Topics in STAT | |
| Total Credits | | 9.0 |

Finance Concentration

Select three of the following: 9.0

| | |
|----------|--|
| FIN 602 | Advanced Financial Management |
| FIN 605 | Business Valuation |
| FIN 610 | Corporate Governance |
| FIN 615 | Environmental and Social Issues in Finance |
| FIN 622 | Financial Institutions & Markets |
| FIN 624 | Risk Management |
| FIN 626 | Investment Management |
| FIN 635 | Entrepreneurial Finance |
| FIN 639 | FinTech |
| FIN 645 | Behavioral Finance |
| FIN 648 | International Financial Management |
| FIN T680 | Special Topics in FIN |

Total Credits 9.0

Marketing Concentration

Select three of the following, of which two MUST be from MKTG (any course with MKTG subject code and course number between 600-699): 9.0

| | |
|---------------------|---|
| MKTG Course 600-699 | |
| BLAW T680 | Special Topics in BLAW |
| ECON 540 | Intro to Econometrics and Data Analysis |
| ECON 610 | Microeconomics |
| INTB 620 | International Business Management |
| MGMT 655 | Knowledge Management |
| MIS 624 | Systems Analysis & Design |
| MIS 632 | Database Analysis and Design for Business |
| OPR 601 | Managerial Decision Models and Simulation |
| POM 610 | Supply Chain Management I |
| STAT 634 | Quality & Six-Sigma |
| STAT 645 | Time Series Forecasting |

Total Credits 9.0

Strategic Technology & Innovation Management Concentration

Required Courses

| | | |
|----------|-----------------------|-----|
| MGMT 602 | Innovation Management | 3.0 |
| MGMT 603 | Technology Strategy | 3.0 |

Electives

Select one of the following: 3.0

| | |
|----------|---|
| ECON 650 | Business & Economic Strategy: Game Theory & Applications |
| MGMT 600 | Introduction to Change Management: An Integration of Macro and Micro Perspectives |
| MGMT 604 | Strategic Change Management |
| MGMT 640 | Strategic Human Resource Management |
| MGMT 655 | Knowledge Management |
| MGMT 676 | Sustainability and Value Creation |
| MGMT 680 | Leading for Innovation |
| MGMT 686 | Strategy Implementation |
| MGMT 690 | Change Management Experiential Capstone |
| MIS 641 | MIS Policy and Strategy |
| MIS 652 | Business Agility and IT |
| MKTG 638 | New Product Planning, Strategy, and Development |
| OPR 601 | Managerial Decision Models and Simulation |
| ORGB 602 | Leading and Executing Change |
| ORGB 640 | Negotiations for Leaders |
| STAT 645 | Time Series Forecasting |

Total Credits 9.0

Corporate Sustainability and Social Impact Concentration

| | | |
|-------------------------------|---|------------|
| Choose three of the following | | 9.0 |
| BLAW 620 | Legal Aspects of Employment | |
| FIN 610 | Corporate Governance | |
| FIN 615 | Environmental and Social Issues in Finance | |
| INDS T680 | Special Topics in Interdisciplinary Business | |
| MGMT 670 | Business Ethics | |
| MGMT 676 | Sustainability and Value Creation | |
| MKTG 654 | Corporate Brand & Reputation Management | |
| ORGB T680 | Special Topics in ORGB | |
| POM 642 | Sustainable Supply Chain Management and Logistics | |
| SMT 606 | Social Issues in Sport | |
| Total Credits | | 9.0 |

Effective Leadership Concentration

| | | |
|-------------------------------|-----------------------------------|------------|
| Choose three of the following | | 9.0 |
| MGMT 660 | Leading the Digital Supply Chain | |
| MGMT 670 | Business Ethics | |
| MGMT 676 | Sustainability and Value Creation | |
| ORGB 620 | Leading Virtual Teams | |
| ORGB 640 | Negotiations for Leaders | |
| Total Credits | | 9.0 |

Supply Chain Management & Logistics

| | | |
|-------------------------------|---|------------|
| Choose three of the following | | 9.0 |
| MGMT 660 | Leading the Digital Supply Chain | |
| MIS 624 | Systems Analysis & Design | |
| OPR 601 | Managerial Decision Models and Simulation | |
| POM 610 | Supply Chain Management I | |
| POM 615 | Supply Chain Management II | |
| POM 624 | Management of Service Firms | |
| POM 630 | Transportation & Logistics Management | |
| POM 642 | Sustainable Supply Chain Management and Logistics | |
| POM 645 | Supply Chain Analytics | |
| POM T680 | Special Topics in POM | |
| STAT 634 | Quality & Six-Sigma | |
| STAT 645 | Time Series Forecasting | |
| Total Credits | | 9.0 |

Customized Concentration

Students can self customize a concentration with coordination between their program manager and with faculty guidance. Please see your Program Manager/Academic Advisor for further information. MBA Graduate Credits include courses in Accounting (ACCT), Statistics (STAT), Economics (ECON), Finance (FIN), General Business (BUSN), Interdisciplinary Business (INDS), International Business (INTB), Legal Studies (BLAW), Management (MGMT), Management Information Systems (MIS), Marketing (MKTG), Operations Research (OPR), Organizational Behavior (ORGB), Production Operations Management (POM), Sport Management (SMT) or Taxation (TAX), with a course number range between 500-799 or other approved course at the graduate level.

Total Credits 9.0

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

4+1, 1 co-op (Accelerated program completed in 5 years)

Students complete undergraduate requirements in four years, then convert to graduate status in the fifth and final year.

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|----------------------|--------------------------|----------------------|----------------|----------|
| ENGL 101 | 3.0 ENGL 102 | 3.0 CIVC 101 | 1.0 VACATION | |
| GST 101 | 4.0 GST 102 | 4.0 ENGL 103 | 3.0 | |
| UNIV H101 | 1.0 MATH 102 | 4.0 PSCI 150 | 4.0 | |
| MATH 101 | 4.0 (UG) Language course | 4.0 Free elective | 3.0 | |
| (UG) Language course | 4.0 | (UG) Language course | 4.0 | |
| | 16 | 15 | 15 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--------------------------------|--|----------------------------------|----------------------------------|-----------|
| COOP 101* | 1.0 ECON 202 | 4.0 (UG) Language course | 4.0 (UG) Language course | 3.0 |
| ECON 201 | 4.0 (UG) GST Concentration Requirement | 3.0 (UG) GST Distribution option | 4.0 (UG) GST Distribution option | 4.0 |
| (UG) Language course | 4.0 (UG) Distribution Option | 3.0 (UG) GST 200+ | 4.0 (UG) Free electives | 6.0 |
| (UG) Concentration Requirement | 3.0 (UG) Language course | 4.0 (UG) Free electives | 3.0 | |
| (UG) Free elective | 3.0 (UG) Free elective | 3.0 | | |
| | 15 | 17 | 15 | 13 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--------------------------------|------------------------------------|---------------------|-----------------|----------|
| (UG) Language course | 4.0 (UG) Language course | 4.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| (UG) GST Distribution Option | 3.0 (UG) GST 200+ | 4.0 | | |
| (UG) Concentration Requirement | 3.0 (UG) Distribution Option | 4.0 | | |
| (UG) Free electives | 6.0 (UG) Concentration Requirement | 3.0 | | |
| | (UG) Free elective | 3.0 | | |
| | 16 | 18 | 0 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|------------------------------|--|------------------------------------|-------------------------------------|----------|
| UNIV H201 | 1.0 GST 400 | 4.0 (UG) GST Distribution option | 3.0 Undergrad degree awarded | |
| (UG) GST Distribution option | 3.0 (UG) Distribution option | 3.0 (UG) Concentration Requirement | 3.0 Student converts to Grad status | |
| (UG) Language course | 4.0 (UG) GST Concentration requirement | 3.0 (UG) Free electives | 6.0 | |
| (UG) Free elective | 3.0 (UG) Free elective | 3.0 ECON 601 | 3.0 | |
| (UG) GST 200+ | 4.0 BSAN 601 | 3.0 | | |
| ACCT 510 | 2.0 | | | |
| | 17 | 16 | 15 | 0 |

Fifth Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|----------|------------------------------------|------------------------------------|------------------------------------|-----------|
| MGMT 530 | 2.0 BLAW 510 | 2.0 MGMT 520 | 2.0 MGMT 770 | 2.0 |
| MKTG 510 | 2.0 FIN 601 | 3.0 (GR) Concentration Requirement | 6.0 (GR) Concentration Requirement | 3.0 |
| ORGB 511 | 3.0 (GR) Concentration Requirement | 3.0 (GR) Elective | 2.0 (GR) Elective | 3.0 |
| POM 510 | 2.0 (GR) Free Elective | 3.0 | (GR) Experiential Elective | 3.0 |
| | 9 | 11 | 10 | 11 |

Total Credits 229

* Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Global Studies BA / Strategic & Digital Communication MS

Major: Global Studies and Strategic and Digital Communication

Degree Awarded: Bachelor of Arts (BA) and Master of Science (MS)

Calendar Type: Quarter

Minimum Required Credits: 225.0

Co-op Options: One Co-op (Five years)

BA Classification of Instructional Programs (CIP) code: 30.2001

BA Standard Occupational Classification (SOC) code: 19-3094

MS Classification of Instructional Programs (CIP) code: 09.0909

BAMS Standard Occupational Classification (SOC) code: 11-2011

About the Program

The accelerated BA in Global Studies provides students with an interdisciplinary, intercultural, and interactive program with four concentrations: media, arts and cultures; justice and human rights; business, economics, and development; and health and sustainability. Global Studies students develop the critical skills to understand global political, social, and economic trends, while the MS in Strategic and Digital Communication addition will further deepen students' practical and professional experience in the communications field.

Drexel University is committed to building a strong foundation through the accelerated Global Studies/Communication degree, which enables academically qualified students to earn both a bachelor's and master's degree—graduating sooner than they would in traditional programs. Graduates of the accelerated degree enter the workforce one year sooner with the benefits of a Master's degree in Strategic and Digital Communication, using the year saved to gain full-time experience and earn a salary in the field.

Drexel's Master of Science in Strategic and Digital Communication requires 45.0 credits, and prepares students for careers in a wide range of professional activities relating to communication in both media environments and communication contexts that are characterized by advanced digitization.

With a robust core curriculum consisting of seven courses (21.0 credits), the program provides a strong foundation in theoretical approaches to communication, ethics and media/communication policy. This theoretical basis is designed to ensure that, as the field changes, students will continue to have an intellectual framework for evaluating and implementing new technology and changing media environments. Furthermore, the program trains students in leadership skills that will help them to lead teams to be innovative communication professionals in digitized media environments and different organizational communication contexts.

The program emphasizes flexibility, encouraging each student, in consultation with a faculty advisor, to craft an individual course of study tailored to the student's individual interests and career goals. Throughout the curriculum students use four Communication electives (12.0 credits) to increase communication skills or to further develop areas of specialization. An additional four free elective courses (12.0 credits) can be taken in Communication or in other departments across the university. This allows students to continue to tailor their plan of study, to add on a graduate minor, or to complete a certificate program.

The program specializes in two areas:

- Strategic Communication (public relations)
- Digital and Social Media Communication

Strategic Communication

Strategic Communication has much to offer for those looking to work in public relations as well as for-profit and nonprofit organizations. Students typically choose from courses such as PR Writing and Planning courses, Crisis Communication, Media Relations, Nonprofit Communication, and others.

Digital Communication

With Communication being an area characterized by ongoing digitization, the program offers courses such as Strategic Social Media Communication, Digital Publishing, Digital Media Environments, Social Media Concepts That Matter, and others.

Additional Information

For more information, visit the MS in Strategic and Digital Communication webpage (<https://drexel.edu/coas/academics/graduate-programs/communication/>).

Contact Julia May, Director of the MS in Strategic and Digital Communication program, at julia.may@drexel.edu for more information.

Admission Requirements

Both incoming freshmen and current GST students are eligible to apply for this program. Students who are already matriculated may apply after completing a minimum of 90.0 credits but no more than 120.0 credits. Applicants must have a minimum 3.0 GPA and maintain this GPA throughout the program.

In addition to formally applying, **already matriculated applicants** must provide:

- The name of two faculty references who can speak to the applicant's academic qualifications and preparedness for graduate studies.
- A writing sample consisting of a written response to a series of questions about the applicant's interest in the program.
- A brief 2-3-minute video in which the applicant introduces himself/herself to the admissions committee and discusses their career goals.

Applicants who already received preliminary acceptance in the accelerated degree program as freshmen should finish the application process after completing a minimum of 90.0 undergraduate credits but no more than 120.0 credits with a GPA of 3.0. Students accepted as **incoming freshmen** need to submit:

- The name of one faculty reference who can speak to the applicant's academic qualifications and preparedness for graduate studies. The admissions committee might request the name of a second reference as needed.
- A writing sample consisting of a written response to a series of questions about the applicant's interest in the program.

Applications are due by the end of week 6 for a program start in the following quarter. Example: If you intend to start the program in the Winter quarter, your application is due by the end of week 6 in the Fall quarter. Please reach out to the program director, Dr. Julia May, as soon as you decide to apply so we can assist you throughout the application process.

Additional Information

Contact Julia May, Director of the MS in Strategic and Digital Communication program, at julia.may@drexel.edu for more information.

Degree Requirements

| | | |
|--|---|---------|
| CIVC 101 | Introduction to Civic Engagement | 1.0 |
| COOP 101 | Career Management and Professional Development * | 1.0 |
| ECON 201 | Principles of Microeconomics | 4.0 |
| ECON 202 | Principles of Macroeconomics | 4.0 |
| ENGL 101 | Composition and Rhetoric I: Inquiry and Exploratory Research | 3.0 |
| or ENGL 111 | English Composition I | |
| ENGL 102 | Composition and Rhetoric II: Advanced Research and Evidence-Based Writing | 3.0 |
| or ENGL 112 | English Composition II | |
| ENGL 103 | Composition and Rhetoric III: Themes and Genres | 3.0 |
| or ENGL 113 | English Composition III | |
| PSCI 150 | International Politics | 4.0 |
| UNIV H101 | The Drexel Experience | 1.0 |
| UNIV H201 | Looking Forward: Academics and Careers | 1.0 |
| Two mathematics (MATH 100-499) courses | | 6.0-8.0 |
| Two science courses: BIO, CHEM, ENSS, ENVS, FDSC, GEO, NFS, PHEV, PHYS (100-499) | | 6.0-8.0 |

Global Studies Core Requirements

| | | |
|------------------------------|--|------|
| GST 101 | Becoming Global: Language and Cultural Context | 4.0 |
| GST 102 | Understanding Global: Markets and Governance | 4.0 |
| Three 200+ level GST courses | | 12.0 |
| GST 400 | Senior Project in Global Studies | 4.0 |

Language minor in Spanish, French, or Japanese, or minor in Asian Studies, or Middle East and North Africa Studies **24.0**

Students must complete at least 24.0 credits above the 103 language level to earn a language minor. Language courses could count towards free electives in some instances; consult with an advisor.

Concentration (Select one) 91.0-95.0 credits

See additional concentration options below

Global Health and Sustainability Concentration Requirements

| | | |
|------------|-------------------------------------|-----|
| PBHL 101 | Public Health 101 | 3.0 |
| PBHL 303 | Overview of Issues in Global Health | 3.0 |
| PSCI 334 | Politics of Environment and Health | 4.0 |
| or SOC 346 | Environmental Justice | |
| SOC 244 | Sociology of the Environment | 4.0 |
| or SOC 340 | Globalization | |

Choose one of the following Ethics courses **3.0**

| | | |
|----------|----------------------|--|
| PBHL 309 | Public Health Ethics | |
|----------|----------------------|--|

| | | |
|--|--|-------------|
| PHIL 321 | Biomedical Ethics | |
| PHIL 340 | Environmental Ethics | |
| Choose one of the following English courses | | 3.0 |
| ENGL 300 [WI] | Literature & Science | |
| ENGL 302 | Environmental Literature | |
| ENGL 370 | Topics in Literature and Medicine | |
| Global Health and Sustainability Distribution Options | | 24.0 |
| Students must complete 24.0 credits from the approved list: | | |
| BIO 109 | Biological Diversity, Ecology & Evolution | |
| BIO 264 | Ethnobotany | |
| CJS 373 | Environmental Crime | |
| COM 316 | Campaigns for Health & Environment | |
| COM 317 [WI] | Environmental Communication | |
| COM 320 [WI] | Science Writing | |
| COM 375 [WI] | Grant Writing | |
| CULA 426 | The Kitchen Garden: Summer | |
| CULA 427 | The Kitchen Garden: Fall | |
| ECON 301 | Microeconomics | |
| ECON 321 | Macroeconomics | |
| ECON 351 | Resource and Environmental Economics | |
| ENGL 300 [WI] | Literature & Science | |
| ENGL 302 | Environmental Literature | |
| ENGL 370 | Topics in Literature and Medicine | |
| ENSS 285 | Introduction to Urban Planning | |
| ENSS 326 | Cities and Sustainability | |
| ENTP 390 | Energy Entrepreneurship | |
| ENVS 169 | Environmental Science | |
| ENVS 247 | Native Plants and Sustainability | |
| ENVS 275 | Global Climate Change | |
| ENVS 289 | Global Warming, Biodiversity and Your Future | |
| ENVS 328 | Conservation Biology | |
| GST 221 | Introduction to Global Capital and Development | |
| GST 231 | Introduction to Identities and Communities | |
| GST 241 | Introduction to Power and Resistance | |
| GST 251 | Introduction to Global Media, Arts, and Cultures | |
| GST 261 | Introduction to Global Health and Sustainability | |
| GST 321 | Advanced Studies in Global Capital and Development | |
| GST 331 | Advanced Studies in Identities and Communities | |
| GST 341 | Advanced Studies in Power and Resistance | |
| GST 351 | Advanced Studies in Global Media, Arts, and Cultures | |
| GST 361 | Advanced Studies in Global Health and Sustainability | |
| GST T280 | Special Topics in Global Studies | |
| GST T380 | Special Topics in Global Studies | |
| HIST 287 | History of Science: Ancient to Medieval | |
| HIST 288 | History of Science: Medieval to Enlightenment | |
| HIST 289 | History of Science: Enlightenment to Modernity | |
| HIST 321 | Themes in Global Environmental History | |
| HIST 322 | Empire and Environment | |
| HIST 385 | Transnational History of Science, Technology and Environment | |
| HSAD 312 | Development of World Health Care | |
| HSAD 316 | Health Care across Cultures | |
| NFS 345 | Foods and Nutrition of World Cultures | |
| NFS 446 | Perspectives in World Nutrition | |
| PBHL 301 | Epidemiology in Public Health | |
| PBHL 302 | Introduction to the History of Public Health | |
| PBHL 304 | Introduction to Health & Human Rights | |
| PBHL 305 | Women and Children: Health & Society | |
| PBHL 306 | Introduction to Community Health | |
| PBHL 317 | The World's Water | |
| PBHL 320 | Exploring the HIV/AIDS Pandemic | |
| PBHL 321 | Disease Outbreak Investigations | |
| PBHL 333 | Health Inequality | |

| | |
|----------|---|
| PBHL 457 | Adapting to a Hotter Climate: Protecting Health of Vulnerable Populations |
| PHIL 321 | Biomedical Ethics |
| PHIL 335 | Global Ethical Issues |
| PHIL 340 | Environmental Ethics |
| PHIL 341 | Environmental Philosophy |
| PHIL 351 | Philosophy of Technology |
| PHIL 361 | Philosophy of Science |
| PSCI 252 | Global Governance |
| PSCI 284 | Environmental Politics |
| PSCI 305 | Social Development: A Global Approach |
| PSCI 334 | Politics of Environment and Health |
| PSCI 336 | Political Economy of Climate Change |
| PSCI 338 | Cities and Climate Change |
| PSCI 351 | The United Nations in World Politics |
| PSCI 352 | Ethics and International Relations |
| PSCI 353 | International Human Rights |
| PSY 352 | Psychology of Sustainability |
| SCTS 202 | Innovation and Social Justice |
| SOC 313 | Sociology of Global Health |
| SOC 330 | Development and Underdevelopment in the Global South |
| SOC 340 | Globalization |
| WGST 275 | Women's Health and Human Rights |
| WGST 240 | Women and Society in a Global Context |

Free electives

51.0-47.0

MS Strategic & Digital Communication**Required Core Courses**

| | | |
|---------|---|-----|
| COM 500 | Reading & Research in Communication | 3.0 |
| COM 574 | Organizational Communication in Project Management | 3.0 |
| COM 610 | Theories of Communication and Persuasion | 3.0 |
| COM 613 | Ethics for Professional Communication | 3.0 |
| COM 615 | Media Environments in a Digital World | 3.0 |
| COM 651 | Media and Communication Policy in a Digitized World | 3.0 |
| COM 698 | Managing Communication Professional Identities in a Digital Age | 3.0 |

Program Electives**12.0**

Choose four of the following courses:

| | |
|---------|--|
| COM 516 | Campaigns for Health and Environment |
| COM 518 | Communicating Health and Risk in a 'Fake News' World |
| COM 520 | Science Writing |
| COM 525 | Document Design and Usability |
| COM 533 | Modern Desktop Publishing |
| COM 535 | Digital Publishing |
| COM 536 | Strategic Social Media Communication |
| COM 538 | Copy Editing |
| COM 541 | Foundations of Public Relations |
| COM 542 | Public Relations Writing |
| COM 543 | Public Relations Planning |
| COM 544 | Media Relations in a Digital Age |
| COM 545 | Crisis Communication |
| COM 551 | Creative Content Production |
| COM 561 | Fundamentals of Journalism & Newswriting |
| COM 562 | International Negotiations |
| COM 563 | Event Planning |
| COM 570 | Technical, Science and Health Editing |
| COM 575 | Grant Writing |
| COM 576 | Nonprofit Communications |
| COM 577 | Communication for Civic Engagement |
| COM 578 | Focus Groups |
| COM 586 | Strategic International Communication |
| COM 600 | Graduate Seminar in Communication |
| COM 614 | Social Media Concepts that Matter |
| COM 660 | Investigative Journalism |
| COM 670 | Medical Writing |

| | | |
|------------------------------|---------------------------------|--------------|
| COM 673 | Medical Journalism | |
| COM I599 | Independent Study in COM | |
| COM I699 | Independent Study in COM | |
| COM T580 | Special Topics in Communication | |
| COM T680 | Special Topics in Communication | |
| Graduate Electives ** | | 12.0 |
| Total Credits | | 225.0 |

Concentration Options

Global Media, Arts, and Cultures Concentration

| | | |
|--|--------------------------------------|-------------|
| Media, Arts, and Cultures Distribution Requirements | | |
| ANTH 330 | Media Anthropology | 3.0 |
| ENGL 325 | Topics in World Literature | 3.0 |
| LING 102 | Language and Society | 3.0 |
| or ENGL 323 | Literature and Other Arts | |
| PHIL 305 | Ethics and the Media | 3.0 |
| WEST 100 | Introduction to Digital Design Tools | 3.0 |
| Select one of the following: | | 3.0 |
| ARTH 301 | Asian Art and Culture | |
| ARTH 302 | Art of India | |
| ARTH 303 | Art of China | |
| ARTH 312 | Nineteenth Century Art | |
| ARTH 313 | 20th Century Art | |
| ARTH 314 | Contemporary Art | |
| ARTH 315 | African-American Art | |
| ARTH 316 | African Art | |
| ARTH 318 | Latin American Art | |
| Media, Arts, and Cultures Distribution Options | | 24.0 |

Students must complete at least 24.0 distribution credits from the approved list

| | | |
|---------------|--|--|
| ANTH 375 | Digital Ethnography | |
| ARCH 141 | Architecture and Society I | |
| COM 200 | Current Events in Media and Communication | |
| ARTH 331 [WI] | Global Material Culture | |
| COM 210 | Theory and Models of Communication | |
| COM 246 | Media and Identity | |
| COM 250 | Diversity in Media | |
| COM 342 | English Worldwide | |
| COM 345 | Intercultural Communication | |
| COM 355 | Ethnography of Communication | |
| COM 360 | Strategic International Communication | |
| COM 375 [WI] | Grant Writing | |
| COM 376 | Nonprofit Communication | |
| COM 377 | Communication for Civic Engagement | |
| COM 385 | Media Effects | |
| CULA 405 [WI] | Culture and Gastronomy I | |
| ENGL 200 [WI] | Classical to Medieval Literature | |
| ENGL 201 | Renaissance to the Enlightenment | |
| ENGL 203 [WI] | Survey of World Literature | |
| ENGL 204 | Post-Colonial Literature | |
| ENGL 300 [WI] | Literature & Science | |
| ENGL 323 | Literature and Other Arts | |
| ENGL 325 | Topics in World Literature | |
| ENGL 335 | Mythology | |
| ENGL 360 [WI] | Literature and Society | |
| FMST T280 | Special Topics in Film Studies | |
| GST 221 | Introduction to Global Capital and Development | |
| GST 231 | Introduction to Identities and Communities | |
| GST 241 | Introduction to Power and Resistance | |
| GST 251 | Introduction to Global Media, Arts, and Cultures | |
| GST 261 | Introduction to Global Health and Sustainability | |
| GST 321 | Advanced Studies in Global Capital and Development | |

| | |
|----------|--|
| GST 331 | Advanced Studies in Identities and Communities |
| GST 341 | Advanced Studies in Power and Resistance |
| GST 351 | Advanced Studies in Global Media, Arts, and Cultures |
| GST T280 | Special Topics in Global Studies |
| GST T380 | Special Topics in Global Studies |
| MUSC 130 | Introduction to Music |
| MUSC 331 | World Musics |
| MUSC 333 | Afro-American Music USA |
| NFS 446 | Perspectives in World Nutrition |
| PHIL 211 | Metaphysics: Philosophy of Reality |
| PHIL 231 | Aesthetics: Philosophy of Art |
| PHIL 241 | Social & Political Philosophy |
| PHIL 335 | Global Ethical Issues |
| PHIL 391 | Philosophy of Religion |
| PSCI 120 | History of Political Thought |
| PSCI 330 | Public Opinion & Propaganda |
| PSCI 335 | Political Communication |
| SOC 210 | Race, Ethnicity and Social Inequality |
| SOC 340 | Globalization |

Electives**53.0-49.0****Global Business, Economics, and Development Concentration**

| | | |
|---------------|---------------------------------|-----|
| BLAW 340 | International Business Law | 4.0 |
| ECON 342 | Economic Development | 4.0 |
| ENGL 308 [WI] | The Literature of Business | 3.0 |
| PHIL 301 | Business Ethics | 3.0 |
| PSCI 255 | International Political Economy | 4.0 |

Select one of the following:**4.0**

| | |
|----------|---------------------------------|
| INTB 332 | Multinational Corporations |
| INTB 334 | International Trade |
| INTB 336 | International Money and Finance |

Global Business, Economics, and Development Distribution Options**24.0**

Students must complete at least 24.0 distribution credits from the approved list

| | |
|---------------|--|
| COM 270 [WI] | Business Communication |
| COM 345 | Intercultural Communication |
| COM 360 | Strategic International Communication |
| COM 362 | International Negotiations |
| COM 375 [WI] | Grant Writing |
| ECON 270 | Using Big Data to Solve Economic and Social Problems |
| ECON 301 | Microeconomics |
| ECON 321 | Macroeconomics |
| ECON 326 [WI] | Economic Ideas |
| ECON 331 | International Macroeconomics |
| ECON 351 | Resource and Environmental Economics |
| ENGL 325 | Topics in World Literature |
| ENGL 360 [WI] | Literature and Society |
| ENTP 270 | Social Entrepreneurship |
| ENTP 370 | Global Entrepreneurship |
| ENTP 390 | Energy Entrepreneurship |
| FIN 301 | Introduction to Finance |
| FIN 346 | Global Financial Management |
| GST 221 | Introduction to Global Capital and Development |
| GST 241 | Introduction to Power and Resistance |
| GST 251 | Introduction to Global Media, Arts, and Cultures |
| GST 261 | Introduction to Global Health and Sustainability |
| GST 321 | Advanced Studies in Global Capital and Development |
| GST 331 | Advanced Studies in Identities and Communities |
| GST 341 | Advanced Studies in Power and Resistance |
| GST 351 | Advanced Studies in Global Media, Arts, and Cultures |
| GST 361 | Advanced Studies in Global Health and Sustainability |
| GST T280 | Special Topics in Global Studies |
| GST T380 | Special Topics in Global Studies |
| HIST 315 | History of Capitalism |

| | | |
|--|--|------------------|
| INTB 332 | Multinational Corporations | |
| INTB 334 | International Trade | |
| INTB 336 | International Money and Finance | |
| INTB 338 | Regional Studies in Economic Policies and International Business | |
| MGMT 370 | For-Profit Business Consulting | |
| MGMT 371 | Nonprofit Business Consulting | |
| MGMT 380 | International Business Consulting | |
| MKTG 201 | Introduction to Marketing Management | |
| MKTG 322 | Advertising & Integrated Marketing Communications | |
| MKTG 351 | Marketing for Non-Profit Organizations | |
| PSCI 336 | Political Economy of Climate Change | |
| PSCI 351 | The United Nations in World Politics | |
| PSCI 352 | Ethics and International Relations | |
| SOC 220 | Wealth and Power | |
| SOC 330 | Development and Underdevelopment in the Global South | |
| SOC 340 | Globalization | |
| SOC 355 [WI] | Classical Social Theory | |
| SOC 410 | Imagining Multiple Democracies | |
| STAT 201 | Introduction to Business Statistics | |
| STAT 201 | Introduction to Business Statistics | |
| STAT 202 | Business Statistics II | |
| WGST 240 | Women and Society in a Global Context | |
| Electives | | 49.0-45.0 |
| Global Justice and Human Rights Concentration Requirements | | |
| ENGL 360 [WI] | Literature and Society | 3.0 |
| PHIL 335 | Global Ethical Issues | 3.0-4.0 |
| or PSCI 352 | Ethics and International Relations | |
| PSCI 120 | History of Political Thought | 4.0 |
| or PSCI 229 | Theories of Justice | |
| PSCI 351 | The United Nations in World Politics | 4.0 |
| PSCI 353 | International Human Rights | 4.0 |
| SOC 330 | Development and Underdevelopment in the Global South | 4.0 |
| or SOC 340 | Globalization | |
| Global Justice and Human Rights Distribution Options | | 24.0 |
| Students must complete at least 24.0 distribution credits from the approved list | | |
| AFAS T280 | Special Topics in Africana Studies | |
| CJS 210 | Race, Crime, and Justice | |
| CJS 260 | Justice in Our Community | |
| CJS 261 | Prison, Society and You | |
| CJS 262 | Places of Justice | |
| CJS 289 | Terrorism | |
| CJS 320 | Comparative Justice Systems | |
| COM 360 | Strategic International Communication | |
| COM 361 | International Public Relations | |
| COM 375 [WI] | Grant Writing | |
| CULA 426 | The Kitchen Garden: Summer | |
| or CULA 427 | The Kitchen Garden: Fall | |
| ECON 301 | Microeconomics | |
| ECON 321 | Macroeconomics | |
| ECON 342 | Economic Development | |
| ECON 351 | Resource and Environmental Economics | |
| ENGL 325 | Topics in World Literature | |
| GST 221 | Introduction to Global Capital and Development | |
| GST 231 | Introduction to Identities and Communities | |
| GST 241 | Introduction to Power and Resistance | |
| GST 251 | Introduction to Global Media, Arts, and Cultures | |
| GST 261 | Introduction to Global Health and Sustainability | |
| GST 321 | Advanced Studies in Global Capital and Development | |
| GST 331 | Advanced Studies in Identities and Communities | |
| GST 341 | Advanced Studies in Power and Resistance | |
| GST 351 | Advanced Studies in Global Media, Arts, and Cultures | |
| GST 361 | Advanced Studies in Global Health and Sustainability | |

| | |
|---------------|---|
| GST T280 | Special Topics in Global Studies |
| GST T380 | Special Topics in Global Studies |
| HIST 385 | Transnational History of Science, Technology and Environment |
| LAW 304 | Comparative Legal Institutions |
| LAW 312 | Immigration Law |
| PBHL 303 | Overview of Issues in Global Health |
| PBHL 304 | Introduction to Health & Human Rights |
| PHIL 241 | Social & Political Philosophy |
| PHIL 335 | Global Ethical Issues |
| PHIL 341 | Environmental Philosophy |
| PHIL 385 | Philosophy of Law |
| PHIL 391 | Philosophy of Religion |
| PSCI 229 | Theories of Justice |
| PSCI 240 | Comparative Politics II |
| PSCI 250 | American Foreign Policy |
| PSCI 252 | Global Governance |
| PSCI 255 | International Political Economy |
| PSCI 260 [WI] | Power in Protest: Social Movements in Comparative Perspective |
| PSCI 305 | Social Development: A Global Approach |
| PSCI 310 | Civilians in Armed Conflict |
| PSCI 351 | The United Nations in World Politics |
| PSCI 352 | Ethics and International Relations |
| PSCI 361 | The Politics of LGBT Movements and Rights |
| SCTS 202 | Innovation and Social Justice |
| SOC 210 | Race, Ethnicity and Social Inequality |
| SOC 220 | Wealth and Power |
| SOC 340 | Globalization |
| SOC 346 | Environmental Justice |
| SOC 355 [WI] | Classical Social Theory |
| SOC 444 | Social Movements |
| WGST 240 | Women and Society in a Global Context |
| WGST T280 | Special Topics in Women's and Gender Studies |

Electives**44.0-49.0**

- * Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major. COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.
- ** Students can select up to 12.0 credits of graduate-level electives (500-799) in the following subject areas: AADM, AAML, ACCT, BUSN, CCM, CHP, COM, CRTV, CW, DIGM, ECON, EDAM, EDHE, EDLT, EDUC, ENTP, ENVP, ENVS, EOH, HMP, HRM, LING, MGMT, MKTG, MUSL, NPM, ORGB, PBHL, PLCY, PROJ, PRST, RMER, SCRIP, SCTS, SMT, TVMN. Other graduate courses outside these areas might be taken pending approval from the graduate advisor or program director.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

4+1, 1 co-op (Accelerated program completed in 5 years)

Students complete undergraduate requirements in four years, then convert to graduate status in the fifth and final year.

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--------------------|------------------------|----------------------------|-----------------------|----------------|
| ENGL 101 or 111 | 3.0 ENGL 102 or 112 | 3.0 CIVC 101 | 1.0 VACATION | |
| GST 101 | 4.0 GST 102 | 4.0 ENGL 103 or 113 | 3.0 | |
| UNIV H101 | 1.0 (UG) Language* | 4.0 PSCI 150 | 4.0 | |
| (UG) Language* | 4.0 (UG) MATH Course 2 | 3.0-4.0 (UG) Free elective | 3.0 | |
| (UG) MATH Course 1 | 3.0-4.0 | (UG) Language* | 4.0 | |
| | 15-16 | 14-15 | 15 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|------------------------------------|--|--|--|----------------|
| COOP 101** | 1.0 (UG) Free Elective | 4.0 ECON 201 | 4.0 ECON 202 | 4.0 |
| (UG) Free Electives | 6.0 (UG) GST Concentration Requirement | 3.0 (UG) Free elective | 3.0 (UG) Free Elective | 6.0 |
| (UG) GST Concentration Requirement | 3.0 (UG) GST Distribution Options | 6.0 (UG) GST 200+ Level Course | 4.0 (UG) GST Concentration Requirement | 3.0 |
| (UG) GST Distribution Option | 3.0 (UG) Language* | 4.0 (UG) GST Concentration Requirement | 3.0 (UG) GST Distribution Option | 3.0 |
| (UG) Language* | 4.0 | (UG) Language* | 4.0 | |
| | 17 | 17 | 18 | 16 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-------------------------------|--|-----------------------|-----------------------|----------------|
| (UG) GST 200+ Level Course | 4.0 (UG) Free Elective | 4.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| (UG) GST Distribution Options | 7.0 (UG) GST Concentration Requirement | 4.0 | COM 574 | 3.0 |
| (UG) Language* | 4.0 (UG) GST Distribution Option | 3.0 | | |
| COM 500 | 3.0 (UG) Language* | 4.0 | | |
| | COM 610 | 3.0 | | |
| | 18 | 18 | 0 | 3 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|------------------------------------|-------------------------------|----------------------------------|---|----------------|
| UNIV H201 | 1.0 GST 400 | 4.0 (UG) Free Electives | 9.0 Student converts to Graduate status | |
| (UG) GST 200+ Level Course | 4.0 (UG) Free Electives | 9.0 (UG) GST Distribution Option | 3.0 | |
| (UG) GST Concentration Requirement | 4.0 COM 651 | 3.0 COM 615 | 3.0 | |
| (UG) Language Course | 4.0 (GR) SDC Program Elective | 3.0 (GR) SDC Program Elective | 3.0 | |
| COM 613 | 3.0 | | | |
| | 16 | 19 | 18 | 0 |

Fifth Year

| Fall | Credits Winter | Credits Spring | Credits |
|---------------------------|-------------------------------|----------------------------|----------------|
| (GR) Graduate Electives | 6.0 (GR) Graduate Elective | 3.0 COM 698 | 3.0 |
| (GR) SDC Program Elective | 3.0 (GR) SDC Program Elective | 3.0 (GR) Graduate Elective | 3.0 |
| | 9 | 6 | 6 |

Total Credits 225-227

* Language minor in French, Spanish or Japanese, or minor in Asian Studies, or Middle East and North Africa Studies.

** Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Mathematics BA / Biostatistics MS

Major: Mathematics (BA) / Biostatistics (MS)

Degree Awarded: Bachelor of Arts (BA) and Master of Science (MS)

Calendar Type: Quarter

Minimum Required Credits: 229.0

Co-op Options: One Co-op (Five years); No Co-op (Five years);

BA Classification of Instructional Programs (CIP) code: 27.0101

BA Standard Occupational Classification (SOC) code: 11-9121

MS Classification of Instructional Programs (CIP) code: 26.1102

MS Standard Occupational Classification (SOC) code: 11-9121

About the Program

The College of Arts and Sciences and the Dornsife School of Public Health offer an accelerated Bachelor of Arts in Mathematics and Master of Science in Biostatistics. Participants can earn both a BA degree in Mathematics and a MS degree in Biostatistics in five years.

In this accelerated degree program, students participate in the undergraduate program for four full years (with or without one co-operative experience). After two years of undergraduate study, students begin their graduate studies in the Master of Science in Biostatistics program. The third and fourth year are a mix of undergraduate and graduate courses. After the successful completion of their fourth year, students receive their BA. When students successfully complete the remainder of their graduate studies (typically two graduate quarters), they will receive the MS degree.

Students in the Master of Science in Biostatistics program complete 48.0 graduate quarter credits to meet the requirements of the master's program.

Admission Requirements

Application to the BAMS program begins after a student has completed at least 90 credits and no more than 120 credits. A freshman student can be designated as a BAMS Provisional Admit but is not officially accepted into the BAMS program until the student completes at least 90 credits and meets the admissions criteria.

Acceptance to the Drexel MS in Biostatistics is conditional upon a 3.0 overall undergraduate GPA, a 3.5 GPA in math, and a minimum grade of B in Linear Algebra and Calculus courses. Applicants who meet the GPA and grade criteria will be evaluated by the MS in Biostatistics admissions committee in order to be considered for admission.

Students must verify their intent to continue or enroll in the accelerated program with their advisor by the end of the spring term of year one. Students must submit a SOPHAS Express application to the graduate Master of Science in Biostatistics program during their third year.

All students will follow the same application procedures as other applicants. Any student who does not meet the entrance requirements of the graduate program will be able to complete the fourth year of the Mathematics undergraduate program and receive a BA degree.

Degree Requirements

General Education Requirements

| | | |
|-------------|---|-----|
| CIVC 101 | Introduction to Civic Engagement | 1.0 |
| COM 230 | Techniques of Speaking | 3.0 |
| COOP 101 | Career Management and Professional Development * | 1.0 |
| ENGL 101 | Composition and Rhetoric I: Inquiry and Exploratory Research | 3.0 |
| or ENGL 111 | English Composition I | |
| ENGL 102 | Composition and Rhetoric II: Advanced Research and Evidence-Based Writing | 3.0 |
| or ENGL 112 | English Composition II | |
| ENGL 103 | Composition and Rhetoric III: Themes and Genres | 3.0 |
| or ENGL 113 | English Composition III | |
| UNIV S101 | The Drexel Experience | 1.0 |
| UNIV S201 | Looking Forward: Academics and Careers | 1.0 |

Computer Science Sequence

| | | |
|-----------|----------------------------------|-----|
| CS 150 | Computer Science Principles | 3.0 |
| or CS 164 | Introduction to Computer Science | |
| CS 171 | Computer Programming I | 3.0 |
| CS 172 | Computer Programming II | 3.0 |

Core Mathematics Requirements

| | | |
|---------------|--|-----|
| MATH 121 | Calculus I ** | 4.0 |
| MATH 122 | Calculus II | 4.0 |
| MATH 123 | Calculus III | 4.0 |
| MATH 200 | Multivariate Calculus | 4.0 |
| MATH 201 | Linear Algebra | 4.0 |
| MATH 210 | Differential Equations | 4.0 |
| MATH 220 [WI] | Introduction to Mathematical Reasoning | 3.0 |

| | | |
|--|---|--------------------|
| MATH 331 | Abstract Algebra I *** | 3.0-4.0 |
| or MATH 401 | Elements of Modern Analysis I | |
| Math Major Electives | | 30.0 |
| Select a minimum of 30.0 credits from the following: | | |
| MATH 205 | Survey of Geometry | |
| MATH 221 | Discrete Mathematics | |
| MATH 222 [WI] | Combinatorics | |
| MATH 235 | Math Competition Problem Solving Seminar | |
| MATH 238 | History of Mathematics | |
| MATH 250 | Mathematics of Investment and Credit | |
| MATH 285 | Differential Equations II | |
| MATH 300 | Numerical Analysis I | |
| MATH 301 | Numerical Analysis II | |
| MATH 305 | Introduction to Optimization Theory | |
| MATH 311 | Probability and Statistics I | |
| MATH 312 | Probability and Statistics II | |
| MATH 313 | Probability and Statistics III | |
| MATH 316 | Mathematical Applications of Symbolic Software | |
| MATH 318 [WI] | Mathematical Applications of Statistical Software | |
| MATH 319 | Techniques of Data Analysis | |
| MATH 320 | Actuarial Mathematics | |
| MATH 321 | Vector Calculus | |
| MATH 322 | Complex Variables | |
| MATH 323 | Partial Differential Equations | |
| MATH 332 | Abstract Algebra II | |
| MATH 387 | Linear Algebra II | |
| MATH 401 | Elements of Modern Analysis I *** | |
| or MATH 331 | Abstract Algebra I | |
| MATH 402 | Elements of Modern Analysis II | |
| MATH 422 | Introduction to Topology | |
| MATH 449 | Mathematical Finance | |
| MATH 450 | Introduction to Graph Theory | |
| MATH 475 | Cryptography | |
| MATH 483 | Introduction to Monte Carlo Methods | |
| MATH 489 | Tensor Calculus | |
| Undergraduate Electives | | |
| Free Electives | | 66.0 |
| Humanities and Fine Arts Electives † | | 6.0 |
| International Studies Electives | | 6.0 |
| Science Electives †† | | 6.0 |
| Social and Behavioral Sciences Electives ‡ | | 6.0 |
| Studies in Diversity Electives | | 6.0 |
| Required MS Biostatistics Courses | | |
| BST 551 | Statistical Inference I | 3.0 |
| BST 553 | Longitudinal Data Analysis | 3.0 |
| BST 555 | Introduction to Statistical Computing | 3.0 |
| BST 557 | Survival Data Analysis | 3.0 |
| BST 567 | Statistical Consulting | 3.0 |
| BST 569 | Linear Statistical Models | 4.0 |
| BST 570 | Generalized Linear Models | 4.0 |
| BST 675 | Statistical Consulting Lab | 1.0 |
| BST 701 | Advanced Statistical Computing | 3.0 |
| Required Epidemiology Course | | |
| EPI 570 | Introduction to Epidemiology | 3.0 |
| Other Required Courses | | |
| BST 699 | Data Analysis Project | 6.0 |
| MATH 510 | Applied Probability and Statistics I | 3.0 |
| PBHL 501 | Introduction to Public Health | 0.0 |
| Graduate Electives | | 9.0 |
| Any BST and EPI course at the 500-999 level | | |
| Total Credits | | 229.0-230.0 |

- * Students not participating in co-op will take one additional credit of Free Elective instead of COOP 101. COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.
- ** Math majors must pass MATH 121 with a grade of B or higher.
- *** If a student takes both of MATH 331 and MATH 401, then one of these can count as a Mathematics Elective. Up to three mathematics-related courses from other departments may be substituted for Mathematics Electives with departmental permission. MATH special topics courses may be substituted for Mathematics Electives with departmental permission.
- † Any ARBC, CHIN, FREN, GER, JAPN, KOR, and SPAN courses at the 211-499 level.
Any ARTH, COM, ENGL, HIST, HUM, MUSC, PHIL, THTR, and WRIT courses at the 100-499 level.
PSY 213 or PSY 330.
- †† Any BIO, CHEM, ENVS, GEO, NFS, PHEV, and PHYS courses at the 100-499 level, and PHIL 321, PHIL 341, and PHIL 361.
- ‡ Any ANTH, ECON, HIST, PSCI, PSY, and SOC courses at the 100-499 level.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

4+1, 1 co-op (Accelerated program completed in 5 years)

Students complete undergraduate requirements in four years, then convert to graduate status in the fifth and final year.

| First Year | | | | |
|-------------------------------------|--|---|--------------------------------------|-----------|
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| CS 150 or 164 | 3.0 CIVC 101 | 1.0 COOP 101* | 1.0 VACATION | |
| ENGL 101 or 111 | 3.0 CS 171 | 3.0 CS 172 | 3.0 | |
| MATH 121 | 4.0 ENGL 102 or 112 | 3.0 ENGL 103 or 113 | 3.0 | |
| UNIV S101 | 1.0 MATH 122 | 4.0 MATH 123 | 4.0 | |
| (UG) Science Elective | 3.0 (UG) Science Elective | 3.0 MATH 200 | 4.0 | |
| | | (UG) Social and Behavioral Science Elective | 3.0 | |
| | 14 | 14 | 18 | 0 |
| Second Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| COM 230 | 3.0 (UG) Free Electives | 10.0 MATH 210 | 4.0 (UG) Diversity Studies Electives | 3.0 |
| MATH 201 | 4.0 (UG) Humanities/Fine Arts Elective | 3.0 (UG) Free Elective | 4.0 (UG) Free Electives | 9.0 |
| MATH 220 | 3.0 (UG) MATH Courses | 6.0 (UG) Humanities/Fine Arts Elective | 3.0 (UG) MATH Courses | 3.0 |
| (UG) Diversity Studies Elective | 3.0 | (UG) MATH Course | 3.0 | |
| (UG) International Studies Elective | 3.0 | (UG) Social and Behavioral Science Elective | 3.0 | |
| | 16 | 19 | 17 | 15 |
| Third Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| MATH 401 or 331 | 3.0-4.0 UNIV S201 | 1.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| (UG) Free Electives | 6.0 (UG) Free Electives | 8.0 | | |

| | | | | |
|-------------------------------------|-----------------------------|--------------------------|---|----------------|
| (UG) International Studies Elective | 3.0 (UG) MATH Course | 4.0 | | |
| (UG) MATH Course | 3.0 BST 555 | 3.0 | | |
| BST 569 | 4.0 BST 570 | 4.0 | | |
| | 19-20 | 20 | 0 | 0 |
| Fourth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| (UG) Free Electives | 9.0 (UG) Free Electives | 10.0 (UG) Free Electives | 10.0 BA Degree Awarded | |
| (UG) MATH Course | 4.0 (UG) MATH Course | 3.0 (UG) MATH Course | 4.0 Student converts to Graduate status | |
| BST 557 | 3.0 BST 551 | 3.0 BST 701 | 3.0 | |
| MATH 510 | 3.0 BST 553 | 3.0 EPI 570 | 3.0 | |
| | 19 | 19 | 20 | 0 |
| Fifth Year | | | | |
| Fall | Credits Winter | Credits | | |
| BST 567 | 3.0 BST 699 | 3.0 | | |
| BST 675 | 1.0 (GR) Graduate Electives | 6.0 | | |
| BST 699 | 3.0 | | | |
| PBHL 501 | 0.0 | | | |
| (GR) Graduate Electives | 3.0 | | | |
| | 10 | 9 | | |
| Total Credits 229-230 | | | | |

* Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

4+1, no co-op (Accelerated program completed in 5 years)

Students complete undergraduate requirements in four years, then convert to graduate status in the fifth and final year.

| | | | | |
|-------------------------------------|--|---|-----------------------|----------------|
| First Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| CS 150 or 164 | 3.0 CIVC 101 | 1.0 CS 172 | 3.0 VACATION | |
| ENGL 101 or 111 | 3.0 CS 171 | 3.0 ENGL 103 or 113 | 3.0 | |
| MATH 121 | 4.0 ENGL 102 or 112 | 3.0 MATH 123 | 4.0 | |
| UNIV S101 | 1.0 MATH 122 | 4.0 MATH 200 | 4.0 | |
| (UG) Science Elective | 3.0 (UG) Science Elective | 3.0 (UG) Social and Behavioral Science Elective | 3.0 | |
| | 14 | 14 | 17 | 0 |
| Second Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| COM 230 | 3.0 (UG) Free Electives | 9.0 MATH 210 | 4.0 VACATION | |
| MATH 201 | 4.0 (UG) Humanities/Fine Arts Elective | 3.0 (UG) Free Electives | 7.0 | |
| MATH 220 | 3.0 (UG) MATH Courses | 6.0 (UG) Humanities/Fine Arts Elective | 3.0 | |
| (UG) Diversity Studies Elective | 3.0 | (UG) MATH Course | 3.0 | |
| (UG) Free Elective | 3.0 | (UG) Social and Behavioral Science Elective | 3.0 | |
| (UG) International Studies Elective | 3.0 | | | |
| | 19 | 18 | 20 | 0 |
| Third Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| BST 569 | 4.0 BST 555 | 3.0 (UG) Free Electives | 8.0 VACATION | |
| MATH 401 or 331 | 3.0-4.0 BST 570 | 4.0 (UG) MATH Course | 4.0 | |

| | | | | |
|---------------------------------|-------------------------------------|-------------------------|---|----------------|
| (UG) Diversity Studies Elective | 3.0 UNIV S201 | 1.0 | | |
| (UG) Free Electives | 9.0 (UG) Free Elective | 3.0 | | |
| | (UG) International Studies Elective | 3.0 | | |
| | (UG) MATH Courses | 6.0 | | |
| | 19-20 | 20 | 12 | 0 |
| Fourth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| BST 557 | 3.0 BST 551 | 3.0 BST 701 | 3.0 BA Degree Awarded | |
| MATH 510 | 3.0 BST 553 | 3.0 EPI 570 | 3.0 Student converts to Graduate status | |
| (UG) Free Electives | 9.0 (UG) Free Electives | 9.0 (UG) Free Electives | 10.0 | |
| (UG) MATH Course | 4.0 (UG) MATH Course | 3.0 (UG) MATH Course | 4.0 | |
| | 19 | 18 | 20 | 0 |
| Fifth Year | | | | |
| Fall | Credits Winter | Credits | | |
| BST 567 | 3.0 BST 699 | 3.0 | | |
| BST 675 | 1.0 (GR) Graduate Electives | 6.0 | | |
| BST 699 | 3.0 | | | |
| PBHL 501 | 0.0 | | | |
| (GR) Graduate Electives | 3.0 | | | |
| | 10 | 9 | | |

Total Credits 229-230

Mathematics BS / Biostatistics MS

Major: *Mathematics (BS) / Biostatistics (MS)*

Degree Awarded: *Bachelor of Science (BS) and Master of Science (MS)*

Calendar Type: *Quarter*

Minimum Required Credits: *229.0*

Co-op Options: *One Co-op (Five years); No Co-op (Five years);*

BS Classification of Instructional Programs (CIP) code: *27.0101*

BS Standard Occupational Classification (SOC) code: *15-2021*

MS Classification of Instructional Programs (CIP) code: *26.1101*

MS Standard Occupational Classification (SOC) code: *11-9121*

About the Program

The College of Arts and Sciences and the Dornsife School of Public Health offer an accelerated Bachelor of Science in Mathematics and Master of Science in Biostatistics. Participants can earn both a BS degree in Mathematics and a MS degree in Biostatistics in five years.

In this accelerated degree program, students participate in the undergraduate program for four full years (with or without one co-operative experience). After two years of undergraduate study, students begin their graduate studies in the Master of Science in Biostatistics program. The third and fourth year are a mix of undergraduate and graduate courses. After the successful completion of their fourth year, students receive their BS. When students successfully complete the remainder of their graduate studies (typically two graduate quarters), they will receive the MS degree.

Students in the Master of Science in Biostatistics program complete 48.0 graduate quarter credits to meet the requirements of the master's program.

Admission Requirements

Application to the BSMS program begins after a student has completed at least 90 credits and no more than 120 credits. A freshman student can be designated as a BSMS Provisional Admit but is not officially accepted into the BSMS program until the student completes at least 90 credits and meets the admissions criteria.

Acceptance to the Drexel MS in Biostatistics is conditional upon a 3.0 overall undergraduate GPA, a 3.5 GPA in math, and a minimum grade of B in Linear Algebra and Calculus courses. Applicants who meet the GPA and grade criteria will be evaluated by the MS in Biostatistics admissions committee in order to be considered for admission.

Students must verify their intent to continue or enroll in the accelerated program with their advisor by the end of the spring term of year one. Students must submit a SOPHAS Express application to the graduate Master of Science in Biostatistics program during their third year.

Degree Requirements

General Education Requirements

| | | |
|-------------------------|---|-----|
| CIVC 101 | Introduction to Civic Engagement | 1.0 |
| COOP 101 | Career Management and Professional Development * | 1.0 |
| COM 230 | Techniques of Speaking | 3.0 |
| ENGL 101 or ENGL 111 | Composition and Rhetoric I: Inquiry and Exploratory Research English Composition I | 3.0 |
| ENGL 102 or ENGL 112 | Composition and Rhetoric II: Advanced Research and Evidence-Based Writing English Composition II | 3.0 |
| ENGL 103 or ENGL 113 | Composition and Rhetoric III: Themes and Genres English Composition III | 3.0 |
| UNIV S101 | The Drexel Experience | 1.0 |
| UNIV S201 | Looking Forward: Academics and Careers | 1.0 |

Computer Science Sequence

| | | |
|---------------------|---|-----|
| CS 150 or CS 164 | Computer Science Principles Introduction to Computer Science | 3.0 |
| CS 171 | Computer Programming I | 3.0 |
| CS 172 | Computer Programming II | 3.0 |

Science Requirement

| | |
|---|---------|
| Any Biology (BIO) course | 3.0-4.0 |
| Any Chemistry (CHEM) course | 3.0-4.0 |
| Any Physics (PHYS) or Physics-Environmental Science (PHEV) course | 3.0-4.0 |

Mathematics Requirements

| | | |
|--------------|--|-----|
| MATH 121 | Calculus I ** | 4.0 |
| MATH 122 | Calculus II | 4.0 |
| MATH 123 | Calculus III | 4.0 |
| MATH 200 | Multivariate Calculus | 4.0 |
| MATH 201 | Linear Algebra | 4.0 |
| MATH 210 | Differential Equations | 4.0 |
| MATH 220 [W] | Introduction to Mathematical Reasoning | 3.0 |
| MATH 331 | Abstract Algebra I | 4.0 |
| MATH 332 | Abstract Algebra II | 3.0 |
| MATH 401 | Elements of Modern Analysis I | 3.0 |
| MATH 402 | Elements of Modern Analysis II | 3.0 |

Math Major Electives ***

40.0

Select a minimum of 40.0 credits from the following:

| | |
|--------------|---|
| MATH 222 [W] | Combinatorics |
| MATH 235 | Math Competition Problem Solving Seminar |
| MATH 250 | Mathematics of Investment and Credit |
| MATH 285 | Differential Equations II |
| MATH 300 | Numerical Analysis I |
| MATH 301 | Numerical Analysis II |
| MATH 305 | Introduction to Optimization Theory |
| MATH 311 | Probability and Statistics I |
| MATH 312 | Probability and Statistics II |
| MATH 313 | Probability and Statistics III |
| MATH 316 | Mathematical Applications of Symbolic Software |
| MATH 318 [W] | Mathematical Applications of Statistical Software |
| MATH 319 | Techniques of Data Analysis |
| MATH 320 | Actuarial Mathematics |
| MATH 321 | Vector Calculus |
| MATH 322 | Complex Variables |
| MATH 323 | Partial Differential Equations |
| MATH 387 | Linear Algebra II |
| MATH 422 | Introduction to Topology |
| MATH 449 | Mathematical Finance |
| MATH 450 | Introduction to Graph Theory |
| MATH 475 | Cryptography |
| MATH 483 | Introduction to Monte Carlo Methods |
| MATH 489 | Tensor Calculus |

Undergraduate Electives

| | | |
|---|---------------------------------------|--------------------|
| Humanities electives † | 6.0 | |
| International Studies or Studies in Diversity electives | 6.0 | |
| Social Sciences electives †† | 15.0 | |
| Free electives | 40.0 | |
| Required MS Biostatistics Courses | | |
| BST 551 | Statistical Inference I | 3.0 |
| BST 553 | Longitudinal Data Analysis | 3.0 |
| BST 555 | Introduction to Statistical Computing | 3.0 |
| BST 557 | Survival Data Analysis | 3.0 |
| BST 567 | Statistical Consulting | 3.0 |
| BST 569 | Linear Statistical Models | 4.0 |
| BST 570 | Generalized Linear Models | 4.0 |
| BST 675 | Statistical Consulting Lab | 1.0 |
| BST 701 | Advanced Statistical Computing | 3.0 |
| Required Epidemiology Course | | |
| EPI 570 | Introduction to Epidemiology | 3.0 |
| Other Required Courses | | |
| BST 699 | Data Analysis Project | 6.0 |
| MATH 510 | Applied Probability and Statistics I | 3.0 |
| PBHL 501 | Introduction to Public Health | 0.0 |
| Graduate Electives | | 9.0 |
| Any BST and EPI course at the 500-999 level | | |
| Total Credits | | 229.0-232.0 |

* Students not participating in co-op will take one additional credit of Free Elective instead of COOP 101. COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

** Math majors must pass MATH 121 with a grade of B or higher.

*** Up to three mathematics-related courses from other departments may be substituted for Mathematics Electives with departmental permission. MATH special topics courses may be substituted for Mathematics Electives with departmental permission. MATH 100, MATH 101, MATH 102, MATH 110, MATH 119, MATH 180, MATH 171, MATH 172, MATH 173, and MATH 239 do not count towards the degree unless approved by the department

† Any ARTH, ENGL, COM, HUM, MUSC, PHIL, and WRIT courses at the 100-499 level.

†† Any ANTH, ECON, HIST, INTR, PSCI, PSY, and SOC courses at the 100-499 level.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

4+1, 1 co-op (Accelerated program completed in 5 years)

Students complete undergraduate requirements in four years, then convert to graduate status in the fifth and final year.

| First Year | | | | |
|-----------------|---------------------|---------------------------|----------------|---------|
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| CS 150 or 164 | 3.0 CIVC 101 | 1.0 CS 172 | 3.0 VACATION | |
| ENGL 101 or 111 | 3.0 COOP 101* | 1.0 ENGL 103 or 113 | 3.0 | |
| MATH 121 | 4.0 CS 171 | 3.0 MATH 123 | 4.0 | |
| UNIV S101 | 1.0 ENGL 102 or 112 | 3.0 MATH 200 | 4.0 | |
| Any (UG) BIO | 3.0 MATH 122 | 4.0 Any (UG) PHYS or PHEV | 3.0 | |

| | Any (UG) CHEM | 3.0 | | |
|-------------------------------|--|----------------------------------|--|----------------|
| | 14 | 15 | 17 | 0 |
| Second Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| COM 230 | 3.0 MATH 210 | 4.0 (UG) Free Electives | 6.0 (UG) Free Electives | 10.0 |
| MATH 201 | 4.0 (UG) International Studies or Studies in Diversity Electives | 3.0 (UG) Humanities Elective | 3.0 (UG) Humanities Elective | 3.0 |
| MATH 220 | 3.0 (UG) MATH Electives | 7.0 (UG) MATH Electives | 7.0 (UG) International Studies or Studies in Diversity Electives | 3.0 |
| (UG) Social Science Electives | 6.0 (UG) Social Science Elective | 3.0 (UG) Social Science Elective | 3.0 (UG) MATH Elective | 3.0 |
| | 16 | 17 | 19 | 19 |
| Third Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| MATH 401 | 3.0 MATH 402 | 3.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| (UG) Free Electives | 9.0 UNIV S201 | 1.0 | | |
| (UG) Social Science Elective | 3.0 (UG) Free Electives | 9.0 | | |
| BST 569 | 4.0 BST 555 | 3.0 | | |
| | BST 570 | 4.0 | | |
| | 19 | 20 | 0 | 0 |
| Fourth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| MATH 331 | 4.0 MATH 332 | 3.0 (UG) Free Electives | 6.0 BS Degree Awarded | |
| (UG) Math Electives | 8.0 (UG) MATH Electives | 9.0 (UG) MATH Electives | 6.0 Student converts to Graduate status | |
| BST 557 | 3.0 BST 551 | 3.0 BST 701 | 3.0 | |
| MATH 510 | 3.0 BST 553 | 3.0 EPI 570 | 3.0 | |
| | 18 | 18 | 18 | 0 |
| Fifth Year | | | | |
| Fall | Credits Winter | Credits | | |
| BST 567 | 3.0 BST 699 | 3.0 | | |
| BST 675 | 1.0 (GR) Graduate Electives | 6.0 | | |
| BST 699 | 3.0 | | | |
| PBHL 501 | 0.0 | | | |
| (GR) Graduate Electives | 3.0 | | | |
| | 10 | 9 | | |

Total Credits 229

* Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

4+1, no co-op (Accelerated program completed in 5 years)

Students complete undergraduate requirements in four years, then convert to graduate status in the fifth and final year.

| First Year | | | | |
|--------------------|-----------------------|---------------------------|-----------------------|----------------|
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| CS 150 or 164 | 3.0 CIVC 101 | 1.0 CS 172 | 3.0 VACATION | |
| ENGL 101 or 111 | 3.0 CS 171 | 3.0 ENGL 103 or 113 | 3.0 | |
| MATH 121 | 4.0 ENGL 102 or 112 | 3.0 MATH 123 | 4.0 | |
| UNIV S101 | 1.0 MATH 122 | 4.0 MATH 200 | 4.0 | |
| Any (UG) BIO | 3.0 Any (UG) CHEM | 3.0 Any (UG) PHYS or PHEV | 3.0 | |
| | 14 | 14 | 17 | 0 |
| Second Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| COM 230 | 3.0 MATH 210 | 4.0 (UG) Free Electives | 7.0 VACATION | |

| | | | | |
|-------------------------------|---|----------------------------------|-----------|----------|
| MATH 201 | 4.0 (UG) International Studies or Studies in Diversity Elective | 3.0 (UG) Humanities Elective | 3.0 | |
| MATH 220 | 3.0 (UG) MATH Electives | 9.0 (UG) MATH Elective | 4.0 | |
| (UG) Social Science Electives | 6.0 (UG) Social Science Elective | 3.0 (UG) Social Science Elective | 3.0 | |
| | 16 | 19 | 17 | 0 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|---|----------------------------------|-------------------------|----------------|----------|
| MATH 331 | 4.0 MATH 332 | 3.0 (UG) Free Electives | 10.0 VACATION | |
| (UG) Free Electives | 6.0 UNIV S201 | 1.0 (UG) MATH Electives | 7.0 | |
| (UG) Humanities Elective | 3.0 (UG) Free Elective | 3.0 | | |
| (UG) International Studies or Studies in Diversity Elective | 3.0 (UG) MATH Elective | 3.0 | | |
| BST 569 | 4.0 (UG) Social Science Elective | 3.0 | | |
| | BST 555 | 3.0 | | |
| | BST 570 | 4.0 | | |
| | 20 | 20 | 17 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|---------------------|-------------------------|-------------------------|---|----------|
| MATH 401 | 3.0 MATH 402 | 3.0 (UG) Free Electives | 6.0 BS Degree Awarded | |
| (UG) Free Elective | 3.0 (UG) Free Electives | 6.0 (UG) MATH Electives | 6.0 Student converts to Graduate status | |
| (UG) Math Electives | 7.0 (UG) MATH Elective | 4.0 EPI 570 | 3.0 | |
| BST 557 | 3.0 BST 551 | 3.0 BST 701 | 3.0 | |
| MATH 510 | 3.0 BST 553 | 3.0 | | |
| | 19 | 19 | 18 | 0 |

Fifth Year

| Fall | Credits Winter | Credits |
|------------------------|-----------------------------|----------|
| BST 567 | 3.0 BST 699 | 3.0 |
| BST 675 | 1.0 (GR) Graduate Electives | 6.0 |
| BST 699 | 3.0 | |
| PBHL 501 | 0.0 | |
| (GR) Graduate Elective | 3.0 | |
| | 10 | 9 |

Total Credits 229

Sample Plan of Study

Mathematics BS / Mathematics MS

*Major: Mathematics**Degree Awarded: Bachelor of Science (BS) and Master of Science (MS)**Calendar Type: Quarter**Minimum Required Credits: 226.0**Co-op Options: One Co-op (Five years)**Classification of Instructional Programs (CIP) code: 27.0101**Standard Occupational Classification (SOC) code: 15-2021*

About the Program

The accelerated BSMS program in mathematics is an exciting opportunity for highly motivated math students to take full advantage of the academic resources that Drexel University, as a research university with a graduate program, has to offer. Graduates from this program have a more in-depth, richer understanding of the concepts introduced in the undergraduate courses, as well as, more complex topics introduced at an advanced level.

The combined degree offers our graduates a competitive advantage over students who have only obtained an undergraduate degree, allowing them to stand out when they start their professional careers. In addition, the program is highly recommended for students who intend to apply to doctoral programs in mathematics as well as related areas (such as statistics, biostatistics, public health, graduate actuarial studies, mathematical finance). Many of our BSMS students have been accepted in some of the country's most elite and competitive graduate mathematics programs.

Admission Requirements

Students may apply to the combined BS/MS Mathematics program when they have attained 90.0 credits. To gain entry into the Mathematics BS/MS program, it is necessary, though not sufficient, to satisfy the following conditions:

Complete two of the following: MATH 331, MATH 332, MATH 401 and MATH 402, with an average GPA of at least 3.75 total in the two or more of these courses taken.

Have an overall GPA of at least 3.5

Have a GPA of at least 3.8 in the mathematics major

Applicant should meet with their adviser to determine eligibility and to create a plan of study to be reviewed by the graduate advisor. The graduate committee will make the final decision. If accepted, the student must fill out the Accelerated Degree Program Application Form to obtain permission from all necessary approving parties.

Students with multiple majors may apply to the Accelerated Math degree program as long as one of their undergraduate majors is Mathematics; however, they will need to obtain signatures of the Mathematics department advisers for their BS/MS Accelerated degree paperwork, not advisers from their other major(s).

Degree Requirements

General Education Requirements

| | | |
|-------------|---|-----|
| CIVC 101 | Introduction to Civic Engagement | 1.0 |
| COM 230 | Techniques of Speaking | 3.0 |
| COOP 101 | Career Management and Professional Development * | 1.0 |
| ENGL 101 | Composition and Rhetoric I: Inquiry and Exploratory Research | 3.0 |
| or ENGL 111 | English Composition I | |
| ENGL 102 | Composition and Rhetoric II: Advanced Research and Evidence-Based Writing | 3.0 |
| or ENGL 112 | English Composition II | |
| ENGL 103 | Composition and Rhetoric III: Themes and Genres | 3.0 |
| or ENGL 113 | English Composition III | |
| UNIV S101 | The Drexel Experience | 1.0 |
| UNIV S201 | Looking Forward: Academics and Careers | 1.0 |

Computer Science sequence:

| | | |
|-----------|----------------------------------|-----|
| CS 150 | Computer Science Principles | 9.0 |
| or CS 164 | Introduction to Computer Science | |
| CS 171 | Computer Programming I | |
| CS 172 | Computer Programming II | |

| | |
|---|---------|
| Any Biology (BIO) course | 3.0-4.0 |
| Any Chemistry (CHEM) course | 3.0-4.0 |
| Any Physics (PHYS) course | 3.0-4.0 |
| Humanities electives | 6.0 |
| Social sciences electives | 15.0 |
| International studies or studies in diversity electives | 6.0 |
| Free electives | 40.0 |

Mathematics Requirements

| | | |
|---------------|--|-----|
| MATH 121 | Calculus I ** | 4.0 |
| MATH 122 | Calculus II | 4.0 |
| MATH 123 | Calculus III | 4.0 |
| MATH 200 | Multivariate Calculus | 4.0 |
| MATH 201 | Linear Algebra | 4.0 |
| MATH 210 | Differential Equations | 4.0 |
| MATH 220 [WI] | Introduction to Mathematical Reasoning | 3.0 |
| MATH 331 | Abstract Algebra I | 4.0 |
| MATH 332 | Abstract Algebra II | 3.0 |
| MATH 401 | Elements of Modern Analysis I | 3.0 |
| MATH 402 | Elements of Modern Analysis II | 3.0 |

Math Major Electives

40.0

Select a minimum of 40 credits from the following:

| | |
|---------------|--|
| MATH 222 [WI] | Combinatorics |
| MATH 235 | Math Competition Problem Solving Seminar |
| MATH 250 | Mathematics of Investment and Credit |
| MATH 285 | Differential Equations II |

| | | |
|--|---|-----|
| MATH 300 | Numerical Analysis I | |
| MATH 301 | Numerical Analysis II | |
| MATH 305 | Introduction to Optimization Theory | |
| MATH 311 | Probability and Statistics I | |
| MATH 312 | Probability and Statistics II | |
| MATH 313 | Probability and Statistics III | |
| MATH 316 | Mathematical Applications of Symbolic Software | |
| MATH 318 [WI] | Mathematical Applications of Statistical Software | |
| MATH 319 | Techniques of Data Analysis | |
| MATH 320 | Actuarial Mathematics | |
| MATH 321 | Vector Calculus | |
| MATH 322 | Complex Variables | |
| MATH 323 | Partial Differential Equations | |
| MATH 387 | Linear Algebra II | |
| MATH 422 | Introduction to Topology | |
| MATH 449 | Mathematical Finance | |
| MATH 450 | Introduction to Graph Theory | |
| MATH 475 | Cryptography | |
| MATH 483 | Introduction to Monte Carlo Methods | |
| MATH 489 | Tensor Calculus | |
| MS required courses | | |
| MATH 504 | Linear Algebra & Matrix Analysis | 3.0 |
| MATH 505 | Principles of Analysis I | 3.0 |
| MATH 506 | Principles of Analysis II | 3.0 |
| MATH 533 | Abstract Algebra I | 3.0 |
| MATH 630 | Complex Variables I | 3.0 |
| MATH 633 | Real Variables I | 3.0 |
| MS electives *** | | |
| 27.0 | | |
| Select a minimum of 27 credits from the following: | | |
| MATH 507 | Applied Mathematics I | |
| MATH 508 | Applied Mathematics II | |
| MATH 509 | Applied Mathematics III | |
| MATH 510 | Applied Probability and Statistics I | |
| MATH 511 | Applied Probability and Statistics II | |
| MATH 512 | Applied Probability and Statistics III | |
| MATH 520 | Numerical Analysis I | |
| MATH 521 | Numerical Analysis II | |
| MATH 522 | Numerical Analysis III | |
| MATH 523 | Computer Simulation I | |
| MATH 524 | Computer Simulation II | |
| MATH 525 | Topics in Computer Simulation | |
| MATH 526 | Mathematics for Data Science | |
| MATH 530 | Combinatorial Mathematics I | |
| MATH 531 | Combinatorial Mathematics II | |
| MATH 532 | Topics in Combinatorial Math | |
| MATH 534 | Abstract Algebra II | |
| MATH 535 | Topics in Abstract Algebra | |
| MATH 536 | Topology I | |
| MATH 537 | Topology II | |
| MATH 538 | Manifolds | |
| MATH 540 | Numerical Computing | |
| MATH 553 | Sci Comp & Visualization I | |
| MATH 554 | Sci Comp & Visualization II | |
| MATH 555 | Topics in Sci Comp & Visualiz | |
| MATH 572 | Financial Mathematics: Fixed Income Securities | |
| MATH 610 | Probability Theory I | |
| MATH 611 | Probability Theory II | |
| MATH 612 | Topics in Probability Theory | |
| MATH 613 | Stochastic Processes I | |
| MATH 614 | Stochastic Processes II | |
| MATH 615 | Topics in Stochastic Processes | |
| MATH 620 | Partial Differential Equations I | |

| | |
|----------|-------------------------------------|
| MATH 621 | Partial Differential Equations II |
| MATH 622 | Partial Differential Equations III |
| MATH 623 | Ordinary Differential Equations I |
| MATH 624 | Ordinary Differential Equations II |
| MATH 625 | Ordinary Differential Equations III |
| MATH 631 | Complex Variables II |
| MATH 632 | Topics in Complex Variables |
| MATH 634 | Real Variables II |
| MATH 635 | Real Variables III |
| MATH 640 | Functional Analysis |
| MATH 641 | Harmonic Analysis |
| MATH 642 | Operator Theory |
| MATH 643 | Integral Equations I |
| MATH 645 | Transform Theory I |
| MATH 646 | Transform Theory II |
| MATH 660 | Lie Groups and Lie Algebras I |
| MATH 661 | Lie Groups and Lie Algebras II |
| MATH 662 | Lie Groups/Algebras III |
| MATH 670 | Methods of Optimization I |
| MATH 671 | Methods of Optimization II |
| MATH 672 | Methods of Optimization III |
| MATH 673 | Calculus of Variations |
| MATH 701 | Algebraic Combinatorics |
| MATH 723 | Mathematical Neuroscience |

Total Credits

226.0-229.0

* Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

** Math majors must pass MATH 121 (<http://catalog.drexel.edu/search/?P=MATH%20121>) with a grade of B or higher.

*** In some cases, course substitutions may be made with courses from other departments. Elective courses taken outside the department must receive prior departmental approval in order to be counted toward the degree.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

4+1, 1 co-op (Accelerated program completed in 5 years)

Students complete undergraduate requirements in four years, then convert to graduate status in the fifth and final year.

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|---------------------|---------------------|----------------|---------|
| CS 150 or 164 | 3.0 CIVC 101 | 1.0 CS 172 | 3.0 VACATION | |
| ENGL 101 or 111 | 3.0 CS 171 | 3.0 ENGL 103 or 113 | 3.0 | |
| MATH 121 | 4.0 ENGL 102 or 112 | 3.0 MATH 123 | 4.0 | |
| UNIV S101 | 1.0 MATH 122 | 4.0 MATH 200 | 4.0 | |

| | | | | |
|---|--|--|--------------------------------------|----------------|
| (UG) Any Biology (BIO) Course | 3.0-4.0 (UG) Any Chemistry (CHEM) Course | 3.0 (UG) Any Physics (PHYS) Course | 3.0 | |
| | 14-15 | 14 | 17 | 0 |
| Second Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| COM 230 | 3.0 MATH 210 | 4.0 (UG) Free Elective | 3.0 COOP 101 | 1.0 |
| MATH 201 | 4.0 (UG) International/ Diversity Studies Elective | 3.0 (UG) Humanities Elective* | 3.0 (UG) Free Electives | 9.0 |
| MATH 220 | 3.0 (UG) Mathematics (MATH) Electives** | 7.0 (UG) Mathematics (MATH) Electives** | 7.0 (UG) Humanities Elective* | 4.0 |
| (UG) International/ Diversity Studies Elective* | 3.0 (UG) Social Science Elective* | 3.0 (UG) Social Science Elective* | 3.0 (UG) Social Science Elective* | 3.0 |
| (UG) Social Science Elective* | 3.0 | | | |
| | 16 | 17 | 16 | 17 |
| Third Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| MATH 331 | 4.0 MATH 332 | 3.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| MATH 401 | 3.0 MATH 402 | 3.0 | | |
| (UG) Free Electives | 6.0 UNIV S201 | 1.0 | | |
| (UG) Mathematics (MATH) Elective** | 4.0 (UG) Free Electives | 6.0 | | |
| | (UG) Social Science Elective* | 3.0 | | |
| | 17 | 16 | 0 | 0 |
| Fourth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| (UG) Free Electives | 6.0 (UG) Free Electives | 6.0 (UG) Free Electives | 6.0 VACATION | |
| (UG) Mathematics (MATH) Electives** | 7.0 (UG) Mathematics (MATH) Electives** | 6.0 (UG) Mathematics (MATH) Electives** | 6.0 | |
| MATH 504 | 3.0 MATH 506 | 3.0 (GR) Graduate Mathematics (MATH) Electives | 6.0 | |
| MATH 505 | 3.0 MATH 533 | 3.0 | | |
| | 19 | 18 | 18 | 0 |
| Fifth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits | |
| (GR) Graduate Mathematics (MATH) Electives | 9.0 (GR) Graduate Mathematics (MATH) Electives | 9.0 MATH 630 | 3.0 | |
| | | MATH 633 | 3.0 | |
| | | (GR) Graduate Mathematics (MATH) Elective | 3.0 | |
| | 9 | 9 | 9 | |

Total Credits 226-227

* See degree requirements (<http://catalog.drexel.edu/undergraduate/collegeofartsandsciences/mathematics/#degreerequirementsbatext>).

** Select from MATH 222 [WI] , MATH 235, MATH 250, MATH 285, MATH 300, MATH 301, MATH 305, MATH 311, MATH 312, MATH 316, MATH 318 [WI] , MATH 319, MATH 320, MATH 321, MATH 322, MATH 323, MATH 387, MATH 422, MATH 449, MATH 450, MATH 475, MATH 483, MATH 489. MATH special topics courses may be substituted for Mathematics Electives with departmental permission.

Mathematics Faculty

David M. Ambrose, PhD (*Duke University*) Associate Department Head, *Mathematics*. Professor. Applied analysis and computing for systems of nonlinear partial differential equations, especially free-surface problems in fluid dynamics.

Jason Aran, MS (*Drexel University*). Associate Teaching Professor.

Jonah D. Blasiak, PhD (*University of California at Berkeley*). Associate Professor. Algebraic combinatorics, representation theory, and complexity theory.

Yasmine Boolakee-Pant, MS (*University of Freiburg*). Instructor.

Robert P. Boyer, PhD (*University of Pennsylvania*). Professor. Functional analysis, C*-algebras and the theory of group.

Fernando Carreon, PhD (*University of Texas at Austin*). Teaching Professor.

Patrick Clarke, PhD (*University of Miami*). Associate Professor. Homological mirror symmetry, Landau-Ginzburg models, algebraic geometry, symplectic geometry.

Daryl Falco, MS (*Drexel University*). Associate Teaching Professor. Discrete mathematics and automata theory.

Raymond Favocci, MS (*Drexel University*). Associate Teaching Professor.

Darij Grinberg, PhD (*Massachusetts Institute of Technology*). Assistant Professor. Algebraic Combinatorics, Noncommutative Algebra, Symmetric Functions, Hopf Algebras, Enumerative Combinatorics, Invariant Theory

Pavel Grinfeld, PhD (*Massachusetts Institute of Technology*). Associate Professor. Intersection of physics, engineering, applied mathematics and computational science.

Anatolii Grinshpan, PhD (*University of California at Berkeley*). Associate Teaching Professor. Function theory and operator theory, harmonic analysis, matrix theory.

Yixin Guo, PhD (*University of Pittsburgh*). Associate Professor. Biomathematics, dynamical systems, ordinary and partial differential equations and math education.

R. Andrew Hicks, PhD (*University of Pennsylvania*). Professor. Geometry; optics; computer vision.

Pawel Hitczenko, PhD (*Warsaw University*). Professor. Probability theory and its applications to analysis, combinatorics, wavelets, and the analysis of algorithms.

Jeffrey LaComb, PhD (*Duke University*). Assistant Teaching Professor. Rare Event Simulation, Dynamical Systems, Numerical Analysis and Mathematical Biology

Georgi S. Medvedev, PhD (*Boston University*). Professor. Ordinary and partial differential equations, mathematical neuroscience.

Cecilia Mondaini, PhD (*Federal University of Rio de Janeiro*). Assistant Professor. Analysis of Partial Differential Equations, Fluid Dynamics, Stochastic Processes

Shari Moskow, PhD (*Rutgers University*) *Department Head*. Professor. Partial differential equations and numerical analysis, including homogenization theory, numerical methods for problems with rough coefficients, and inverse problems.

Oksana P. Odintsova, PhD (*Omsk State University*). Teaching Professor. Math education; geometrical modeling.

Dimitrios Papadopoulos, MS (*Drexel University*). Assistant Teaching Professor.

Joel Pereira, PhD (*University of North Carolina*). Assistant Teaching Professor. Commutative Algebra

Ronald K. Perline, PhD (*University of California at Berkeley*) *Undergraduate Adviser*. Associate Professor. Applied mathematics, numerical analysis, symbolic computation, differential geometry, mathematical physics.

Marci A. Perlstadt, PhD (*University of California at Berkeley*). Associate Professor. Applied mathematics, computed tomography, numerical analysis of function reconstruction, signal processing, combinatorics.

Adam C. Rickert, MS (*Drexel University*). Associate Teaching Professor.

Eric Schmutz, PhD (*University of Pennsylvania*). Professor. Probabilistic combinatorics, asymptotic enumeration.

Li Sheng, PhD (*Rutgers University*). Associate Professor. Discrete optimization, combinatorics, operations research, graph theory and its application in molecular biology, social sciences and communication networks, biostatistics.

Gideon Simpson, PhD (*Columbia University*). Associate Professor. Partial differential equations, scientific computing and applied mathematics.

Xiaoming Song, PhD (*University of Kansas*). Associate Professor. Stochastic Calculus, Large Deviation Theory, Theoretical Statistics, Data Network Modeling and Numerical Analysis.

Jeanne M. Steuber, MS (*Boston University*). Associate Teaching Professor.

Kenneth P. Swartz, PhD (*Harvard University*). Assistant Teaching Professor. Applied statistics, data analysis, calculus, discrete mathematics, biostatistics.

K. Shwetketu Virbhadra, PhD (*Physical Research Laboratory*). Instructor.

Richard D. White, MS (*Penn State University*). Assistant Teaching Professor.

Hugo J. Woerdeman, PhD (*Vrije Universiteit, Amsterdam*). Professor. Matrix and operator theory, systems theory, signal and image processing, and harmonic analysis.

J. Douglas Wright, PhD (*Boston University*) *Associate Department Head*. Professor. Partial differential equations, specifically nonlinear waves and their interactions.

Dennis G. Yang, PhD (*Cornell University*). Associate Teaching Professor. Dynamical systems, neurodynamics.

Thomas (Pok-Yin) Yu, PhD (*Stanford University*). Professor. Multiscale mathematics, wavelets, applied harmonic analysis, subdivision algorithms, nonlinear analysis, applied differential geometry and data analysis.

Matthew Ziemke, PhD (*University of South Carolina*). Assistant Teaching Professor. Functional Analysis, Operator Algebras, Semigroups, Mathematical Physics

Emeritus Faculty

Howard Anton, PhD (*Polytechnic Institute of Brooklyn*). Professor Emeritus.

Loren N. Argabright, PhD (*University of Washington*). Professor Emeritus. Functional analysis, wavelets, abstract harmonic analysis, the theory of group representations.

Robert C. Busby, PhD (*University of Pennsylvania*). Professor Emeritus. Functional analysis, C^* -algebras and group representations, computer science.

Ewaugh Finney Fields, EdD (*Temple University*) *Dean Emeritus*. Professor Emeritus. Mathematics education, curriculum and instruction, minority engineering education.

William M.Y. Goh, PhD (*Ohio State University*). Associate Professor Emeritus. Number theory, approximation theory and special functions, combinatorics, asymptotic analysis.

Patricia Henry Russell, MS (*Drexel University*). Teaching Professor Emerita.

Bernard Kolman, PhD (*University of Pennsylvania*). Professor Emeritus. Lie algebras; theory, applications, and computational techniques; operations research.

Charles J. Mode, PhD (*University of California at Davis*). Professor Emeritus. Probability and statistics, biostatistics, epidemiology, mathematical demography, data analysis, computer-intensive methods.

Chris Rorres, PhD (*Courant Institute, New York University*). Professor Emeritus. Applied mathematics, scattering theory, mathematical modeling in biological sciences, solar-collection systems.

Justin R. Smith, PhD (*Courant Institute, New York University*). Professor Emeritus. Homotopy theory, operad theory, quantum mechanics, quantum computing.

Jet Wimp, PhD (*University of Edinburgh*). Professor Emeritus. Applied mathematics, special factors, approximation theory, numerical techniques, asymptotic analysis.

Psychology BS / Psychology MS

Major: Psychology

Degree Awarded: Bachelor of Science (BS) & Master of Science (MS)

Calendar Type: Quarter

Minimum Required Credits: 225.0

Co-op Options: One Co-op (Five Years) or No Co-op

Classification of Instructional Programs (CIP) code: 42.2799

Standard Occupational Classification (SOC) code: 19-3031

About the Program

The Accelerated Master of Science in Psychology (BS/MS) program provides an opportunity for select undergraduate students to complete their undergraduate education and psychology MS curriculum classes in an accelerated fashion. Through this program, potential BS/MS students may be identified when first admitted as entering freshmen psychology majors. Students may also enter as transfers or up until the spring of their junior year.

During the course of their undergraduate study, students will need to seek out and establish a faculty member to serve as their mentor and program advisor, and with whom they wish to continue working during their graduate training and completion of their graduate thesis.

The Accelerated Master of Science in Psychology program allows accelerated entry into graduate level courses during the student's fourth undergraduate year with planned entry into graduate school upon completion of their BS degree at the end of year 4. Because students have received a "head start" by completing a structured curriculum in their senior year, their graduate coursework for the MS degree can be completed in one year post-BS. The BS/MS curriculum is designed to include a 4-year undergraduate or 4-year undergraduate co-op program. Students in the program cannot be enrolled in a 5-year co-op.

Admission Requirements

Prospective freshman criteria:

- Combined SAT score of 1300 (Quantitative and Verbal scores only)
- High school GPA of at least 3.5
- Top 10% of graduating class
- If these admission requirements are met, an additional application essay is requested via email and evaluated by the program director for final admission decisions.

Third year Psychology student criteria:

- Cumulative GPA of 3.5 or higher with no grade lower than a "C" in any class
- Enrollment in a 4-year, 1 co-op or 4-year, no co-op (some exceptions may apply)
- Completion of Graduate Record Examination (GRE) with a minimum score of 302 (Quantitative and Verbal scores)
- Identification of and commitment from Psychology faculty mentor to advise student's MS research

Degree Requirements

College Requirements

| | | |
|--|---|---------|
| CIVC 101 | Introduction to Civic Engagement | 1.0 |
| COM 230 | Techniques of Speaking | 3.0 |
| COOP 101 | Career Management and Professional Development * | 1.0 |
| ENGL 101 | Composition and Rhetoric I: Inquiry and Exploratory Research | 3.0 |
| or ENGL 111 | English Composition I | |
| ENGL 102 | Composition and Rhetoric II: Advanced Research and Evidence-Based Writing | 3.0 |
| or ENGL 112 | English Composition II | |
| ENGL 103 | Composition and Rhetoric III: Themes and Genres | 3.0 |
| or ENGL 113 | English Composition III | |
| Select one of the following: | | 8.0 |
| MATH 101 & MATH 102 | Introduction to Analysis I and Introduction to Analysis II | |
| MATH 121 & MATH 122 | Calculus I and Calculus II | |
| UNIV H101 | The Drexel Experience | 1.0 |
| UNIV H201 | Looking Forward: Academics and Careers | 1.0 |
| Anthropology (ANTH) elective ** | | 3.0 |
| Business elective | | 4.0 |
| English (ENGL) electives, 200-level or above | | 6.0 |
| Fine Arts elective | | 3.0 |
| History (HIST) electives | | 8.0 |
| Philosophy (PHIL) elective | | 3.0 |
| Political Science (PSCI) elective | | 4.0 |
| Sociology (SOC) elective | | 3.0-4.0 |
| Select one of the following sequences: | | 8.0 |
| Biology | | |
| BIO 107 | Cells, Genetics & Physiology | |
| BIO 108 | Cells, Genetics and Physiology Laboratory | |
| BIO 109 | Biological Diversity, Ecology & Evolution | |
| BIO 110 | Biological Diversity, Ecology and Evolution Laboratory | |
| Chemistry | | |
| CHEM 111 | General Chemistry I | |
| CHEM 112 | General Chemistry II | |
| Physics | | |
| PHYS 170 | Electricity and Motion | |
| PHYS 171 | Computational Lab for Electricity and Motion | |

| | | |
|--|--|--------------------|
| PHYS 175 | Light and Sound | |
| PHYS 176 | Computational Lab for Light and Sound | |
| Free electives | | 48.0 |
| Departmental Requirements | | |
| General Psychology Requirements | | |
| PSY 111 | Pre-Professional General Psychology I *** | 3.0 |
| PSY 112 | Pre-Professional General Psychology II *** | 3.0 |
| 100-Level Requirements | | |
| Select two of the following: | | 6.0 |
| PSY 120 | Developmental Psychology | |
| PSY 140 | Approaches to Personality | |
| PSY 150 | Introduction to Social Psychology | |
| Required Psychology Courses | | |
| PSY 212 | Physiological Psychology | 3.0 |
| PSY 240 [WI] | Abnormal Psychology | 3.0 |
| PSY 264 | Computer-Assisted Data Analysis I | 3.0 |
| PSY 265 | Computer-Assisted Data Analysis II | 3.0 |
| PSY 280 | Psychological Research | 3.0 |
| PSY 290 | History and Systems of Psychology | 3.0 |
| PSY 325 | Psychology of Learning | 3.0 |
| PSY 330 | Cognitive Psychology | 3.0 |
| PSY 360 [WI] | Experimental Psychology | 3.0 |
| PSY 380 | Psychological Testing and Assessment | 3.0 |
| Advanced Psychology Electives | | 12.0 |
| Any non-required PSY course at the 200-level or above. | | |
| Senior Seminar Sequence OR Psychology Electives † | | |
| PSY 490 [WI] | Psychology Senior Thesis I | 4.0 |
| PSY 491 [WI] | Psychology Senior Thesis II | 4.0 |
| PSY 492 [WI] | Psychology Senior Thesis III | 4.0 |
| Psychology Master's Requirements | | |
| PSY 510 | Research Methods I | 3.0 |
| PSY 511 | Research Methods II | 3.0 |
| PSY 512 | Cognitive Psychology | 3.0 |
| PSY 610 | Data Analysis in Psychology | 3.0 |
| PSY 624 | Behavior Analysis | 3.0 |
| PSY 710 | Data Analysis II | 3.0 |
| PSY 898 | Master's Thesis in Psychology | 9.0 |
| Additional Electives †† | | 18.0 |
| Total Credits | | 225.0-226.0 |

* Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

** GST 100 may be used as a substitute for ANTH 101

*** Students with AP psychology, or transfer students with PSY 101 credit, should check the AP Student Placement Exam Crosswalk (http://www.drexel.edu/provost/policies/pdf/supporting/ap_crosswalk.pdf) or check with their advisor.

† Students who do not wish to complete the research seminar sequence are required to complete 12.0 credits of additional advanced Psychology electives instead.

Students are required to complete all undergraduate credit requirements by end of the fourth year.

†† Electives can be any graduate Psychology (PSY) course. Other graduate courses outside of Psychology might be taken pending approval from the graduate advisor or program director.

Note the following for planning purposes: PSY 711, while not required, is often taken as an elective during Spring Term of Year 1, as it is the third course in the PSY MS data analysis sequence.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore

year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

4 + 1 (5 years), 1 coop

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|------------------------------|------------------------------|---------------------------------------|----------------|----------|
| ENGL 101 or 111 | 3.0 CIVC 101 | 1.0 COOP 101* | 1.0 VACATION | |
| MATH 121 or 101 | 4.0 ENGL 102 or 112 | 3.0 ENGL 103 or 113 | 3.0 | |
| PSY 111 | 3.0 MATH 102 or 122 | 4.0 PSY 120, 140, or 150 | 3.0 | |
| UNIV H101 | 1.0 PSY 112 | 3.0 PSY 240 | 3.0 | |
| Select one of the following: | 4.0 PSY 120, 140, or 150 | 3.0 UNIV H201 | 1.0 | |
| BIO 107 & BIO 108 | Select one of the following: | 4.0 (UG) Anthropology (ANTH) Elective | 3.0 | |
| CHEM 111 | BIO 109 & BIO 110 | (UG) Fine Arts Elective | 3.0 | |
| PHYS 170 | CHEM 112 PHYS 175 | | | |
| | 15 | 18 | 17 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--|--|------------------------------|------------------------------|-----------|
| PSY 264 | 3.0 COM 230 | 3.0 PSY 212 | 3.0 PSY 325 | 3.0 |
| PSY 290 | 3.0 PSY 265 | 3.0 PSY 280 | 3.0 PSY 380 | 3.0 |
| (UG) English (ENGL) elective, 200-level or above | 3.0 PSY 330 | 3.0 PSY 360 | 3.0 (UG) Free Elective | 3.0 |
| (UG) Political Science (PSCI) elective | 4.0 (UG) English (ENGL) elective, 200-level or above | 3.0 (UG) Business Elective | 4.0 (UG) History Elective | 4.0 |
| (UG) Sociology (SOC) elective*** | 3.0-4.0 (UG) Philosophy (PHIL) elective | 3.0 (UG) Psychology Elective | 3.0 (UG) Psychology Elective | 3.0 |
| | 16-17 | 15 | 16 | 16 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------------------|-------------------------|----------------------|-----------------|----------|
| (UG) Free Electives | 6.0 (UG) Free electives | 12.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| (UG) History Elective | 4.0 | | | |
| (UG) Psychology Electives** | 6.0 | | | |
| | 16 | 12 | 0 | 0 |

Fourth Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|---|-------------------------|---|---|----------|
| PSY 490† | 4.0 PSY 491† | 4.0 PSY 492† | 4.0 Student Classified as Graduate Status | |
| (UG) Free Electives | 9.0 (UG) Free Electives | 9.0 (UG) Free Electives | 9.0 | |
| PSY 610†† | 3.0 PSY 510†† | 3.0 PSY 511†† | 3.0 | |
| (GR) Psychology Master's-Level Elective†† | 3.0 PSY 710†† | 3.0 (GR) Psychology Master's-Level Elective†† | 3.0 | |
| | 19 | 19 | 19 | 0 |

Fifth Year

| Fall | Credits Winter | Credits Spring | Credits |
|--|----------------|--|---------|
| PSY 898 | 3.0 PSY 624 | 3.0 PSY 898 | 3.0 |
| (GR) Psychology Master's-Level Electives | 6.0 PSY 898 | 3.0 (GR) Psychology Master's-Level Electives | 6.0 |

| | | |
|--|-----|---|
| (GR) Psychology Master's-Level Elective | 3.0 | |
| 9 | 9 | 9 |

Total Credits 225-226

- * Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.
- COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.
- ** See degree requirements (p. 147).
- *** If a student selects a 4.0 credit SOC elective, the Free electives in this term will be 11.0 credits.
- † Students who do not wish to complete the research seminar sequence are instead required to complete 12.0 credits of additional advanced Psychology electives.
- BS/MS students are advised against taking senior seminar credits. Because students complete a master's thesis while enrolled in the BS/MS program, it is not feasible to also complete a senior thesis/research project. Consult with your advisor if you have any questions.
- †† Graduate-level credits for master's program may not count toward any part of the bachelor's degree requirements.

Psychology Faculty

Meghan Butryn, PhD (*Drexel University*). Associate Professor. Treatment and prevention of obesity and eating disorders, behavioral treatment, acceptance and commitment therapy.

Dorothy Charbonnier, PhD (*State University of New York at Stony Brook*). Associate Teaching Professor. The nature of the creative process and writing.

Evangelia Chryssikou, PhD (*Temple University*). Associate Professor. Cognitive neuroscience, neuropsychology, neural basis of language, memory, and executive functions, neurocognitive processes associated with problem solving and flexible thought

Brian Daly, PhD (*Loyola University, Chicago*) *Interim Department Head*. Associate Professor. Pediatric neuropsychology, intervention with at-risk youth.

David DeMatteo, PhD, JD (*MCP Hahnemann University; Villanova University School of Law*) *Director of the JD-PhD Program in Law and Psychology*. Professor. Psychopathy, forensic mental health assessment, drug policy; offender diversion.

Evan M. Forman, PhD (*University of Rochester*) *Director WELL Center*. Professor. Clinical psychology: mechanisms and measurement of psychotherapy outcome, cognitive-behavioral and acceptance based psychotherapies, the development and evaluation of acceptance-based interventions for health behavior change (for problems of obesity and cardiac disease) as well as mood and anxiety disorders; neurocognition of eating.

Pamela Geller, PhD (*Kent State University*) *Director, Clinical Training*. Associate Professor. Stressful life events and physical and mental health outcomes, particularly in the area of women's reproductive health (e.g. pregnancy, pregnancy loss, infertility, medical education).

Maureen Gibney, PsyD (*Widener University*). Teaching Professor. Clinical psychopathology; neuropsychological evaluation and intervention with the elderly.

Naomi Goldstein, PhD (*University of Massachusetts*) *Co-Director of the JD-PhD Program; Stoneleigh Foundation Fellow*. Professor. Forensic psychology; juvenile justice; Miranda rights comprehension; false confessions; juvenile justice treatment outcome research; anger management intervention development; child and adolescent behavior problems.

Kirk Heilbrun, PhD (*University of Texas at Austin*). Professor. Forensic psychology, juvenile and adult criminality, violence risk assessment, forensic psychological assessment, treatment of mentally disordered offenders, academic-sports mentoring.

Adrienne Juarascio, PhD (*Drexel University*) *Director, Practicum Training*. Assistant Professor. Enhancing treatment outcomes for eating disorders and obesity; Acceptance-based behavioral treatments; Evaluating mechanisms of action in behavioral treatments

Marlin Killen, PhD (*Trident University International*). Teaching Professor. Authentic teaching methods in Psychology as well as student persistence behavior.

John Kounios, PhD (*University of Michigan*) *Director, PhD Program in Applied Cognitive and Brain Sciences*. Professor. Cognitive neuroscience, especially creativity, problem solving, and cognitive enhancement.

David Kutzik, PhD (*Temple University*). Professor. Social and cultural theory, political economy, gerontology, materialisms, activity theory, reflection theories, communities of practice and labor theories of culture.

Michael Lowe, PhD (*Boston College*). Professor. Prevention and treatment of eating disorders and obesity; effects of appetitive responsiveness and dietary restraint on eating regulation; psychobiology of obesity-proneness; empirical foundations of unconscious processes.

John Medaglia, PhD (*The Pennsylvania State University*). Assistant Professor. Applying models and methods developed in neuropsychology, cognitive neuroscience and graph theory to understand and treat brain dysfunction and enhance healthy functioning

Megan Meyer, PhD (*Temple University*). Assistant Teaching Professor. Influences on preferred body type; changes in body image, self-esteem, and self-efficacy in females as a function of strength training; Sensation and Perception

Danette Morrison, PhD (*University of Maryland - College Park*). Assistant Teaching Professor. Social and academic motivation within school context; Social relationships and identity development; Educational attainment of ethnic minorities

Arthur Nezu, PhD, DHLL, ABPP (*State University of New York at Stony Brook*). Distinguished University Professor of Psychology, Professor of Medicine, Professor of Community Health and Prevention. Behavioral medicine applications of problem-solving therapy and other cognitive-behavior therapies (e.g., to decrease emotional and psychosocial risk factors; improve adherence), particularly with regard to patients with cardiovascular disease; assessment.

Christine Maguth Nezu, PhD (*Fairleigh Dickinson University*). Professor of Psychology, Professor of Medicine. Cognitive-behavioral assessment and treatment for mood, anxiety, personality disorders, and coping with chronic illness; mind/body studies; stress and coping; developmental disabilities and comorbid behavioral and emotional disorders; spirituality and psychology.

Nancy Raitano Lee, PhD (*University of Denver*) *Director of MS and BS/MS Programs*. Associate Professor. Neuropsychological and neuroanatomic correlates of intellectual and developmental disabilities; Verbal memory and language difficulties in Down syndrome and other genetic disorders; Comorbid autism spectrum disorder symptoms in youth with genetic disorders; Neuroanatomic correlates of individual differences in typical and atypical cognition

Diana Robins, PhD (*University of Connecticut*) *Interim Director, AJ Drexel Autism Institute*. Professor. Autism screening, early detection of autism

Ludo Scheffer, PhD (*University of Pennsylvania*) *Director of Undergraduate Studies*. Teaching Professor. Meta-cognitive development, writing, and computers; Language and literacy development in the early years in the context of family and schooling; Youth-at-risk; School violence and bullying; Program/intervention effectiveness

Maria Schultheis, PhD (*Drexel University*) *Vice Provost of Research, Office of Research and Innovation*. Professor. Clinical Neuropsychology and rehabilitation following neurological compromise (brain injury, stroke, multiple sclerosis), application of technologies in psychology. Specialization in the use of virtual reality (VR) simulation, and evaluation of the demands of driving after disability.

Jennifer Schwartz, PhD (*Idaho State University*) *Director of Psychological Services Center*. Teaching Professor. Adult psychopathology; evidence-based clinical practice; competency-based training; competency-based clinical supervision.

Julia Sluzenski, PhD (*Temple University*). Assistant Teaching Professor. Spatial and episodic memory, memory loss across the lifespan, developmental psychology.

Fengqing (Zoe) Zhang, PhD (*Northwestern University*). Associate Professor. Neuroimaging data analysis; Data mining; Bayesian inference; High dimensional data analysis

Eric A Zillmer, PsyD (*Florida Institute of Technology*) *Carl R. Pacifico Professor of Neuropsychology and the Director of Athletics*. Professor. Psychological assessment (neuropsychological, cognitive, personality), psychiatric and neurological disorders, behavioral medicine, neurogerontology, mathematical modeling, sports psychology, psychology of genocide.

Emeritus Faculty

Donald Bersoff, JD, PhD (*Yale University, New York University*). Professor Emeritus. Law and psychology; mental health law.

James Calkins, PhD. Professor Emeritus.

Douglas L. Chute, PhD (*University of Missouri*) *Louis and Bessie Stein Fellow*. Professor Emeritus. Neuropsychology and rehabilitation; technological applications for the cognitively compromised and those with acquired brain injuries.

Myrna Shure, PhD (*Cornell University*). Professor Emeritus. Child development, problem-solving interventions with children, prevention programs.

Mary Spiers, PhD (*University of Alabama at Birmingham*). Professor Emeritus. Clinical neuropsychology and medical psychology; memory and practical applications for memory disorders in the elderly; cognitive health of women.

Sociology BA / Urban Strategy MS

Major: Sociology and Urban Strategy

Degree Awarded: Bachelor of Arts (BA) and Master of Science (MS)

Calendar Type: Quarter

Minimum Required Credits: 228.0

Co-op Options: One Co-op (Five years)

BA Classification of Instructional Programs (CIP) code: 45.1101

BA Standard Occupational Classification (SOC) code: 19-3041

MS Classification of Instructional Programs (CIP) code: 45.1201

MS Standard Occupational Classification (SOC) code: 19-3051

About the Program

The BA in Sociology with a concentration in urban sociology (180.0 credits) and MS in Urban Strategy (48.0 credits) is a combined BA/MS cross-disciplinary degree that focuses on the sociological analysis of cities, the communities that comprise them, and the social processes that organize and transform them. Students in the urban sociology concentration learn to apply sociological concepts and methods to analyze urban issues and problems including gentrification, revitalization, suburbanization, and urban decline; concepts of space, place, community and neighborhood; and urban challenges such as poverty, affordable housing, global warming, policing and incarceration.

The BA portion of the degree prepares students to be leaders in urban issues, populations and challenges, whether through careers in urban policy, planning, social work, community nonprofits, government, or industry. This leads directly into the MS in Urban Strategy, a program designed to prepare students to become 21st century urbanists equipped to collaboratively and creatively solve complex multifaceted urban challenges on all levels: locally, nationally, and globally. The program boasts a cross-disciplinary curriculum focused on strategy, problem solving, and collaboration in the domains of urban planning, design, health, engineering, policy, community and economic development, and sociology. Master's in Urban Strategy students will benefit from the strong grounding in theory and methods of urban sociology, while urban sociology undergraduate students will gain from extending their training into a highly marketable master's degree.

Admission Requirements

Students who meet the standard eligibility requirement for accelerated programs should consult with their advisor and work on an individual plan of study to submit with the Change of Curriculum form.

Degree Requirements

General Education Requirements

| | | |
|---|---|-----|
| CIVC 101 | Introduction to Civic Engagement | 1.0 |
| COOP 101 | Career Management and Professional Development | 1.0 |
| ENGL 101 | Composition and Rhetoric I: Inquiry and Exploratory Research | 3.0 |
| or ENGL 111 | English Composition I | |
| ENGL 102 | Composition and Rhetoric II: Advanced Research and Evidence-Based Writing | 3.0 |
| or ENGL 112 | English Composition II | |
| ENGL 103 | Composition and Rhetoric III: Themes and Genres | 3.0 |
| or ENGL 113 | English Composition III | |
| UNIV H101 | The Drexel Experience | 1.0 |
| UNIV H201 | Looking Forward: Academics and Careers | 1.0 |
| Two Consecutive Foreign Language Courses ** | | 8.0 |

College of Arts and Sciences Core Curriculum ***

| | | |
|---|-------------------|---------|
| Developing Quantitative Reasoning *** | | 6.0-8.0 |
| Two courses in MATH based on placement exams OR | | |
| PHIL 111 | Symbolic Logic I | |
| or PHIL 121 | Symbolic Logic II | |
| Engaging the Natural World *** | | 6.0-8.0 |
| Analyzing Cultures & Histories *** | | 6.0-8.0 |
| Understanding Society & Human Behavior *** | | 6.0-8.0 |
| Cultivating Global Competence *** | | 6.0-8.0 |
| Perspectives in Diversity *** | | 3.0-4.0 |

Sociology Requirements

| | | |
|--------------|---------------------------------------|-----|
| SOC 101 | Introduction to Sociology | 3.0 |
| SOC 240 | Urban Sociology | 4.0 |
| SOC 241 | Research Design: Qualitative Methods | 4.0 |
| SOC 242 | Research Design: Quantitative Methods | 4.0 |
| SOC 355 [WI] | Classical Social Theory | 4.0 |
| SOC 356 [WI] | Contemporary Social Theory | 4.0 |
| SOC 450 | Capstone in Sociology | 4.0 |

Required Sociology Electives

Select at least nine of the following: (At least two must be at the 300 or 400 level).

| | | |
|---------|----------------------|--|
| SOC 115 | Social Problems | |
| SOC 207 | Medicine and Society | |

| | | |
|---------------------------------------|--|--------------------|
| SOC 210 | Race, Ethnicity and Social Inequality | |
| SOC 215 | Sociology of Work | |
| SOC 220 | Wealth and Power | |
| SOC 221 | Sociology of the Family | |
| SOC 222 | Sex and Society | |
| SOC 230 | Gender and Society | |
| SOC 235 | Sociology of Health and Illness | |
| SOC 238 | Sociology of Health Professions | |
| SOC 244 | Sociology of the Environment | |
| SOC 261 | Sex and The City | |
| SOC 268 | Sociology of Sport | |
| SOC 271 | Sociology of Aging | |
| SOC 276 | Global Climate Change | |
| SOC 281 | Gentrification and Neighborhood Change | |
| SOC 313 | Sociology of Global Health | |
| SOC 318 | Social Networks and Health | |
| SOC 320 | Sociology of Deviance | |
| SOC 330 | Development and Underdevelopment in the Global South | |
| SOC 335 | Sociology of Education | |
| SOC 340 | Globalization | |
| SOC 341 | Global Environmental Movements | |
| SOC 346 | Environmental Justice | |
| SOC 349 | Sociology of Disasters | |
| SOC 370 | Practicum in Applied and Community Sociology | |
| SOC 405 | Medicine, Technology and Science | |
| SOC 406 | Housing and Homelessness | |
| SOC 410 | Imagining Multiple Democracies | |
| SOC 420 | Love, Rage & Debt: The Debt Society | |
| SOC 430 | Politics of Life | |
| SOC 444 | Social Movements | |
| SOC 490 | Sociology Research Seminar I: Research Design | |
| SOC 491 | Sociology Research Seminar II: Data Acquisition and Analysis | |
| SOC 492 | Sociology Research Seminar III: Practicum in Sociological Research | |
| SOC T380 | Special Topics in SOC | |
| Urban Sociology Electives | | |
| Select two of the following: | | 8.0 |
| SOC 261 | Sex and The City | |
| SOC 406 | Housing and Homelessness | |
| SOC T280 | Special Topics in Sociology ((Gentrification and Neighborhood Change)) | |
| Free Electives | | 55.0 |
| MS Urban Strategy Requirements | | |
| ECON 616 | Public Finance and Cost Benefit Analysis | 3.0 |
| EOH 550 | Introduction to Urban Health | 3.0 |
| URBS 510 | History of Urban Space (Shared Course) | 3.0 |
| URBS 520 | What is a City | 3.0 |
| URBS 530 | Quantitative Methods & Reasoning for Urban Strategists | 3.0 |
| URBS 610 | Civic Engagement & Participatory Methods | 3.0 |
| URBS 620 | City of Systems | 3.0 |
| URBS 630 | Spatial Reasoning for Urbanists, Architects & Designers | 3.0 |
| URBS 670 | Thesis I: Research Inquiry & Design | 3.0 |
| URBS 675 | Thesis Seminar I | 1.5 |
| URBS 680 | Thesis II: Fieldwork | 3.0 |
| URBS 685 | Thesis Seminar II | 1.5 |
| URBS 690 | Thesis III: Documentation | 3.0 |
| Four Graduate Free Electives † | | 12.0 |
| Total Credits | | 228.0-239.0 |

* Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

** Select from one of the following:

Two courses in: ARBC 103 or ARBC 201-499, CHIN 103 or CHIN 201-499, FREN 103 or FREN 201-499, GER 103 or GER 201-499, JAPN 103 or JAPN 201-499, KOR 103 or KOR 201-499, SPAN 103 or SPAN 201-499.

*** See Core Curriculum List (p. 5) for complete list of course options

† Select 12.0 credits from 500-600 level courses, including special topics (T580 and T680) in AADM, AAML, BUSN, CHP, COM, DSRE, EDPO, ENTP, ENVP, HMP, INTR, PBHL, PLCY, SCTS, URBS.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

4+1, 1 co-op (Accelerated program completed in 5 years)

Students complete undergraduate requirements in four years, then convert to graduate status in the fifth and final year.

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--|------------------------------------|-----------------------------------|----------------|----------|
| ENGL 101 or 111 | 3.0 CIVC 101 | 1.0 COOP 101* | 1.0 VACATION | |
| SOC 101 | 3.0 ENGL 102 or 112 | 3.0 ENGL 103 or 113 | 3.0 | |
| UNIV H101 | 1.0 SOC 240 | 4.0 (UG) Free Electives | 7.0 | |
| Developing Quantitative Reasoning | 3.0-4.0 Engaging the Natural World | 3.0-4.0 Perspectives in Diversity | 3.0-4.0 | |
| Foreign Language Course | 4.0 Foreign Language Course | 4.0 Sociology Elective | 4.0 | |
| Understanding Society & Human Behavior | 3.0-4.0 | | | |
| | 17-19 | 15-16 | 18-19 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------------------------|--|--|--------------------------------|-----------|
| SOC 241 | 4.0 SOC 355 | 4.0 SOC 242 | 4.0 UNIV H201 | 1.0 |
| Developing Quantitative Reasoning | 3.0-4.0 Analyzing Cultures & Histories | 3.0-4.0 Analyzing Cultures & Histories | 3.0-4.0 (UG) Free Elective | 3.0 |
| Sociology Electives | 8.0 Engaging the Natural World | 3.0-4.0 (UG) Free Electives | 6.0 Sociology Elective 300-400 | 4.0 |
| | (UG) Free Electives | 4.0 Sociology Elective | 4.0 Sociology Elective 300-400 | 4.0 |
| | Sociology Elective | 4.0 | Sociology Urban Elective | 4.0 |
| | 15-16 | 18-20 | 17-18 | 16 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--|-----------------------------------|---------------------|-----------------|---------|
| Cultivating Global Competence | 3.0-4.0 SOC 356 | 4.0 COOP EXPERIENCE | COOP EXPERIENCE | |
| (UG) Free Elective | 3.0 Cultivating Global Competence | 3.0-4.0 | | |
| Sociology Urban Elective | 4.0 (UG) Free Electives | 6.0 | | |
| Understanding Society & Human Behavior | 3.0-4.0 URBS 610 | 3.0 | | |

| | | | | |
|------------------------------|-------------------------|-------------------------|--|----------------|
| URBS 510 | 3.0 | | | |
| | 16-18 | 16-17 | 0 | 0 |
| Fourth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| (UG) Free Electives | 4.0 SOC 450 | 4.0 (UG) Free Electives | 12.0 Student converts to Graduate status | |
| Sociology Electives | 8.0 (UG) Free Electives | 10.0 ECON 616 | 3.0 | |
| URBS 520 | 3.0 URBS 620 | 3.0 (GR) URBS Elective | 3.0 | |
| URBS 530 | 3.0 URBS 630 | 3.0 | | |
| | 18 | 20 | 18 | 0 |
| Fifth Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits | |
| EOH 550 | 3.0 URBS 675 | 1.5 URBS 685 | 1.5 | |
| URBS 670 | 3.0 URBS 680 | 3.0 URBS 690 | 3.0 | |
| (GR) URBS Elective | 3.0 (GR) URBS Elective | 3.0 (GR) URBS Elective | 3.0 | |
| | 9 | 7.5 | 7.5 | |
| Total Credits 228-239 | | | | |

* Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

English BA / Law JD

Major: English and Law

Degree Awarded: Bachelor of Arts (BA) and Juris Doctor (JD)

Calendar Type: Quarter and semester

Minimum Required Credits: 180.0 quarter credits & 85.0 semester credits

Co-op Options: No Co-op (Six years)

Classification of Instructional Programs (CIP) code: 23.9999

Standard Occupational Classification (SOC) code: 19-3094

JD Classification of Instructional Programs (CIP) code: 21.0101

JD Standard Occupational Classification (SOC) code: 23-1011

About the Program

This accelerated degree program combines the BA in English in the College of Arts and Sciences and the JD offered by the Kline School of Law. It is a "3+3" program, allowing qualified students to earn both their BA in English and their JD in six years. The study of English provides a strong foundation for success in law school.

Admission Requirements

For the BA: Standard for all Drexel undergraduate programs

To be admitted to Drexel's Kline School of Law, students must:

- Maintain a minimum cumulative undergraduate GPA of 3.45
- Earn a LSAT score that meets or exceeds the Kline School of Law's current LSAT median (as determined by point of entry into the undergraduate program) no later than December of year 3 of undergraduate program
- Actively participate in pre-law and BAJD activities
- Meet regularly with academic advisor and the pre-law advisor
- Maintain satisfactory progress towards completing required undergraduate coursework as set out in the plan of study in three years
- File complete, binding application to the Kline School of Law by December 31 of year 3 of undergraduate program
- Comply with all admission and seat deposit requirements of the Kline School of Law
- Comply with all character and fitness requirements of the Kline School of Law

Students who do not meet these qualifications may still be granted admission if space is available.

Degree Requirements

University Requirements

| | | |
|-------------|---|-----|
| CIVC 101 | Introduction to Civic Engagement | 1.0 |
| ENGL 101 | Composition and Rhetoric I: Inquiry and Exploratory Research | 3.0 |
| or ENGL 111 | English Composition I | |
| ENGL 102 | Composition and Rhetoric II: Advanced Research and Evidence-Based Writing | 3.0 |
| or ENGL 112 | English Composition II | |
| ENGL 103 | Composition and Rhetoric III: Themes and Genres | 3.0 |
| or ENGL 113 | English Composition III | |
| UNIV H101 | The Drexel Experience | 1.0 |
| UNIV H201 | Looking Forward: Academics and Careers | 1.0 |

College of Arts and Sciences Core Curriculum *

| | | |
|---|-------------------|---------|
| Developing Quantitative Reasoning * | | 6.0-8.0 |
| Two courses in MATH based on placement exams OR | | |
| PHIL 111 | Symbolic Logic I | |
| or PHIL 121 | Symbolic Logic II | |
| Engaging the Natural World * | | 6.0-8.0 |
| Analyzing Cultures & Histories * | | 6.0-8.0 |
| Understanding Society & Human Behavior * | | 6.0-8.0 |
| Cultivating Global Competence * | | 6.0-8.0 |
| Perspectives in Diversity * | | 3.0-4.0 |

Language Requirement

8.0

Select 2 consecutive courses in a foreign language, reaching at least 103 **

English Major Requirements

English Core Courses

30.0

| | |
|---|--|
| ENGL 195 | English Freshman Seminar |
| ENGL 207 [W] | African American Literature |
| ENGL 301 | English Major Colloquium (1.0 credit course, repeated three times for 3.0 credits total) |
| ENGL 315 [W] | Shakespeare |
| ENGL 325 | Topics in World Literature |
| ENGL 355 [W] | Women and Literature |
| ENGL 495 | Senior Project in Literature |
| WRIT 195 | Threshold Concepts in Writing |
| WRIT 200 | Language Puzzles and Word Games: Issues in Modern Grammar |
| WRIT 225 [W] | Creative Writing |
| Concentration in A) Literary Studies or B) Writing - Choose one: | |
| 36.0 | |
| A) Literary Studies Concentration | |
| Literature Surveys - Select four for a minimum of 12.0 credits | |
| ENGL 200 [W] | Classical to Medieval Literature |
| ENGL 201 | Renaissance to the Enlightenment |
| ENGL 202 [W] | Romanticism to Modernism |
| ENGL 203 [W] | Survey of World Literature |
| ENGL 204 | Post-Colonial Literature |
| ENGL 205 [W] | American Literature I |
| ENGL 206 [W] | American Literature II |
| ENGL 211 [W] | British Literature I |
| ENGL 212 | British Literature II |
| Authors and Periods - Select one for a minimum of 3.0 credits | |
| ENGL 310 [W] | Period Studies |
| ENGL 320 [W] | Major Authors |
| Literary Impacts - Select one for a minimum of 3.0 credits | |
| ENGL 300 [W] | Literature & Science |
| ENGL 323 | Literature and Other Arts |
| ENGL 360 [W] | Literature and Society |
| Literary Traditions - Select one for a minimum of 3.0 credits | |
| ENGL 330 | The Bible as Literature |
| ENGL 335 | Mythology |
| Literary Theory - 3.0 credits | |
| ENGL 380 | Literary Theory |
| Literature Seminars - Take both for a minimum of 6.0 credits | |
| ENGL 490 | Seminar in English and American Literature |
| ENGL 492 | Seminar in World Literature |
| English Electives - minimum of 6.0 credits | |
| Choose any additional 2 courses (300+) in WRIT or ENGL for a minimum of 6.0 credits | |
| B) Writing Concentration | |
| Foundations - Select one for a minimum of 3.0 credits | |
| WRIT 210 [W] | The Peer Reader in Context |
| or WRIT 211 | Advanced Composition |
| Rhetoric and Technique - Select one for a minimum of 3.0 credits | |
| WRIT 212 | Argument and Rhetoric |
| or WRIT 295 | Forms Seminar |
| Audience Awareness - Select one for a minimum of 3.0 credits | |
| WRIT 312 [W] | Writing for Target Audiences |
| or WRIT 315 | Writing for Social Change |
| Writing Practices - Select seven additional courses for a minimum of 21.0 credits (at least 5 must be WRIT or ENGL courses) | |
| COM 160 [W] | Introduction to Journalism |
| COM 270 [W] | Business Communication |
| COM 310 [W] | Technical Communication |
| COM 375 [W] | Grant Writing |
| ENGL 312 | Research Project Development |
| SCRP 220 | Playwriting I |
| SCRP 270 [W] | Screenwriting I |
| WRIT 210 [W] | The Peer Reader in Context |
| WRIT 211 | Advanced Composition |
| WRIT 212 | Argument and Rhetoric |
| WRIT 215 [W] | Story Medicine |
| WRIT 220 [W] | Creative Nonfiction Writing |

| | |
|---------------|--|
| WRIT 226 | Writing in Public Spaces |
| WRIT 250 | "Mistakes Were Made": Truth, Writing, and Responsibility |
| WRIT 295 | Forms Seminar |
| WRIT 301 [WI] | Writing Poetry |
| WRIT 302 [WI] | Writing Fiction |
| WRIT 303 | Writing Humor and Comedy |
| WRIT 305 | Life is Beautiful |
| WRIT 306 | Writing About the Media |
| WRIT 310 | Literary Editing & Publication |
| WRIT 311 | Writing and Reading the Memoir |
| WRIT 312 [WI] | Writing for Target Audiences |
| WRIT 315 | Writing for Social Change |
| WRIT 400 [WI] | Writing in Cyberspace: Writing for/about the Web |
| WRIT 401 | Advanced Poetry Workshop |
| WRIT 402 | Advanced Fiction Workshop |
| WRIT 405 | Internship in Publishing |
| WRIT T380 | Special Topics in Writing |

English Electives - minimum of 6.0 credits

Choose any additional two courses (300+) in WRIT or ENGL for a minimum of 6.0 credits

Free Electives (Undergraduate) 28.0

Choose 28.0 credits from any discipline (consider a minor).

Free Electives (Law School Requirements) 33.0

Take 22.0 semester credits of required first-year law courses (that count as 33.0 undergraduate quarter credits)

Law School Requirements ***

| | |
|----------|--|
| LAW 550S | Torts |
| LAW 552S | Contracts |
| LAW 554S | Civil Procedure |
| LAW 555S | Legislation and Regulation |
| LAW 556S | Property |
| LAW 558S | Criminal Law |
| LAW 560S | Constitutional Law (Law Reqts/Electives) |
| LAW 565S | Legal Methods I |
| LAW 566S | Legal Methods II |
| LAW 830S | Professional Responsibility |

Electives and Menu Requirements including:

One Upper Level Writing Course (WUL). See list below.

One Statutory Course

One Professional Practice Course

Total Credits

180.0-191.0

* See Core Curriculum List (p. 5) for complete list of course options.

** Select two consecutive courses at the 102-499 level within the same subject code: ARBC, CHIN, FREN, GER, JAPN, KOR, SPAN.

Language courses may count toward the College Core Curriculum requirements, in which case students may take a corresponding number of free electives.

*** A minimum of 61.0 credits must be "in-class" credits. See Student Handbook for definitions.

Students must also complete a minimum of 50 hours of eligible pro bono work, documented with the Law School's Experiential Learning Office.

Law School Courses

Upper-Level Writing (WUL) Courses (may also be used as electives once requirement is fulfilled):

| | | |
|----------|-------------------------------|---------|
| LAW 610S | Reproductive Rights & Justice | 2.0-3.0 |
| LAW 611S | Sex, Gender, & the Law | 2.0-3.0 |
| LAW 614S | Supreme Court Seminar | 3.0 |
| LAW 640S | Education Law | 2.0-3.0 |
| LAW 647S | The Rights of Children | 2.0 |
| LAW 656S | Justice Lawyering Sem | 1.0-3.0 |
| LAW 673S | Crime and Community | 2.0 |
| LAW 741S | Estate Planning | 2.0 |
| LAW 790S | Toxic Torts | 2.0-3.0 |
| LAW 791S | Regulating Patient Safety | 2.0-3.0 |
| LAW 793S | Mental Health Law | 2.0-3.0 |

| | | |
|---|---|-----------|
| LAW 827S | Immigration Litigation | 2.0 |
| LAW 832S | Contract Theory Seminar | 2.0-3.0 |
| LAW 836S | Legal History | 2.0-3.0 |
| LAW 838S | Foundations of Legal Analysis | 2.0 |
| LAW 840S | Literature and The Law Seminar | 2.0-3.0 |
| LAW 842S | Law and Mind Sciences | 2.0-3.0 |
| LAW 844S | Law and Social Movements | 2.0-3.0 |
| LAW 848S | Courts and Public Policy | 2.0-3.0 |
| LAW 882S | Litigation Drafting | 2.0 |
| LAW 884S | Contract Drafting | 2.0 |
| LAW 910S | Appellate Advocacy | 2.0 |
| LAW 920S | Drexel Law Review ((if WUL option)) | 1.0-6.0 |
| LAW T880S | Special Topics in LAW | 1.0-5.0 |
| Statutory Courses (may also be used as electives once requirement is fulfilled): | | |
| LAW 620S | Administrative Law | 3.0-4.0 |
| LAW 622S | Employment Discrimination | 3.0 |
| LAW 623S | Election Law | 3.0-4.0 |
| LAW 624S | Environmental Law | 3.0 |
| LAW 642S | Special Education Law | 2.0-3.0 |
| LAW 674S | Health Care Fraud and Abuse | 2.0-3.0 |
| LAW 675S | Federal Criminal Law | 2.0-3.0 |
| LAW 676S | White Collar Crime | 2.0-3.0 |
| LAW 700S | Business Organizations | 3.0-4.0 |
| LAW 701S | Federal Income Tax | 3.0-4.0 |
| LAW 702S | Enterprise Tax | 3.0-4.0 |
| LAW 706S | Secured Transactions | 3.0 |
| LAW 708S | Payment Systems | 3.0 |
| LAW 710S | Bankruptcy | 3.0-4.0 |
| LAW 711S | Sales | 3.0 |
| LAW 714S | Securities Regulation | 3.0 |
| LAW 740S | Trusts and Estates | 3.0-4.0 |
| LAW 760S | Copyright | 3.0 |
| LAW 764S | Trademarks & Unfair Competition | 3.0 |
| LAW 792S | Food and Drug Law | 2.0-3.0 |
| LAW 796S | Insurance Law | 2.0-3.0 |
| LAW 820S | Immigration Law | 3.0-4.0 |
| LAW 821S | European Union Law | 2.0-3.0 |
| LAW 826S | Refugee and Asylum Law | 2.0-3.0 |
| Professional Practice Courses (may also be used as electives once requirement is fulfilled): | | |
| LAW 924S & LAW 653S | Entrepreneurial Law Clinic and Entrepreneurial Law Clinic Seminar | 6.0-7.0 |
| LAW 931S & LAW 654S | Law Co-op and Lawyering Practice Seminar | 5.0-11.0 |
| LAW 933S & LAW 654S | Co-op Intensive and Lawyering Practice Seminar | 11.0-12.0 |
| LAW 941S & LAW 942S | Criminal Litigation Clinic I and Criminal Litigation Clinic II | 10.0-12.0 |
| LAW 943S & LAW 944S | Civil Litigation Clinic I and Civil Litigation Clinic II | 10.0-12.0 |
| LAW 947S & LAW 948S | Federal Litigation and Appeals Clinic and Federal Litigation and Appeals Clinic II | 10.0-12.0 |
| LAW 950S & LAW 951S | Community Lawyering Clinic I and Community Lawyering Clinic II | 10.0-12.0 |
| Free Electives (may require permission to enroll) | | |
| Any other unspecified LAW course numbered 550S and above may count as a JD elective | | |

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

Literary Studies Concentration

Undergraduate course credits are quarter credits

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--|--|--|----------------|----------|
| ENGL 101 | 3.0 CIVC 101 | 1.0 ENGL 103 | 3.0 VACATION | |
| ENGL 195 | 3.0 ENGL 102 | 3.0 ENGL 204 | 3.0 | |
| UNIV H101 | 1.0 ENGL 203 | 3.0 WRIT 225 | 3.0 | |
| WRIT 195 | 3.0 WRIT 200 | 3.0 Engaging the Natural World | 3.0-4.0 | |
| Developing Quantitative Reasoning | 3.0-4.0 Developing Quantitative Reasoning | 3.0-4.0 Understanding Society and Human Behavior | 3.0-4.0 | |
| Foreign Language Course (1st consecutive course) | 4.0 Foreign Language Course (2nd consecutive course, at least 103-level) | 4.0 | | |
| | 17-18 | 17-18 | 15-17 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|---------------------------------|--|-----------------------------------|----------------|----------|
| ENGL 211 | 3.0 ENGL 212 | 3.0 ENGL 301 | 1.0 VACATION | |
| ENGL 207 | 3.0 ENGL 325 | 3.0 ENGL 355 | 3.0 | |
| ENGL 301 | 1.0 Analyzing Culture and Histories | 3.0-4.0 WRIT 310 | 3.0 | |
| Analyzing Culture and Histories | 3.0-4.0 Cultivating Global Competence | 3.0-4.0 Perspectives in Diversity | 3.0-4.0 | |
| Cultivating Global Competence | 3.0-4.0 Understanding Society and Human Behavior | 3.0-4.0 Undergraduate Electives | 6.0 | |
| Engaging the Natural World | 3.0-4.0 | | | |
| | 16-19 | 15-18 | 16-17 | 0 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--------------------------------|------------------------------------|-----------------------------|---|----------|
| ENGL 301 | 1.0 ENGL 360 | 3.0 ENGL 315 | 3.0 Student transitions to First Year of Law School | |
| ENGL 335 | 3.0 ENGL 380 | 3.0 Undergraduate Electives | 12.0 | |
| ENGL 490 | 3.0 ENGL 492 | 3.0 | | |
| UNIV H201 | 1.0 ENGL 495 | 3.0 | | |
| ENGL or WRIT Elective (1 of 2) | 3.0 ENGL or WRIT Elective (2 of 2) | 3.0 | | |
| Undergraduate Electives | 6.0 Undergraduate Elective | 1.0 | | |
| | 17 | 16 | 15 | 0 |

Total Credits 144-155

Law School course credits are semester credits

First Year Law course credits (22.0 semester credits) are counted toward the English BA.

Fourth Year

| Fall | Credits Spring | Credits |
|---|---|---------|
| LAW 550S (Counts toward UG free elective) | 4.0 LAW 555S (Counts toward UG free elective) | 3.0 |
| LAW 552S (Counts toward UG free elective) | 4.0 LAW 556S (Counts toward UG free elective) | 4.0 |
| LAW 554S (Counts toward UG free elective) | 4.0 LAW 558S | 4.0 |

| | | |
|---|---------------------------------|----------------|
| LAW 565S (Counts toward UG free elective) | 3.0 LAW 566S | 3.0 |
| | 15 | 14 |
| Fifth Year | | |
| Fall | Credits Spring | Credits |
| LAW 560S | 4.0 LAW 830S | 2.0 |
| LAW Requirements/Electives | 10.0 Law Requirements/Electives | 12.0 |
| | 14 | 14 |
| Sixth Year | | |
| Fall | Credits Spring | Credits |
| Law Requirements/Electives | 14.0 Law Requirements/Electives | 14.0 |
| | 14 | 14 |
| Total Credits 85 | | |

History BA / Law JD

Major: History and Law

Degree Awarded: Bachelor of Arts (BA) and Juris Doctor (JD)

Calendar Type: Quarter and semester

Minimum Required Credits: 181.0 quarter credits & 85.0 semester credits

Co-op Options: No Co-op (Six years)

BA Classification of Instructional Programs (CIP) code: 54.0101

BA Standard Occupational Classification (SOC) code: 19-3093

JD Classification of Instructional Programs (CIP) code: 22.0101

JD Standard Occupational Classification (SOC) code: 23-1011

About the Program

This accelerated degree program combines the BA in History in the College of Arts and Sciences and the JD offered by the Kline School of Law. It is a "3+3" program, allowing qualified students to earn both their BA in History and their JD in six years. The study of history provides a strong foundation for success in law school.

Admission Requirements

For the BA: Standard admission requirements (<https://drexel.edu/admissions/overview/>) for all Drexel undergraduate programs

To be admitted to Drexel's Kline School of Law, students must:

- Maintain a minimum cumulative undergraduate GPA of 3.45
- Earn a LSAT score that meets or exceeds the Kline School of Law's current LSAT median (as determined by point of entry into the undergraduate program) no later than December of year 3 of undergraduate program
- Actively participate in pre-law and BAJD activities
- Meet regularly with academic advisor and the pre-law advisor
- Maintain satisfactory progress towards completing required undergraduate coursework as set out in the plan of study in three years
- File complete, binding application to the Kline School of Law by December 31 of year 3 of undergraduate program
- Comply with all admission and seat deposit requirements of the Kline School of Law
- Comply with all character and fitness requirements of the Kline School of Law

Students who do not meet these qualifications may still be granted admission if space is available.

Degree Requirements

General Education Requirements

| | | |
|-------------------------|---|---------|
| ENGL 101 or ENGL 111 | Composition and Rhetoric I: Inquiry and Exploratory Research English Composition I | 3.0 |
| ENGL 102 or ENGL 112 | Composition and Rhetoric II: Advanced Research and Evidence-Based Writing English Composition II | 3.0 |
| ENGL 103 or ENGL 113 | Composition and Rhetoric III: Themes and Genres English Composition III | 3.0 |
| UNIV H101 | The Drexel Experience | 1.0 |
| UNIV H201 | Looking Forward: Academics and Careers | 1.0 |
| CIVC 101 | Introduction to Civic Engagement | 1.0 |
| Math courses | | 6.0-8.0 |

| | |
|--|--------------------------------------|
| Science courses ** | 6.0-8.0 |
| Foundation Requirements | |
| Studies in Diversity electives | 6.0 |
| Two Consecutive Foreign Language courses (must complete level 201) *** | 8.0 |
| Humanities/Fine Arts electives | 12.0 |
| Social Science electives | 12.0 |
| International Studies electives | 6.0 |
| Core History Requirements | 32.0 |
| HIST 101 | Introductory Seminar in History I † |
| HIST 102 | Introductory Seminar in History II † |
| HIST 296 | Research Methods in History I † |
| HIST 301 | The Study of History † |
| HIST 396 | Research Methods in History II † |
| HIST 490 [WI] | Senior Seminar I † |
| HIST 491 [WI] | Senior Seminar II † |
| Any 1 Advanced History Seminar (Topics will vary) | |
| HIST 380 | Advanced History Seminar |
| History Distribution Courses (Only 200-level and above HIST courses will fulfill this requirement) | 20.0 |
| Any 2 non-U.S. History courses | |
| Any 1 U.S. History Course | |
| Any 1 History course covering pre-1700 history (May not be HIST 201) | |
| Any 1 History of Science, Technology, and Environment course | |
| History Concentration courses or any 7 History courses (at least four must be 200-level and above) | 28.0 |
| Free electives fulfilled by 22 semester credits from first-year law courses | 33.0 |
| Law School Requirements | |
| LAW 550S | Torts |
| LAW 552S | Contracts |
| LAW 554S | Civil Procedure |
| LAW 555S | Legislation and Regulation |
| LAW 556S | Property |
| LAW 558S | Criminal Law |
| LAW 560S | Constitutional Law |
| LAW 565S | Legal Methods I |
| LAW 566S | Legal Methods II |
| LAW 830S | Professional Responsibility |
| Electives and Menu Requirements including: | 49.0-50.0 |
| One Upper-Level Writing Course (WUL) | |
| One Statutory Course | |
| One Professional Practice Course | |

** Any Biology (BIO), Chemistry (CHEM), Geoscience (GEO), Nutrition (NFS), Physics (PHYS) or Environmental Science (ENVS) course, or Physics-Environmental Science (PHEV)

*** University requirement is two consecutive courses; the third language course, though listed here, is a departmental requirement.

† HIST 101 - HIST 491 [WI] must be taken in sequence.

Upper-Level Writing (WUL) Courses (may also be used as electives one requirement is fulfilled):

| | | |
|----------|--|---------|
| LAW 610S | Reproductive Rights & Justice | 2.0-3.0 |
| LAW 611S | Sex, Gender, & the Law | 3.0 |
| LAW 614S | Supreme Court Seminar | 3.0 |
| LAW 647S | The Rights of Children | 2.0 |
| LAW 656S | Justice Lawyering Sem (if full-year paper) | 1.0-3.0 |
| LAW 673S | Crime and Community | 2.0 |
| LAW 790S | Toxic Torts | 2.0 |
| LAW 791S | Regulating Patient Safety | 2.0 |
| LAW 793S | Mental Health Law (if paper option) | 3.0 |
| LAW 827S | Immigration Litigation | 2.0 |
| LAW 828S | International Business Transactions | 2.0-3.0 |
| LAW 832S | Contract Theory Seminar | 2.0-3.0 |
| LAW 836S | Legal History | 2.0-3.0 |
| LAW 838S | Foundations of Legal Analysis | 2.0 |
| LAW 840S | Literature and The Law Seminar | 2.0 |

| | | |
|--|--|-----------|
| LAW 842S | Law and Mind Sciences | 2.0 |
| LAW 844S | Law and Social Movements | 3.0 |
| LAW 848S | Courts and Public Policy | 2.0-3.0 |
| LAW 882S | Litigation Drafting | 2.0 |
| LAW 884S | Contract Drafting | 2.0 |
| LAW 910S | Appellate Advocacy | 2.0 |
| LAW 920S | Drexel Law Review (if WUL option) | 1.0-6.0 |
| LAW T880S | Special Topics in LAW | 1.0-5.0 |
| Statutory Courses (may also be used as electives once requirement is fulfilled): | | |
| LAW 620S | Administrative Law | 4.0 |
| LAW 622S | Employment Discrimination | 3.0 |
| LAW 623S | Election Law | 3.0 |
| LAW 624S | Environmental Law | 3.0 |
| LAW 642S | Special Education Law | 2.0-3.0 |
| LAW 674S | Health Care Fraud and Abuse | 2.0 |
| LAW 675S | Federal Criminal Law | 2.0-3.0 |
| LAW 676S | White Collar Crime | 2.0-3.0 |
| LAW 700S | Business Organizations | 3.0-4.0 |
| LAW 701S | Federal Income Tax | 4.0 |
| LAW 702S | Enterprise Tax | 4.0 |
| LAW 706S | Secured Transactions | 3.0 |
| LAW 708S | Payment Systems | 3.0 |
| LAW 710S | Bankruptcy | 3.0-4.0 |
| LAW 711S | Sales | 3.0 |
| LAW 714S | Securities Regulation | 3.0 |
| LAW 740S | Trusts and Estates | 3.0 |
| LAW 760S | Copyright | 3.0 |
| LAW 764S | Trademarks & Unfair Competition | 3.0 |
| LAW 792S | Food and Drug Law | 3.0 |
| LAW 796S | Insurance Law | 2.0 |
| LAW 820S | Immigration Law | 3.0-4.0 |
| LAW 821S | European Union Law | 2.0-3.0 |
| LAW 826S | Refugee and Asylum Law | 2.0 |
| Professional Practice Courses (may also be used as electives once requirement is fulfilled): | | |
| LAW 924S & LAW 653S | Entrepreneurial Law Clinic and Entrepreneurial Law Clinic Seminar | 7.0 |
| LAW 931S & LAW 654S | Law Co-op and Lawyering Practice Seminar | 8.0-9.0 |
| LAW 941S & LAW 942S & LAW 656S | Criminal Litigation Clinic I and Criminal Litigation Clinic II and Justice Lawyering Sem | 14.0-15.0 |
| LAW 943S & LAW 944S & LAW 656S | Civil Litigation Clinic I and Civil Litigation Clinic II and Justice Lawyering Sem | 14.0-15.0 |
| LAW 947S & LAW 948S & LAW 656S | Federal Litigation and Appeals Clinic and Federal Litigation and Appeals Clinic II and Justice Lawyering Sem | 14.0-15.0 |
| LAW 950S & LAW 951S & LAW 656S | Community Lawyering Clinic I and Community Lawyering Clinic II and Justice Lawyering Sem | 14.0-15.0 |
| Free Electives (may require permission to enroll) | | |
| Any other unspecified LAW course numbered 550S and above may count as JD elective | | |

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>).

program/drexel-writing-center/) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

Undergraduate course credits are quarter credits

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--------------------------------|----------------|---------------------------|----------------|----------|
| ENGL 101 | 3.0 CIVC 101 | 1.0 ENGL 103 | 3.0 VACATION | |
| HIST 101 | 4.0 ENGL 102 | 3.0 Math | 3.0-4.0 | |
| UNIV H101 | 1.0 HIST 102 | 4.0 U.S. History course | 4.0 | |
| Non-U.S. History course | 4.0 Math | 3.0-4.0 History electives | 8.0 | |
| Language (103-level or higher) | 4.0 Language | 3.0-4.0 | | |
| | 16 | 14-16 | 18-19 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--|--|------------------------------------|----------------|----------|
| HIST 296 | 4.0 HIST 396 | 4.0 Non-U.S. History course | 4.0 VACATION | |
| HIST 301 | 4.0 History of Science, Technology, and Environment course | 4.0 International Studies elective | 3.0 | |
| Science | 3.0-4.0 Humanities/Fine arts elective | 3.0 Social Science | 3.0 | |
| History course covering pre-1700 history | 4.0 Social Science | 3.0 Humanities/Fine arts elective | 3.0 | |
| | Science | 3.0-4.0 History Elective | 4.0 | |
| | 15-16 | 17-18 | 17 | 0 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--------------------------------|-----------------------------------|-------------------------------------|---|----------|
| HIST 490 | 4.0 HIST 380 | 4.0 History Electives | 8.0 VACATION | |
| UNIV H201 | 1.0 HIST 491 | 4.0 Humanities / Fine Arts Elective | 3.0 Student transitions to First Year of Law School | |
| History Elective | 4.0 Humanities/Fine arts elective | 3.0 Diversity Elective | 3.0 | |
| Social Science elective | 3.0 History Electives | 8.0 Social Science Elective | 3.0 | |
| International Studies Elective | 3.0 | | | |
| | 15 | 19 | 17 | 0 |

Total Credits 148-153

Law School course credits are semester credits

First Year Law course credits (22 semester credits) are counted toward the History BA.

Fourth Year

| Fall | Credits Spring | Credits |
|---|---|-----------|
| LAW 550S (Counts toward UG free elective) | 4.0 LAW 555S (Counts toward UG free elective) | 3.0 |
| LAW 552S (Counts toward UG free elective) | 4.0 LAW 556S (Counts toward UG free elective) | 4.0 |
| LAW 554S (Counts toward UG free elective) | 4.0 LAW 558S | 4.0 |
| LAW 565S (Counts toward UG free elective) | 3.0 LAW 566S | 3.0 |
| | 15 | 14 |

Fifth Year

| Fall | Credits Spring | Credits |
|---------------------|--------------------------|-----------|
| LAW 560S | 4.0 LAW 830S | 2.0 |
| LAW Reqts/Electives | 10.0 LAW Reqts/Electives | 12.0 |
| | 14 | 14 |

Sixth Year

| Fall | Credits Spring | Credits |
|---------------------|--------------------------|---------|
| LAW Reqts/Electives | 14.0 LAW Reqts/Electives | 14.0 |

Total Credits 85

Political Science BA / Law JD

Major: Political Science and Law

Degree Awarded: Bachelor of Arts (BA) and Juris Doctor (JD)

Calendar Type: Quarter and semester

Minimum Required Credits: 180.0 quarter credits & 85.0 semester credits

Co-op Options: No Co-op (Six years)

BA Classification of Instructional Programs (CIP) code: 45.1001

BA Standard Occupational Classification (SOC) code: 19-3094

JD Classification of Instructional Programs (CIP) code: 22.0101

JD Standard Occupational Classification (SOC) code: 23-1011

About the Program

This accelerated degree program combines the BA in Political Science in the College of Arts and Sciences and the JD offered by the Kline School of Law. It is a "3+3" program, allowing qualified students to earn both their BA in Political Science and their JD in six years. The study of government and politics provides a strong foundation for success in law school.

Admission Requirements

For the BA: Standard admission requirements (<https://drexel.edu/admissions/overview/>) for all Drexel undergraduate programs

To be admitted to Drexel's Kline School of Law, students must:

- Maintain a minimum cumulative undergraduate GPA of 3.45
- Earn a LSAT score that meets or exceeds the Kline School of Law's current LSAT median (as determined by point of entry into the undergraduate program) no later than December of year 3 of undergraduate program
- Actively participate in pre-law and BAJD activities
- Meet regularly with academic advisor and the pre-law advisor
- Maintain satisfactory progress towards completing required undergraduate coursework as set out in the plan of study in three years
- File complete, binding application to the Kline School of Law by December 31 of year 3 of undergraduate program
- Comply with all admission and seat deposit requirements of the Kline School of Law
- Comply with all character and fitness requirements of the Kline School of Law

Degree Requirements

General Education Requirements

| | | |
|-----------------------|---|-----|
| CIVC 101 | Introduction to Civic Engagement | 1.0 |
| ENGL 101 | Composition and Rhetoric I: Inquiry and Exploratory Research | 3.0 |
| or ENGL 111 | English Composition I | |
| ENGL 102 | Composition and Rhetoric II: Advanced Research and Evidence-Based Writing | 3.0 |
| or ENGL 112 | English Composition II | |
| ENGL 103 | Composition and Rhetoric III: Themes and Genres | 3.0 |
| or ENGL 113 | English Composition III | |
| UNIV H101 | The Drexel Experience | 1.0 |
| UNIV H201 | Looking Forward: Academics and Careers | 1.0 |
| Two Math courses | | 6.0 |
| Two Science courses * | | 6.0 |

Foundation Requirements

| | | |
|---|--|------|
| Studies in Diversity electives | | 6.0 |
| Three Consecutive Foreign Language courses (must complete level 201) ** | | 12.0 |
| Humanities/Fine Arts electives | | 12.0 |
| Social Science electives | | 12.0 |
| International Studies electives | | 6.0 |

Core Political Science Requirements

| | | |
|----------|------------------------------|-----|
| PSCI 110 | American Government | 4.0 |
| PSCI 120 | History of Political Thought | 4.0 |
| PSCI 140 | Comparative Politics I | 4.0 |

| | | |
|--|---|-------------|
| PSCI 150 | International Politics | 4.0 |
| Political Science Research Methods Sequence | | |
| PSCI 131 [WI] | Research Design for Political Science | 4.0 |
| PSCI 231 | Qualitative and Mixed-Methods Research in Political Science | 4.0 |
| PSCI 232 | Quantitative Research Methods in Political Science | 4.0 |
| Intermediate Courses | | 16.0 |
| Select four of the following courses: | | |
| PSCI 210 | American Political Development | |
| PSCI 220 | Constitutional Law I | |
| PSCI 223 | Comparative Political Thought | |
| PSCI 229 | Theories of Justice | |
| PSCI 240 | Comparative Politics II | |
| PSCI 250 | American Foreign Policy | |
| PSCI 252 | Global Governance | |
| PSCI 260 [WI] | Power in Protest: Social Movements in Comparative Perspective | |
| PSCI 330 | Public Opinion & Propaganda | |
| PSCI 363 | Constitutional Law II | |
| Political Science Electives | | 32.0 |
| Choose up to eight 200-level of above PSCI courses | | |
| Free electives fulfilled by 22.0 semester credits from first-year law courses (Law School Requirements) | | 33.0 |
| Law School required courses | | |
| LAW 550S | Torts | 3.0-5.0 |
| LAW 552S | Contracts | 3.0-5.0 |
| LAW 554S | Civil Procedure | 3.0-5.0 |
| LAW 555S | Legislation and Regulation | 3.0 |
| LAW 556S | Property | 3.0-5.0 |
| LAW 558S | Criminal Law | 3.0-5.0 |
| LAW 560S | Constitutional Law | 3.0-5.0 |
| LAW 565S | Legal Methods I | 2.0-4.0 |
| LAW 566S | Legal Methods II | 2.0-4.0 |
| LAW 830S | Professional Responsibility | 2.0-3.0 |
| Electives and Menu Requirements including: | | 49.0-50.0 |
| One Upper-Level Writing Course (WUL). See list below. | | |
| One Statutory Course. See list below. | | |
| One Professional Practice Course. See list below. | | |

* Any Biology (BIO), Chemistry (CHEM), Geoscience (GEO), Nutrition (NFS), Physics (PHYS) or Environmental Science (ENVS) course.

** University requirement is two consecutive courses; the third language course, though listed here, is a departmental requirement.

Law School Electives and Menu Requirements:

Upper-level writing (WUL) courses may also be used as electives once requirement is fulfilled

| | |
|-----------|-------------------------------------|
| LAW 610S | Reproductive Rights & Justice |
| LAW 611S | Sex, Gender, & the Law |
| LAW 614S | Supreme Court Seminar |
| LAW 647S | The Rights of Children |
| LAW 656S | Justice Lawyering Sem |
| LAW 673S | Crime and Community |
| LAW 790S | Toxic Torts |
| LAW 791S | Regulating Patient Safety |
| LAW 793S | Mental Health Law |
| LAW 827S | Immigration Litigation |
| LAW 828S | International Business Transactions |
| LAW 832S | Contract Theory Seminar |
| LAW 836S | Legal History |
| LAW 838S | Foundations of Legal Analysis |
| LAW 840S | Literature and The Law Seminar |
| LAW 842S | Law and Mind Sciences |
| LAW 844S | Law and Social Movements |
| LAW 910S | Appellate Advocacy |
| LAW 920S | Drexel Law Review |
| LAW T880S | Special Topics in LAW |

Statutory Courses (may also be used as electives once requirement is fulfilled):

| | |
|----------|---------------------------------|
| LAW 620S | Administrative Law |
| LAW 622S | Employment Discrimination |
| LAW 623S | Election Law |
| LAW 624S | Environmental Law |
| LAW 674S | Health Care Fraud and Abuse |
| LAW 675S | Federal Criminal Law |
| LAW 676S | White Collar Crime |
| LAW 700S | Business Organizations |
| LAW 701S | Federal Income Tax |
| LAW 702S | Enterprise Tax |
| LAW 706S | Secured Transactions |
| LAW 708S | Payment Systems |
| LAW 710S | Bankruptcy |
| LAW 711S | Sales |
| LAW 714S | Securities Regulation |
| LAW 740S | Trusts and Estates |
| LAW 760S | Copyright |
| LAW 764S | Trademarks & Unfair Competition |
| LAW 792S | Food and Drug Law |
| LAW 796S | Insurance Law |
| LAW 820S | Immigration Law |
| LAW 821S | European Union Law |
| LAW 826S | Refugee and Asylum Law |

Professional Practice Courses (may also be used as electives once requirement is fulfilled):

| | |
|-------------|--|
| LAW 931S | Law Co-op |
| or LAW 654S | Lawyering Practice Seminar |
| LAW 933S | Co-op Intensive |
| or LAW 654S | Lawyering Practice Seminar |
| LAW 941S | Criminal Litigation Clinic I |
| or LAW 944S | Civil Litigation Clinic II |
| or LAW 656S | Justice Lawyering Sem |
| LAW 943S | Civil Litigation Clinic I |
| or LAW 944S | Civil Litigation Clinic II |
| or LAW 656S | Justice Lawyering Sem |
| LAW 947S | Federal Litigation and Appeals Clinic |
| or LAW 948S | Federal Litigation and Appeals Clinic II |
| or LAW 656S | Justice Lawyering Sem |
| LAW 950S | Community Lawyering Clinic I |
| or LAW 951S | Community Lawyering Clinic II |
| or LAW 656S | Justice Lawyering Sem |
| LAW 924S | Entrepreneurial Law Clinic |
| or LAW 653S | Entrepreneurial Law Clinic Seminar |

Free Electives (may require permission to enroll)

Any other unspecified LAW course numbered 550S and above may count as JD elective

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

Undergraduate course credits are quarter credits

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-----------------|---------------------|-----------------------------|----------------|----------|
| ENGL 101 or 111 | 3.0 ENGL 102 or 112 | 3.0 ENGL 103 or 113 | 3.0 VACATION | |
| PSCI 110 | 4.0 PSCI 150 | 4.0 PSCI 131 | 4.0 | |
| PSCI 140 | 4.0 PSCI 120 | 4.0 Math course | 3.0 | |
| UNIV H101 | 1.0 CIVC 101 | 1.0 Language course | 4.0 | |
| Language course | 4.0 Language course | 4.0 Social Science elective | 3.0 | |
| | 16 | 16 | 17 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|-------------|-----------------------------|-----------------------------|----------------|----------|
| PSCI 220 | 4.0 PSCI 229 | 4.0 PSCI 250 | 4.0 VACATION | |
| PSCI 231 | 4.0 PSCI 232 | 4.0 PSCI 363 | 4.0 | |
| PSCI 310 | 4.0 Social Science elective | 3.0 Social Science elective | 3.0 | |
| Math course | 3.0 Diversity elective | 3.0 Science course | 3.0 | |
| | Humanities elective | 3.0 Humanities elective | 3.0 | |
| | 15 | 17 | 17 | 0 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--------------------|---------------------------------------|---------------------------------------|--|----------|
| PSCI 351 | 4.0 PSCI 240 | 4.0 PSCI 353 | 4.0 VACATION | |
| PSCI 363 | 4.0 PSCI 252 | 4.0 Science | 3.0 Student transitions to First Year of Law School | |
| PSCI T380 | 4.0 PSCI 284 | 4.0 Humanities | 3.0 | |
| UNIV H201 | 1.0 International Studies Elective | 3.0 Social Science | 3.0 | |
| Diversity Elective | 3.0 Humanities | 3.0 International Studies Elective | 3.0 | |
| | 16 | 18 | 16 | 0 |

Total Credits 148

Law School course credits are semester credits

First Year Law course credits (22 semester credits) are counted toward the Political Science BA.

Fourth Year

| Fall | Credits Spring | Credits |
|---|--|-----------|
| LAW 550S (Counts toward UG free elective) | 4.0 LAW 555S (Counts toward UG free elective) | 3.0 |
| LAW 552S (Counts toward UG free elective) | 4.0 LAW 556S (Counts toward UG free elective) | 4.0 |
| LAW 554S (Counts toward UG free elective) | 4.0 LAW 558S | 4.0 |
| LAW 565S (Counts toward UG free elective) | 3.0 LAW 566S | 3.0 |
| | 15 | 14 |

Fifth Year

| Fall | Credits Spring | Credits |
|----------------------------|---------------------------------|-----------|
| LAW 560S | 4.0 LAW 830S | 2.0 |
| Law Requirements/Electives | 10.0 Law Requirements/Electives | 12.0 |
| | 14 | 14 |

Sixth Year

| Fall | Credits Spring | Credits |
|----------------------------|---------------------------------|-----------|
| Law Requirements/Electives | 14.0 Law Requirements/Electives | 14.0 |
| | 14 | 14 |

Total Credits 85

Psychology BS / Law JD

Major: Psychology and Law

Degree Awarded: Bachelor of Science (BS) and Juris Doctor (JD)

Calendar Type: Quarter and semester

Minimum Required Credits: 180.0 quarter credits & 85.0 semester credits

Co-op Options: No Co-op (Six years)

BS Classification of Instructional Programs (CIP) code: 42.2799

BS Standard Occupational Classification (SOC) code: 19-3031

JD Classification of Instructional Programs (CIP) code: 22.0101

JD Standard Occupational Classification (SOC) code: 23-1011

About the Program

This accelerated degree program combines the BS in Psychology within the College of Arts and Sciences with the JD in Law within Thomas Kline School of Law. Through this program, potential BS/JD students may be identified when first admitted as entering freshman psychology majors. Finally, this is a "3+3" program allowing qualified students to earn their BS and JD in six years.

Admission Requirements

For the BS: Standard admission requirements (<https://drexel.edu/admissions/overview/>) for all Drexel undergraduate programs.

To be admitted to Drexel's Kline School of Law, students must:

- Maintain a minimum cumulative undergraduate GPA of 3.45
- Earn a LSAT score that at least meets the Kline School of Law's current LSAT median (as determined by point of entry into the undergraduate program) no later than December of year 3 of undergraduate program
- Actively participate in pre-law and BSJD activities
- Meet regularly with academic advisor and the pre-law advisor
- Maintain satisfactory progress towards completing required undergraduate coursework as set out in the plan of study in three years
- File complete, binding application to the Kline School of Law by December 31 of year 3 of undergraduate program
- Comply with all admission and seat deposit requirements of the Kline School of Law
- Comply with all character and fitness requirements of the Kline School of Law

Degree Requirements

College Requirements

| | | |
|--|---|---------|
| CIVC 101 | Introduction to Civic Engagement | 1.0 |
| COM 230 | Techniques of Speaking | 3.0 |
| ENGL 101 | Composition and Rhetoric I: Inquiry and Exploratory Research | 3.0 |
| or ENGL 111 | English Composition I | |
| ENGL 102 | Composition and Rhetoric II: Advanced Research and Evidence-Based Writing | 3.0 |
| or ENGL 112 | English Composition II | |
| ENGL 103 | Composition and Rhetoric III: Themes and Genres | 3.0 |
| or ENGL 113 | English Composition III | |
| Select one of the following: | | 8.0 |
| MATH 101 & MATH 102 | Introduction to Analysis I and Introduction to Analysis II | |
| MATH 121 & MATH 122 | Calculus I and Calculus II | |
| UNIV H101 | The Drexel Experience | 1.0 |
| UNIV H201 | Looking Forward: Academics and Careers | 1.0 |
| Business elective | | 4.0 |
| Fine Arts elective | | 3.0 |
| Anthropology (ANTH) elective | | 3.0 |
| English (ENGL) electives, 200-level or above | | 6.0 |
| History (HIST) electives | | 8.0 |
| Philosophy (PHIL) elective | | 3.0 |
| Political Science (PSCI) elective | | 4.0 |
| Sociology (SOC) elective | | 3.0-4.0 |
| Select one of the following sequences: | | 8.0 |
| Biology | | |
| BIO 107 | Cells, Genetics & Physiology | |
| BIO 108 | Cells, Genetics and Physiology Laboratory | |
| BIO 109 | Biological Diversity, Ecology & Evolution | |
| BIO 110 | Biological Diversity, Ecology and Evolution Laboratory | |
| Chemistry | | |
| CHEM 111 | General Chemistry I | |
| CHEM 112 | General Chemistry II | |

| | | |
|---|--|-----------|
| Physics | | |
| PHYS 170 | Electricity and Motion | |
| PHYS 171 | Computational Lab for Electricity and Motion | |
| PHYS 175 | Light and Sound | |
| PHYS 176 | Computational Lab for Light and Sound | |
| Free electives | | 6.0 |
| Departmental Requirements | | |
| General Psychology Requirements | | |
| PSY 111 | Pre-Professional General Psychology I * | 3.0 |
| PSY 112 | Pre-Professional General Psychology II * | 3.0 |
| 100-Level Requirements | | |
| Select two of the following: | | 6.0 |
| PSY 120 | Developmental Psychology | |
| PSY 140 | Approaches to Personality | |
| PSY 150 | Introduction to Social Psychology | |
| Required Psychology Courses | | |
| PSY 212 | Physiological Psychology | 3.0 |
| PSY 240 [WI] | Abnormal Psychology | 3.0 |
| PSY 264 | Computer-Assisted Data Analysis I | 3.0 |
| PSY 265 | Computer-Assisted Data Analysis II | 3.0 |
| PSY 280 | Psychological Research | 3.0 |
| PSY 290 | History and Systems of Psychology | 3.0 |
| PSY 325 | Psychology of Learning | 3.0 |
| PSY 330 | Cognitive Psychology | 3.0 |
| PSY 360 [WI] | Experimental Psychology | 3.0 |
| PSY 370 | Forensic Psychology | 3.0 |
| PSY 371 | Law and Psychology | 3.0 |
| PSY 380 | Psychological Testing and Assessment | 3.0 |
| Advanced Psychology Electives | | |
| Any non-required PSY course at the 200-level or above. | | 18.0 |
| Free electives fulfilled by 29 semester credits from first-year law courses | | 43.5 |
| Law School Requirements | | |
| LAW 550S | Torts | |
| LAW 552S | Contracts | |
| LAW 554S | Civil Procedure | |
| LAW 555S | Legislation and Regulation | |
| LAW 556S | Property | |
| LAW 558S | Criminal Law | |
| LAW 560S | Constitutional Law | |
| LAW 565S | Legal Methods I | |
| LAW 566S | Legal Methods II | |
| LAW 830S | Professional Responsibility | |
| Electives and Menu Requirements including: | | 49.0-50.0 |
| One Upper-Level Writing Course (WUL) | | |
| One Statutory Course | | |
| One Professional Practice Course | | |

* Students with AP psychology, or transfer students with PSY 101 credit, should check the AP Student Placement Exam Crosswalk (http://www.drexel.edu/provost/policies/pdf/supporting/ap_crosswalk.pdf) or check with their advisor.

Upper-Level Writing (WUL) Courses (may also be used as elective once requirement is filled)

| | | |
|----------|-------------------------------|---------|
| LAW 610S | Reproductive Rights & Justice | 2.0-3.0 |
| LAW 611S | Sex, Gender, & the Law | 2.0-3.0 |
| LAW 614S | Supreme Court Seminar | 3.0 |
| LAW 647S | The Rights of Children | 2.0 |
| LAW 656S | Justice Lawyering Sem | 1.0-3.0 |
| LAW 673S | Crime and Community | 2.0 |
| LAW 790S | Toxic Torts | 2.0-3.0 |
| LAW 791S | Regulating Patient Safety | 2.0-3.0 |
| LAW 793S | Mental Health Law | 2.0-3.0 |
| LAW 827S | Immigration Litigation | 2.0 |

| | | |
|---|--|-----------|
| LAW 828S | International Business Transactions | 2.0-3.0 |
| LAW 832S | Contract Theory Seminar | 2.0-3.0 |
| LAW 836S | Legal History | 2.0-3.0 |
| LAW 838S | Foundations of Legal Analysis | 2.0 |
| LAW 840S | Literature and The Law Seminar | 2.0-3.0 |
| LAW 842S | Law and Mind Sciences | 2.0-3.0 |
| LAW 844S | Law and Social Movements | 2.0-3.0 |
| LAW 848S | Courts and Public Policy | 2.0-3.0 |
| LAW 882S | Litigation Drafting | 2.0 |
| LAW 884S | Contract Drafting | 2.0 |
| LAW 910S | Appellate Advocacy | 2.0 |
| LAW 920S | Drexel Law Review | 1.0-6.0 |
| LAW T880S | Special Topics in LAW | 1.0-5.0 |
| Statutory Courses (may also be used as electives once requirement is filled) | | |
| LAW 620S | Administrative Law | 3.0-4.0 |
| LAW 622S | Employment Discrimination | 3.0 |
| LAW 623S | Election Law | 3.0-4.0 |
| LAW 624S | Environmental Law | 3.0 |
| LAW 642S | Special Education Law | 2.0-3.0 |
| LAW 674S | Health Care Fraud and Abuse | 2.0-3.0 |
| LAW 675S | Federal Criminal Law | 2.0-3.0 |
| LAW 676S | White Collar Crime | 2.0-3.0 |
| LAW 678S | Juvenile Justice Law | 2.0-3.0 |
| LAW 700S | Business Organizations | 3.0-4.0 |
| LAW 701S | Federal Income Tax | 3.0-4.0 |
| LAW 702S | Enterprise Tax | 3.0-4.0 |
| LAW 706S | Secured Transactions | 3.0 |
| LAW 708S | Payment Systems | 3.0 |
| LAW 710S | Bankruptcy | 3.0-4.0 |
| LAW 711S | Sales | 3.0 |
| LAW 714S | Securities Regulation | 3.0 |
| LAW 740S | Trusts and Estates | 3.0-4.0 |
| LAW 760S | Copyright | 3.0 |
| LAW 764S | Trademarks & Unfair Competition | 3.0 |
| LAW 792S | Food and Drug Law | 2.0-3.0 |
| LAW 796S | Insurance Law | 2.0-3.0 |
| LAW 820S | Immigration Law | 3.0-4.0 |
| LAW 821S | European Union Law | 2.0-3.0 |
| LAW 826S | Refugee and Asylum Law | 2.0-3.0 |
| Professional Practice Courses (may also be used as electives once requirement is fulfilled) | | |
| LAW 924S & LAW 653S | Entrepreneurial Law Clinic and Entrepreneurial Law Clinic Seminar | 7.0 |
| LAW 931S & LAW 654S | Law Co-op and Lawyering Practice Seminar | 8.0-9.0 |
| LAW 941S & LAW 942S & LAW 656S | Criminal Litigation Clinic I and Criminal Litigation Clinic II and Justice Lawyering Sem | 14.0-15.0 |
| LAW 943S & LAW 944S & LAW 656S | Civil Litigation Clinic I and Civil Litigation Clinic II and Justice Lawyering Sem | 14.0-15.0 |
| LAW 947S & LAW 948S & LAW 656S | Federal Litigation and Appeals Clinic and Federal Litigation and Appeals Clinic II and Justice Lawyering Sem | 14.0-15.0 |
| LAW 950S & LAW 951S & LAW 656S | Community Lawyering Clinic I and Community Lawyering Clinic II and Justice Lawyering Sem | 14.0-15.0 |
| Free Electives (may require permission to enroll) | | |
| Any other unspecified LAW course numbered 550S and above may count as JD elective | | |

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore

year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

Undergraduate course credits are quarter credits

First Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|------------------------------|------------------------------|----------------------------------|----------------|----------|
| PSY 111 | 3.0 PSY 112 | 3.0 UNIV H201 | 1.0 VACATION | |
| UNIV H101 | 1.0 PSY 120, 140, or 150 | 3.0 ENGL 103 or 113 | 3.0 | |
| ENGL 101 or 111 | 3.0 CIVC 101 | 1.0 PSY 240 | 3.0 | |
| MATH 121 or 101 | 4.0 MATH 102 or 122 | 4.0 PSY 120, 140, or 150 | 3.0 | |
| Select one of the following: | 4.0 ENGL 102 or 112 | 3.0 Anthropology (ANTH) Elective | 3.0 | |
| CHEM 111 | Select one of the following: | 4.0 Fine Arts Elective | 3.0 | |
| BIO 107 & BIO 108 | BIO 109 & BIO 110 | | | |
| PHYS 170 & PHYS 171 | CHEM 112 | | | |
| | PHYS 175 & PHYS 176 | | | |
| | 15 | 18 | 16 | 0 |

Second Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|--------------------------|---|---|----------------|----------|
| PSY 264 | 3.0 COM 230 | 3.0 PSY 280 | 3.0 VACATION | |
| PSY 290 | 3.0 PSY 265 | 3.0 PSY 360 | 3.0 | |
| Psychology Elective | 3.0 PSY 212 | 3.0 Psychology Elective | 3.0 | |
| Sociology (SOC) elective | 3.0-4.0 PSY 371 | 3.0 English (ENGL) elective, 200-level or above | 3.0 | |
| Free Electives | 3.0 English (ENGL) elective, 200-level or above | 3.0 Psychology Elective | 3.0 | |
| | 15-16 | 15 | 15 | 0 |

Third Year

| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
|---------------------|-------------------------|-------------------------|---|----------|
| PSY 325 | 3.0 PSY 330 | 3.0 Psychology Elective | 3.0 VACATION | |
| PSY 380 | 3.0 PSY 370 | 3.0 Business Elective | 4.0 Student transitions to First Year of Law School | |
| History Elective | 4.0 PSCI Elective | 4.0 History Elective | 4.0 | |
| Philosophy Elective | 3.0 Psychology Elective | 3.0 Free Elective | 3.0 | |
| | Psychology Elective | 3.0 | | |
| | 13 | 16 | 14 | 0 |

Total Credits 137-138

Law School course credits are semester credits

First Year Law course credits (29 semester credits) are counted toward the Psychology BS.

Fourth Year

| Fall | Credits Spring | Credits |
|---|---|---------|
| LAW 550S (Counts toward UG Free Elective) | 4.0 LAW 555S (Counts toward UG Free Elective) | 3.0 |
| LAW 552S (Counts toward UG Free Elective) | 4.0 LAW 556S (Counts toward UG Free Elective) | 4.0 |
| LAW 554S (Counts toward UG Free Elective) | 4.0 LAW 558S (Counts toward UG Free Elective) | 4.0 |

| | | |
|---|---|----------------|
| LAW 565S (Counts toward UG Free Elective) | 3.0 LAW 566S (Counts toward UG Free Elective) | 3.0 |
| | | 15 |
| | | 14 |
| Fifth Year | | |
| Fall | Credits Spring | Credits |
| LAW 560S | 4.0 LAW 830S | 2.0 |
| LAW Reqts/Electives | 10.0 LAW Reqts/Electives | 12.0 |
| | | 14 |
| | | 14 |
| Sixth Year | | |
| Fall | Credits Spring | Credits |
| LAW Reqts/Electives | 14.0 LAW Reqts/Electives | 14.0 |
| | | 14 |
| | | 14 |

Total Credits 85

Sociology BA / Law JD

Major: Sociology and Law

Degree Awarded: Bachelor of Arts (BA) and Juris Doctor (JD)

Calendar Type: Quarter and semester

Minimum Required Credits: 180.0 quarter credits & 85.0 semester credits

Co-op Options: No Co-op (Six years)

BA Classification of Instructional Programs (CIP) code: 45.1101

BA Standard Occupational Classification (SOC) code: 19-3041

JD Classification of Instructional Programs (CIP) code: 22.0101

JD Standard Occupational Classification (SOC) code: 23-1011

About the Program

This accelerated degree program combines the BA in Sociology in the College of Arts and Sciences and the JD offered by the Kline School of Law. It is a "3+3" program, allowing qualified students to earn both their BA in Sociology and their JD in six years. The study of sociology provides a strong foundation for success in law school.

Admission Requirements

For the BA: Standard admission requirements (<https://drexel.edu/admissions/overview/>) for all Drexel undergraduate programs.

To be admitted to Drexel's Kline School of Law, students must:

- Maintain a minimum cumulative undergraduate GPA of 3.45
- Earn a LSAT score that at least meets the Kline School of Law's current LSAT median (as determined by point of entry into the undergraduate program) no later than December of year 3 of undergraduate program
- Actively participate in pre-law and BSJD activities
- Meet regularly with academic advisor and the pre-law advisor
- Maintain satisfactory progress towards completing required undergraduate coursework as set out in the plan of study in three years
- File complete, binding application to the Kline School of Law by December 31 of year 3 of undergraduate program
- Comply with all admission and seat deposit requirements of the Kline School of Law
- Comply with all character and fitness requirements of the Kline School of Law

Degree Requirements

General Education Requirements

| | | |
|--|---|-----|
| CIVC 101 | Introduction to Civic Engagement | 1.0 |
| ENGL 101 | Composition and Rhetoric I: Inquiry and Exploratory Research | 3.0 |
| or ENGL 111 | English Composition I | |
| ENGL 102 | Composition and Rhetoric II: Advanced Research and Evidence-Based Writing | 3.0 |
| or ENGL 112 | English Composition II | |
| ENGL 103 | Composition and Rhetoric III: Themes and Genres | 3.0 |
| or ENGL 113 | English Composition III | |
| UNIV H101 | The Drexel Experience | 1.0 |
| UNIV H201 | Looking Forward: Academics and Careers | 1.0 |
| Two Consecutive Foreign Language Courses * | | 8.0 |

College of Arts and Sciences Core Curriculum **

| | | |
|--|--|-------------|
| Developing Quantitative Reasoning ** | | 6.0-8.0 |
| Two courses in MATH based on placement exams OR | | |
| PHIL 111 | Symbolic Logic I | |
| or PHIL 121 | Symbolic Logic II | |
| Engaging the Natural World ** | | 6.0-8.0 |
| Analyzing Cultures & Histories ** | | 6.0-8.0 |
| Understanding Society & Human Behavior ** | | 6.0-8.0 |
| Cultivating Global Competences ** | | 6.0-8.0 |
| Perspectives in Diversity ** | | 3.0-4.0 |
| Sociology Core Requirements | | 3.0 |
| SOC 101 | Introduction to Sociology | |
| Required Major Capstone | | 4.0 |
| SOC 450 | Capstone in Sociology | |
| Theory Sequence | | 8.0 |
| SOC 355 [WI] | Classical Social Theory ([WI]) | |
| SOC 356 [WI] | Contemporary Social Theory ([WI]) | |
| Methods Sequence | | 8.0 |
| SOC 241 | Research Design: Qualitative Methods | |
| SOC 242 | Research Design: Quantitative Methods | |
| Required Sociology Electives | | 40.0 |
| Select at least 10 of the following: (At least four must be at the 300 or 400 level; and at least one must be at the 400-level.) | | |
| SOC 115 | Social Problems | |
| SOC 207 | Medicine and Society | |
| SOC 210 | Race, Ethnicity and Social Inequality | |
| SOC 215 | Sociology of Work | |
| SOC 220 | Wealth and Power | |
| SOC 221 | Sociology of the Family | |
| SOC 222 | Sex and Society | |
| SOC 230 | Gender and Society | |
| SOC 235 | Sociology of Health and Illness | |
| SOC 238 | Sociology of Health Professions | |
| SOC 240 | Urban Sociology | |
| SOC 244 | Sociology of the Environment | |
| SOC 261 | Sex and The City | |
| SOC 268 | Sociology of Sport | |
| SOC 271 | Sociology of Aging | |
| SOC 276 | Global Climate Change | |
| SOC 281 | Gentrification and Neighborhood Change | |
| SOC 313 | Sociology of Global Health | |
| SOC 318 | Social Networks and Health | |
| SOC 320 | Sociology of Deviance | |
| SOC 330 | Development and Underdevelopment in the Global South | |
| SOC 335 | Sociology of Education | |
| SOC 340 | Globalization | |
| SOC 341 | Global Environmental Movements | |
| SOC 346 | Environmental Justice | |
| SOC 349 | Sociology of Disasters | |
| SOC 370 | Practicum in Applied and Community Sociology | |
| SOC 405 | Medicine, Technology and Science | |
| SOC 406 | Housing and Homelessness | |
| SOC 410 | Imagining Multiple Democracies | |
| SOC 420 | Love, Rage & Debt: The Debt Society | |
| SOC 430 | Politics of Life | |
| SOC 444 | Social Movements | |
| SOC 490 | Sociology Research Seminar I: Research Design | |
| SOC 491 | Sociology Research Seminar II: Data Acquisition and Analysis | |
| SOC 492 | Sociology Research Seminar III: Practicum in Sociological Research | |
| SOC T380 | Special Topics in SOC | |
| UG Free Electives | | 31.0 |
| Additional Free Electives fulfilled by 22 semester credits from first-year law courses | | 33.0 |
| Law School Requirements | | |
| LAW 550S | Torts | |

| | | |
|---|--|------------------|
| LAW 552S | Contracts | |
| LAW 554S | Civil Procedure | |
| LAW 555S | Legislation and Regulation | |
| LAW 556S | Property | |
| LAW 558S | Criminal Law | |
| LAW 560S | Constitutional Law | |
| LAW 565S | Legal Methods I | |
| LAW 566S | Legal Methods II | |
| LAW 830S | Professional Responsibility | |
| Electives and Menu Requirements including: | | 49.0-50.0 |
| One upper level writing course (WUL) | | |
| One Statutory course | | |
| One professional practice course | | |
| Upper level writing (WUL) courses (may also be used as electives once requirement is fulfilled): | | |
| LAW 610S | Reproductive Rights & Justice | 2.0-3.0 |
| LAW 611S | Sex, Gender, & the Law | 3.0 |
| LAW 614S | Supreme Court Seminar | 3.0 |
| LAW 640S | Education Law | 2.0-3.0 |
| LAW 647S | The Rights of Children | 2.0 |
| LAW 656S | Justice Lawyering Sem ((if full year paper)) | 1.0-3.0 |
| LAW 673S | Crime and Community | 2.0 |
| LAW 741S | Estate Planning | 2.0 |
| LAW 790S | Toxic Torts | 2.0 |
| LAW 791S | Regulating Patient Safety | 2.0 |
| LAW 793S | Mental Health Law | 3.0 |
| LAW 827S | Immigration Litigation | 2.0 |
| LAW 832S | Contract Theory Seminar | 2.0-3.0 |
| LAW 836S | Legal History | 2.0-3.0 |
| LAW 838S | Foundations of Legal Analysis | 2.0 |
| LAW 840S | Literature and The Law Seminar | 2.0 |
| LAW 842S | Law and Mind Sciences | 2.0 |
| LAW 844S | Law and Social Movements | 3.0 |
| LAW 848S | Courts and Public Policy | 2.0-3.0 |
| LAW 882S | Litigation Drafting | 2.0 |
| LAW 884S | Contract Drafting | 2.0 |
| LAW 910S | Appellate Advocacy | 2.0 |
| LAW 920S | Drexel Law Review ((if WUL option)) | 1.0-6.0 |
| LAW T880S | Special Topics in LAW | 1.0-5.0 |
| Statutory Courses (may also be used as electives once requirement is fulfilled): | | |
| LAW 620S | Administrative Law | 4.0 |
| LAW 622S | Employment Discrimination | 3.0 |
| LAW 623S | Election Law | 3.0 |
| LAW 624S | Environmental Law | 3.0 |
| LAW 642S | Special Education Law | 2.0-3.0 |
| LAW 674S | Health Care Fraud and Abuse | 2.0 |
| LAW 675S | Federal Criminal Law | 2.0-3.0 |
| LAW 676S | White Collar Crime | 2.0-3.0 |
| LAW 700S | Business Organizations | 3.0-4.0 |
| LAW 701S | Federal Income Tax | 4.0 |
| LAW 702S | Enterprise Tax | 4.0 |
| LAW 706S | Secured Transactions | 3.0 |
| LAW 708S | Payment Systems | 3.0 |
| LAW 710S | Bankruptcy | 3.0-4.0 |
| LAW 711S | Sales | 3.0 |
| LAW 714S | Securities Regulation | 3.0 |
| LAW 740S | Trusts and Estates | 3.0 |
| LAW 760S | Copyright | 3.0 |
| LAW 764S | Trademarks & Unfair Competition | 3.0 |
| LAW 792S | Food and Drug Law | 3.0 |
| LAW 796S | Insurance Law | 2.0 |
| LAW 820S | Immigration Law | 3.0-4.0 |
| LAW 821S | European Union Law | 2.0-3.0 |

| | | |
|---|---|-----------|
| LAW 826S | Refugee and Asylum Law | 2.0 |
| Professional Practice Courses (may also be used as electives once requirement is fulfilled): | | |
| LAW 924S & LAW 653S | Entrepreneurial Law Clinic and Entrepreneurial Law Clinic Seminar | 7.0 |
| LAW 931S & LAW 654S | Law Co-op and Lawyering Practice Seminar | 8.0-9.0 |
| LAW 933S & LAW 654S | Co-op Intensive and Lawyering Practice Seminar | 11.0-12.0 |
| LAW 941S & LAW 942S | Criminal Litigation Clinic I and Criminal Litigation Clinic II | 12.0 |
| LAW 943S & LAW 944S | Civil Litigation Clinic I and Civil Litigation Clinic II | 12.0 |
| LAW 947S & LAW 948S | Federal Litigation and Appeals Clinic and Federal Litigation and Appeals Clinic II | 12.0 |
| LAW 950S & LAW 951S | Community Lawyering Clinic I and Community Lawyering Clinic II | 12.0 |
| Free Electives (may require permission to enroll) | | |
| Any other unspecified LAW courses numbered 550S and above may count as JD elective | | |

- * Select from one of the following:
Two courses in: ARBC 103 or ARBC 201-499, CHIN 103 or CHIN 201-499, FREN 103 or FREN 201-499, GER 103 or GER 201-499, JAPN 103 or JAPN 201-499, KOR 103 or KOR 201-499, SPAN 103 or SPAN 201-499.
At least one foreign language course must be at the 200-level. In addition, the department recommends students take two additional foreign language courses as free electives.

** See Core Curriculum List (p. 5) for complete list of course options.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

Undergraduate course credits are quarter credits

| First Year | | | | |
|-----------------------------------|--|---------------------------------------|----------------|----------|
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| ENGL 101 or 111 | 3.0 CIVC 101 | 1.0 ENGL 103 or 113 | 3.0 VACATION | |
| SOC 101 | 3.0 ENGL 102 or 112 | 3.0 Analyzing Cultures & Histories | 3.0-4.0 | |
| UNIV H101 | 1.0 SOC 241 | 4.0 Engaging the Natural World | 3.0-4.0 | |
| Developing Quantitative Reasoning | 3.0-4.0 Foreign Language Course | 4.0 Perspectives in Diversity | 3.0-4.0 | |
| Foreign Language Course | 4.0 Understanding Society & Human Behavior | 3.0-4.0 Sociology Required Elective | 4.0 | |
| Free Elective | 3.0 | | | |
| | 17-18 | 15-16 | 16-19 | 0 |
| Second Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| SOC 242 | 4.0 Analyzing Cultures & Histories | 3.0-4.0 SOC 355 | 4.0 VACATION | |
| Developing Quantitative Reasoning | 3.0-4.0 Engaging the Natural World | 3.0-4.0 Cultivating Global Competence | 6.0-8.0 | |
| Free Electives | 3.0 Free Elective | 4.0 Free Elective | 3.0 | |

| | | | | |
|-------------------------------------|---|-------------------------------------|---|----------------|
| Sociology Required Electives | 8.0 Sociology Required Elective | 4.0 Sociology Required Elective | 4.0 | |
| | Understanding Society & Human Behavior | 3.0-4.0 | | |
| | 18-19 | 17-20 | 17-19 | 0 |
| Third Year | | | | |
| Fall | Credits Winter | Credits Spring | Credits Summer | Credits |
| SOC 356 | 4.0 SOC 450 | 4.0 UNIV H201 | 1.0 VACATION | |
| Free Elective | 6.0 Free Elective | 6.0 Free Electives | 6.0 Student transitions to first year of Law School | |
| Sociology Required 300/400 Elective | 4.0 Sociology Required 300/400 Elective | 4.0 Sociology Required Elective | 4.0 | |
| | | Sociology Required 300/400 Elective | 4.0 | |
| | | Sociology Required 300/400 Elective | 4.0 | |
| | 14 | 14 | 19 | 0 |
| Total Credits 147-158 | | | | |

Law School course credits are semester credits

First Year Law course credits (22.0 semester credits) are counted toward the Sociology BA.

| | | | |
|---|--|---|----------------|
| Fourth Year | | | |
| Fall | | Credits Spring | Credits |
| LAW 550S (Counts toward UG free elective) | | 4.0 LAW 555S (Counts toward UG free elective) | 3.0 |
| LAW 552S (Counts toward UG free elective) | | 4.0 LAW 556S (Counts toward UG free elective) | 4.0 |
| LAW 554S (Counts toward UG free elective) | | 4.0 LAW 558S | 4.0 |
| LAW 565S (Counts toward UG free elective) | | 3.0 LAW 566S | 3.0 |
| | | 15 | 14 |
| Fifth Year | | | |
| Fall | | Credits Spring | Credits |
| LAW 560S | | 4.0 LAW 830S | 2.0 |
| Law Requirements/Electives | | 10.0 Law Requirements/Electives | 12.0 |
| | | 14 | 14 |
| Sixth Year | | | |
| Fall | | Credits Spring | Credits |
| Law Requirements/Electives | | 14.0 Law Requirements/Electives | 14.0 |
| | | 14 | 14 |
| Total Credits 85 | | | |

Minor in Actuarial Science

About the Minor

The minor in actuarial science is designed to provide students with the quantitative and analytical skills required to obtain an entry level position in the actuarial sciences profession. The coursework will help prepare students for the first two actuarial exams (probability and financial mathematics) and can be applied towards VEE (Validation by Education Experience) credit requirements from professional actuarial societies in the areas of Mathematical Statistics, Accounting and Finance, and Economics. Additional elective coursework will introduce students to appropriate statistical software or more advanced topics relevant to the actuarial sciences profession.

No more than 9.0 credits required by a student's major may be counted towards this minor.

A grade of "C" (2.0) or better must be earned for each course in this minor for it to be counted.

Students should check the prerequisites of all classes when selecting electives. It is the responsibility of the student to know pre-requisites.

Program Requirements

| | | |
|------------------------------------|---|-------------|
| Required Courses | | 11.0 |
| MATH 250 | Mathematics of Investment and Credit | |
| MATH 311 | Probability and Statistics I | |
| MATH 312 | Probability and Statistics II | |
| MATH 313 | Probability and Statistics III | |
| Choose one track | | 8.0 |
| Accounting and Finance Track | | |
| ACCT 110 | Accounting for Professionals | |
| FIN 301 | Introduction to Finance ** | |
| OR | | |
| Economics Track | | |
| ECON 201 | Principles of Microeconomics | |
| ECON 202 | Principles of Macroeconomics | |
| Actuarial Science Electives | | |
| Select 2 of the following * | | 6.0 |
| FIN 321 | Investment Securities & Markets ** | |
| MATH 318 [WI] | Mathematical Applications of Statistical Software | |
| MATH 320 | Actuarial Mathematics | |
| MATH 449 | Mathematical Finance | |
| Total Credits | | 25.0 |

* Students may apply any course(s) from the unused track towards the electives requirement.

** Students may substitute MATH 311 and MATH 312 for the STAT 201 and STAT 202 pre-requisite requirements for these courses.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Minor in Africana Studies

About the Minor

The minor in Africana studies was created to provide the opportunity for undergraduate students throughout the University to gain an understanding of and background in the history and cultures of peoples of African descent in North and South America, the Caribbean, and Africa.

This interdisciplinary minor includes courses in anthropology, history, literature, music, political science, and sociology, and provides an opportunity for directed study in areas of particular interest to the students. The Africana studies minor has intrinsic intellectual value and helps prepare individuals to become contributors to an increasingly pluralistic society. At the same time, this minor allows students interested in business, the sciences, engineering, government, and social services to present to prospective employers a unique academic background.

All prospective students should meet with an advisor from the College as soon as possible.

Program Requirements

Required Courses

| | | |
|--|--|------|
| AFAS 101 | Introduction to Africana Studies | 3.0 |
| AFAS 201 | Cross Currents in Africana Studies | 3.0 |
| Students must complete a minimum of 18 credits from the list provided: * | | 18.0 |
| AFAS 210 | Topics in Africana Arts | |
| AFAS 220 | Topics in Africana Society | |
| AFAS 230 | Topics in African History | |
| AFAS 240 | Topics in Africana Current Events | |
| AFAS 255 | Gender & Black Popular Culture | |
| AFAS 260 | Race, Politics and Religion | |
| AFAS 301 | Politics of Hip Hop | |
| AFAS 385 | Rum, Rice and Revolution: Caribbean History | |
| AFAS 401 | Urban Social Justice Practicum I | |
| AFAS 402 | Urban Social Justice Practicum II | |
| AFAS I299 | Independent Study in AFAS | |
| AFAS T280 | Special Topics in Africana Studies | |
| AFAS T380 | Special Topics in Africana Studies | |
| ANTH 101 | Introduction to Cultural Diversity | |
| ARTH 315 | African-American Art | |
| ARTH 316 | African Art | |
| DANC 109 | African Dance Technique I | |
| ENGL 203 [WI] | Survey of World Literature (WI) | |
| ENGL 204 | Post-Colonial Literature | |
| ENGL 207 [WI] | African American Literature | |
| ENGL 325 | Topics in World Literature ** | |
| ENGL 492 | Seminar in World Literature | |
| HIST 215 | American Slavery | |
| HIST 216 | Freedom in America | |
| MUSC 107 | Jazz Ensembles | |
| MUSC 331 | World Musics | |
| MUSC 333 | Afro-American Music USA | |
| MUSC 336 | History of Jazz | |
| PSCI 372 | City in United States Political Development | |
| SOC 210 | Race, Ethnicity and Social Inequality | |
| SOC 240 | Urban Sociology | |
| WGST 240 | Women and Society in a Global Context | |
| WGST T280 | Special Topics in Women's and Gender Studies *** | |

Total Credits

24.0

* Students must check with the Program Director for approval prior to making substitutions.

** With a focus on the Caribbean, Latin America or the Diaspora.

*** With a focus on race or the Diaspora.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>).

program/drexel-writing-center/) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Minor in Asian Studies

About the Minor

This minor offers an interdisciplinary look at the East, Southeast, and South Asia regions, which hold a critically important geopolitical position in terms of not only business and security, but also in terms of political, religious, cultural, and gender studies. Together with content courses in English offered through a variety of departments, this minor also includes 12.0 credits of instruction in one of our three Asian languages (Chinese, Korean, or Japanese).

All prospective students should meet with an advisor from the College as soon as possible.

Program Requirements

Students must complete 12 credits of language study in Chinese, Japanese, or Korean

12.0

Students must complete a minimum of 12 credits of elective courses

12.0-14.0

| | |
|----------|------------------------------------|
| ARTH 301 | Asian Art and Culture |
| ARTH 302 | Art of India |
| ARTH 303 | Art of China |
| ARTH 304 | Art of Japan |
| ENGL 325 | Topics in World Literature |
| FMST 293 | Japanese Cinema: Kurosawa |
| HIST 239 | The Pacific War |
| HIST 261 | Making of Modern South Asia |
| HIST 263 | The World and China |
| HIST 264 | East Asia in Modern Times |
| HIST 322 | Empire and Environment |
| PHIL 102 | Introduction to Eastern Philosophy |

Total Credits

24.0-26.0

* South Asian Literature

Study abroad, Global Studies (GST) courses at the 200 and 300 levels, and special topics courses focused on Asia will be considered for elective credit. Students must receive permission from the department.

Students who complete a minimum of 8 language credits in one language, including CHIN 202, KOR 202, or JAPN 202, are eligible to receive an intermediate language certificate.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Minor in Biochemistry

About the Minor

This program provides a solid grounding in the principles and applications of biochemistry for students interested in exploring in more depth the chemistry of living organisms. Offered jointly by the Departments of Chemistry and Biology, the minor in Biochemistry consists of a set of regularly offered courses in the two departments. The program efficiently complements degree requirements for students majoring in the natural sciences, engineering and the health sciences. It is highly recommended to students interested in pursuing a career in biology, chemistry, biomedical engineering, nanotechnology, material sciences, medicine, pharmaceuticals or chemical biology. The minor must accompany another major program.

Admission Requirements

Students must be enrolled in another major program to be eligible for this minor.

Program Requirements

Required Courses:

| | | |
|-----------------------|--|-----|
| BIO 211 or BIO 214 | Cell, Molecular & Developmental Biology II Principles of Cell Biology | 4.0 |
| BIO 306 | Biochemistry Laboratory | 2.0 |
| BIO 311 | Biochemistry | 4.0 |
| CHEM 242 | Organic Chemistry II | 4.0 |
| CHEM 243 | Organic Chemistry III | 3.0 |

Elective Courses: *

| | | |
|-----------------------|--|-----|
| BIO 209 or BIO 218 | Cell, Molecular & Developmental Biology I Principles of Molecular Biology | 9.0 |
| BIO 314 | Pharmacology | |
| BIO 331 | Bioinformatics I | |
| BIO 332 | Bioinformatics II | |
| BIO 404 | Structure and Function of Biomolecules | |
| BIO 416 | Biochemistry of Major Diseases | |
| BIO 453 | Protein Dysfunction in Disease | |
| CHEM 244 | Organic Chemistry Laboratory I | |
| CHEM 245 | Organic Chemistry Laboratory II | |
| CHEM 371 | Chemistry of Biomolecules | |
| CHEM 375 | The Chemistry Behind Drugs: Fundamentals of Medicinal Chemistry | |

Total Credits

26.0

* Students must take at least one BIO and one CHEM elective to complete the minor.

Additional Information:

For more information about the minor, contact:

Daniel King, PhD
Undergraduate Affairs Committee Chair
Department of Chemistry
Drexel University
dk68@drexel.edu (dk682drexel.edu)

Minor in Bioinformatics

About the Minor

The Bioinformatics minor examines the application of computer technology and programming to biological fields such as genomics or proteomics. This multidisciplinary program is designed for science, engineering, math, and computer and information science majors who have a deep interest in biological data science. The minor is divided among courses in biology, programming and computation, information science and computer technology, and statistics.

Program Requirements

- A grade of C or better must be earned for each course in this minor for it to be counted.
- Students should check all pre-requisites of all classes when selecting courses. It is the responsibility of the student to know the pre-requisites.
- Students must complete a minimum of 25-26 credits of coursework as follows:

Biology

| | | |
|-----------------------|---|-----|
| BIO 218 or BIO 211 | Principles of Molecular Biology Cell, Molecular & Developmental Biology II | 4.0 |
| BIO 331 | Bioinformatics I | 3.0 |
| BIO 413 | Genomics | 3.0 |

Programming and Computation

| | | |
|--------|-------------------------|-----|
| CS 171 | Computer Programming I | 3.0 |
| CS 172 | Computer Programming II | 3.0 |

Information Science and Computer Technology

| | | |
|-------------------------------------|---|------------------|
| INFO 101 | Introduction to Computing and Security Technology | 3.0 |
| INFO 210 | Database Management Systems | 3.0 |
| Statistics (select 1 course) | | 3.0-4.0 |
| MATH 310 | Probability and Statistics | |
| MATH 311 | Probability and Statistics I | |
| MATH 410 | Scientific Data Analysis I | |
| Total Credits | | 25.0-26.0 |

Additional Information

Please contact Leanne Sweppenheiser (lmt38@drexel.edu) for more information.

Minor in Biological Sciences

About the Minor

The minor in Biological Sciences is designed for students who wish to become acquainted with the life sciences while pursuing a major in another area. This option should be particularly useful for students majoring in areas such as chemistry, engineering, physics, or psychology who are interested in admission to medical schools or graduate programs. Students interested in the minor should consult with an academic advisor in the department for help with course selections.

Program Requirements

Required Courses *

| | | |
|------------------------------|---|-------------|
| BIO 131 | Cells and Biomolecules ** | 4.0 |
| BIO 134 | Cells and Biomolecules Lab ** | 1.0 |
| BIO 132 | Genetics and Evolution | 4.0 |
| BIO 135 | Genetics and Evolution Lab | 1.0 |
| BIO 133 | Physiology and Ecology | 4.0 |
| BIO 136 | Anatomy and Ecology Lab | 1.0 |
| BIO 218 | Principles of Molecular Biology | 4.0 |
| or BIO 209 | Cell, Molecular & Developmental Biology I | |
| BIO 224 | Form, Function & Evolution of Vertebrates | 4.0 |
| or BIO 201 | Human Physiology I | |
| BIO ELECTIVE OR ENVS 212 *** | | 3.0 |
| Total Credits | | 26.0 |

* A grade of "C" or better must be earned for each course in this minor for the course to meet the requirement.

** BIO 131 and BIO 134 can be substituted with BIO 122.

*** The Biology Elective can be selected from any of the regularly offered Biology department lecture courses 200-level and above according to your specific interests. BIO 200, BIO 204, BIO 205, BIO 207, BIO 208, BIO 212 and BIO 226 will not count towards the Biology elective. Note that existing course prerequisites may affect which courses may be selected.

Minor in Biophysics

About the Minor

Biophysics is the study of the complexity of life using tools provided by physics. It attempts to construct mathematical frameworks that explain, among many other topics, how organisms obtain energy from the environment, how complex structures appear in the cell, and how these relate to function. In essence, biophysics looks for principles that describe observed patterns and propose predictions based on these principles.

Admission Requirements

Consultation and approval of the program director and completion of one of the prerequisite sequences. Students who have completed the PHYS 152 , PHYS 153 , and PHYS 154 sequence will also be accepted into the minor provided they have an A- average in those courses and have completed MATH 121 and MATH 122 .

Program Requirements

Required Pre-requisites

| | |
|----------|--------------------------|
| PHYS 113 | Contemporary Physics I |
| PHYS 114 | Contemporary Physics II |
| PHYS 115 | Contemporary Physics III |
| OR | |

| | | |
|---------------------------------------|---|------------------|
| PHYS 101 | Fundamentals of Physics I | |
| PHYS 102 | Fundamentals of Physics II | |
| PHYS 201 | Fundamentals of Physics III | |
| Core Requirements | | |
| PHYS 217 | Thermodynamics | 3.0-4.0 |
| or CHEM 253 | Thermodynamics and Kinetics | |
| or ENGR 210 | Introduction to Thermodynamics | |
| PHYS 262 | Introduction to Biophysics | 3.0 |
| PHYS 317 | Statistical Mechanics | 3.0 |
| PHYS 321 | Electromagnetic Fields I | 4.0 |
| PHYS 461 | Biophysics | 3.0 |
| PHYS 462 | Computational Biophysics | 3.0 |
| One course from the following: | | 4.5 |
| BIO 122 | Cells and Genetics | |
| BIO 141 | Essential Biology | |
| One course from the following: | | 3.0-4.0 |
| BIO 209 | Cell, Molecular & Developmental Biology I | |
| BIO 214 | Principles of Cell Biology | |
| BIO 218 | Principles of Molecular Biology | |
| CHEM 371 | Chemistry of Biomolecules | |
| Total Credits | | 26.5-28.5 |

Minor in Bioscience and Society

About the Minor

Designed for non-majors, the minor in Bioscience and Society is accessible to all students with an interest in biology. The minor includes a list of topical courses from which students can choose freely depending upon interest.

Please contact Leanne Sweppenheiser at Imt38@drexel.edu for additional information.

A grade of "C" or better must be earned for each course in this minor for the course to meet the requirement.

Required Courses

| | | |
|--------------------------------------|---|------------------|
| Select one of the following options: | | 3.0-4.0 |
| BIO 100 | Applied Cells, Genetics & Physiology | |
| or | | |
| BIO 107 & BIO 108 | Cells, Genetics & Physiology and Cells, Genetics and Physiology Laboratory | |
| Select one of the following options: | | 3.0-4.0 |
| BIO 101 | Applied Biological Diversity, Ecology & Evolution | |
| or | | |
| BIO 109 & BIO 110 | Biological Diversity, Ecology & Evolution and Biological Diversity, Ecology and Evolution Laboratory | |
| ENVS 212 | Evolution | 4.0 |
| Select four of the following: * | | 14.0 |
| BIO 114 | Climate Change and Human Health | |
| BIO 116 | How Your Body Works-Or Not | |
| BIO 118 | Basics of Cancer | |
| BIO 264 | Ethnobotany | |
| BIO 284 | Biology of Stress | |
| ENVS 260 | Environmental Science and Society | |
| Total Credits | | 24.0-26.0 |

* Other courses may be substituted depending on yearly course offerings after consultation with an academic advisor in the Department of Biology.

Minor in Chemistry

About the Minor

The academic minor program in Chemistry is designed to expose students to each of the major sub-disciplines of chemistry (analytical, inorganic, organic, and physical). In order to accomplish this, students take a total of at least 27.5 credits of chemistry past the freshman year (100-level courses).

As chemistry is an experimental science, at least two laboratory courses must be included in the group of courses taken for the minor. Students should note that their academic major may require certain chemistry courses that can also be used to fulfill the requirements for a minor in Chemistry.

Program Requirements

Required Courses

| | | |
|------------------------|--------------------------------|-------------|
| CHEM 241 | Organic Chemistry I | 4.0 |
| CHEM 230 | Quantitative Analysis | 4.0 |
| CHEM 253 | Thermodynamics and Kinetics * | 4.0 |
| CHEM 421 | Inorganic Chemistry I | 3.0 |
| CHEM 244 | Organic Chemistry Laboratory I | 3.0 |
| Chemistry Electives ** | | 9.5 |
| Total Credits | | 27.5 |

* May substitute CHEC 352 Physical Chemistry and Applications II (4 credits) or CHEC 353 Physical Chemistry and Applications III (4 credits) for the CHEM 253 Thermodynamics and Kinetics requirement.

** The 9.5 credits of chemistry electives must include at least one additional laboratory course. These electives are selected from any of the regularly offered chemistry department lecture or laboratory courses 200-level and above according to your specific interests. Note that existing course pre-requisites may affect which courses may be selected. The variable credit courses CHEM 493 Senior Research Project or CHEM 497 Research (Undergraduate) may also be used to fulfill either the lecture or laboratory requirements for the minor.

Additional Information

For more information about the minor, contact:

Daniel King, PhD
Undergraduate Affairs Committee Chair
Department of Chemistry
Drexel University
dk68@drexel.edu

Minor in Climate Change

About the Minor

Climate change is one of the most serious challenges of our lifetime, and in the coming decades will impact every aspect of our lives and careers. Even though actions are being taken to reduce global emissions, today's students will live through a period of rapid climate change that is without precedent in human history.

This minor in climate change will provide an overview of the Earth's climate system and the science of climate change, as well as how to understand, mitigate, and adapt to its potential impacts from varied disciplinary perspectives. In addition to coursework, there is a praxis requirement for the minor, which could be fulfilled through an independent research, design, or engagement project, participation as an observer at the UN Framework Convention on Climate Change Conference of Parties meeting, developing a climate action plan for a local municipality, or partaking in a community-based learning course related to the impacts of climate change. There is no unit requirement associated with this praxis requirement.

Program Requirements

Students must complete a minimum of 24.0 credits of coursework. Coursework must include one of three core courses that introduce students to the physical science basis of the earth's climate system and climate change, three courses from the natural sciences and engineering tracking, and three courses from the social sciences, humanities, and entrepreneurial track. Coursework that is undertaken to fulfill the praxis requirement (such as a CBL or research credits) count towards unit requirements under the appropriate track. Please note, some of these courses have prerequisites or are not offered every year. Students should coordinate their plan of study in coordination with the minor advisor.

Core Course (one of the following three courses is required)

| | | |
|--------------|-------------------------|-----|
| GEO 201 [WI] | Earth Systems Processes | 3.0 |
| ENVS 275 | Global Climate Change | |

| | | |
|--|--|-------------|
| PHEV 145 | Weather I: Climate and Global Change | |
| Social Science and Humanities Courses (at least 3 courses are required) | | 12.0 |
| ECON 351 | Resource and Environmental Economics | |
| ENSS 326 | Cities and Sustainability | |
| ENSS 346 | Environmental Justice | |
| GST 231 | Introduction to Identities and Communities | |
| HIST 320 | Disaster in Global History | |
| HIST 323 | The History of Climate Change | |
| OPM 342 | Sustainable Supply Chain Management and Logistics | |
| PHIL 340 | Environmental Ethics | |
| PHIL 341 | Environmental Philosophy | |
| PSCI 284 | Environmental Politics | |
| PSCI 336 | Political Economy of Climate Change | |
| PSCI 338 | Cities and Climate Change | |
| PSCI 371 | Science, Technology, & Public Policy | |
| SOC 244 | Sociology of the Environment | |
| SOC 346 | Environmental Justice | |
| SOC 349 | Sociology of Disasters | |
| SPAN 340 | Introduction to Power and Resistance | |
| Natural Science, Engineering and Design Courses (at least 3 courses are required) | | 9.0 |
| CHE 431 | Fundamentals of Solar Cells | |
| ECEP 380 | Introduction to Renewable Energy | |
| ECEP 480 | Solar Energy Engineering | |
| EET 320 | Renewable Energy Systems | |
| ENTP 270 | Social Entrepreneurship | |
| ENTP 290 | An Entrepreneur's Introduction to Land: Its Essence, Ethics, and Opportunity | |
| ENTP 375 | 3BL - Triple Bottom Line | |
| ENTP 390 | Energy Entrepreneurship | |
| ENVS 289 | Global Warming, Biodiversity and Your Future | |
| ENVS 304 | Energy and the Environment: Iceland | |
| GEO 111 | Natural Disasters | |
| GEO 207 | Introduction to Oceanography | |
| MEM 445 | Solar Energy Fundamentals | |
| PBHL 457 | Adapting to a Hotter Climate: Protecting Health of Vulnerable Populations | |
| Total Credits | | 24.0 |

For GST 231 / SPAN 340, course content should related to climate change. Recent examples include Disaster and Resilience: Puerto Rico (offered winter 2020), After María (offered fall 2019), and Slippery Issues in the Banana Republics (offered winter 2020), which focus on impacts of climate change and colonialism to Puerto Rico, and impacts of climate change to migration from Central America, respectively.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Additional Information

In addition to the courses listed above, additional courses may be used to fulfill the unit requirement with approval, such as coursework with a significant environmental and/or climate change component, courses taken abroad, special topics courses, and synonymous cross-listed or graduate sections. Please contact Dr. Elizabeth Watson at ebw49@drexel.edu or Dr. Erin Graham erg49@drexel.edu ([@drexel.edu](mailto:ebw49@drexel.edu)) for additional information.

Minor in Communication

About the Minor

The minor in communication is a 24.0 credit curriculum designed to familiarize students with communication theory while providing training in print and digital communication. The minor can provide a strong complement for majors that emphasize presentations, interpersonal skills, publicity, and marketing. Students minoring in communication can focus on public relations, journalism, technical and science communication, environmental communication, or nonprofit communication.

All prospective students should meet with an advisor from the College as soon as possible.

Students complete 2 required courses, 2 courses in one of the areas listed below, and four additional electives from the COM course offerings that fit their interest.

Please note: No more than three courses that are required for a student's major can count towards fulfilling requirements for the minor.

Core Courses

| | | |
|------------|------------------------------------|-----|
| COM 101 | Human Communication | 3.0 |
| or COM 111 | Principles of Communication | |
| COM 210 | Theory and Models of Communication | 3.0 |

Focus Areas

6.0

Select one of the following areas of focus (2 courses):

Journalism

| | |
|--------------|----------------------------|
| COM 160 [WI] | Introduction to Journalism |
| COM 261 [WI] | Advanced Journalism |

Public Relations

| | |
|--------------|---|
| COM 181 | Public Relations Principles and Theory |
| COM 270 [WI] | Business Communication |
| or COM 282 | Public Relations Writing in the Digital Age |
| or COM 284 | Public Relations Research, Measurement and Evaluation |

Technical and Science Communication

| | |
|--------------|-------------------------|
| COM 310 [WI] | Technical Communication |
| COM 320 [WI] | Science Writing |
| or COM 375 | Grant Writing |

Environmental Communication

| | |
|--------------|--|
| COM 316 | Campaigns for Health & Environment |
| or COM 318 | Film, Celebrity and the Environmental Movement |
| COM 317 [WI] | Environmental Communication |

FOUR Additional Courses

| | |
|----------------------------|------|
| Four COM or LING electives | 12.0 |
|----------------------------|------|

Total Credits

24.0

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Minor in Computer Crime

About the Minor

The minor in computer crime grounds students in the fundamentals of crime, security and technology by focusing on the behavioral, legal, and societal factors associated with technology and deviance as they relate to both the private and public sectors. The curriculum exposes students to both the

concepts and tools necessary to understand and ultimately address computer crime, such as financial fraud, identity theft and other digital crimes that cross national and international boundaries.

All prospective students should meet with an advisor from the College as soon as possible.

Required Courses

| | | |
|---------|--|-----|
| CJS 101 | Introduction to Criminal Justice | 3.0 |
| CJS 200 | Criminology | 3.0 |
| CJS 274 | Sex, Violence, & Crime on the Internet | 3.0 |
| CJS 276 | Introduction to Computer Crime | 3.0 |
| CJS 365 | Computer Investigations and the Law | 3.0 |
| CJS 377 | Intellectual Property Theft in the Digital Age | 3.0 |

Additional Elective Courses

| | | |
|------------------------------|---|-----|
| Select two of the following: | | 6.0 |
| CJS 266 | Crime Prevention Planning | |
| CJS 267 | Introduction to Security Studies | |
| CJS 273 | Surveillance, Technology, and the Law | |
| CJS 330 | Crime Mapping I Using Geographic Information Systems | |
| CJS 331 | Crime Mapping II Using Geographic Information Systems | |

Total Credits

24.0

Minor in Criminal Justice

About the Minor

Students from any major who are interested in the law, the justice process, and how crime and crime policy relate to education, health, housing, and climate change might consider a minor in criminal justice. Such students could enhance their educational experience and their career possibilities by complementing their major with a criminal justice minor, particularly if they take one or more of our community-based learning and analytical courses, such as Crime Mapping or Justice in Our Community.

The minor consists of four required courses and four criminal justice electives chosen from two categories, for a total of 24.0 credits.

All prospective students should meet with an advisor from the College as soon as possible.

Required Courses

| | | |
|---------|----------------------------------|-----|
| CJS 101 | Introduction to Criminal Justice | 3.0 |
| CJS 200 | Criminology | 3.0 |
| CJS 210 | Race, Crime, and Justice | 3.0 |
| CJS 220 | Crime and the City | 3.0 |

Criminal Justice Elective Courses

| | | |
|--|--|------|
| Take 12 credits of any CJS courses not listed above. Examples of regularly offered courses include, but are not limited to, the following: | | 12.0 |
| CJS 180 | Serial Killers | |
| CJS 230 | Police and Society | |
| CJS 263 | Crime, Violence, and Climate Change | |
| CJS 266 | Crime Prevention Planning | |
| CJS 280 | Communities and Crime | |
| CJS 290 | Crime and Public Policy | |
| CJS 303 | Applications of Justice | |
| CJS 330 | Crime Mapping I Using Geographic Information Systems | |
| CJS 362 | Gender, Crime, and Justice | |
| CJS 372 | Death Penalty - An American Dilemma | |
| CJS 403 | Policing: Theory and Practice | |

Total Credits

24.0

Minor in Ecology

About the Minor

The Minor in Ecology meets the needs of engineering, science, arts, applied arts, information, and business students interested in environmental science. Prior to taking ENVS 230 *General Ecology*, students are minimally expected to have had one term to a year of both general biology and general chemistry.

All prospective students should meet with an advisor from the College as soon as possible.

Program Requirements

Required Courses

| | | |
|--------------------------------|---|-----|
| ENVS 212 | Evolution | 4.0 |
| ENVS 230 | General Ecology | 3.0 |
| ENVS 260 | Environmental Science and Society | 3.0 |
| ENVS 284 | Physiological and Population Ecology | 3.0 |
| ENVS 286 | Community and Ecosystem Ecology | 3.0 |
| ENVS 328 | Conservation Biology | 3.0 |
| Environmental Science elective | | 3.0 |
| Field Course | | 4.0 |
| Choose one of: | | |
| ENVS 382 | Field Botany of the New Jersey Pine Barrens | |
| ENVS 383 | Ecology of the New Jersey Pine Barrens | |
| ENVS 388 | Marine Field Methods | |

Total Credits

26.0

Minor in English

About the Minor

The English minor provides students from other majors with a more intensive background in literature. Coursework in the minor exposes students to literature from a variety of periods, cultures and genres and also provides practice in critical thinking, literary analysis and writing. These courses enrich students' intellectual lives and provide them with skills that are valuable in a variety of professional situations.

Where a course required for the minor is already required for a student's major, the student is directed to choose another English elective. Other substitutions are permissible at the discretion of the Program Director.

Program Requirements

Requirements

| | | |
|---|--|-----|
| Select a minimum of 9 credits of the following: | | 9.0 |
| ENGL 200 [WI] | Classical to Medieval Literature | |
| ENGL 201 | Renaissance to the Enlightenment | |
| ENGL 202 [WI] | Romanticism to Modernism | |
| ENGL 203 [WI] | Survey of World Literature | |
| ENGL 204 | Post-Colonial Literature | |
| ENGL 205 [WI] | American Literature I | |
| ENGL 206 [WI] | American Literature II | |
| ENGL 207 [WI] | African American Literature | |
| ENGL 211 [WI] | British Literature I | |
| ENGL 212 | British Literature II | |
| ENGL 214 | Readings in Fiction | |
| ENGL 215 [WI] | Readings in Poetry | |
| ENGL 216 [WI] | Readings in Drama | |
| Select a minimum of 6 credits of the following: | | 6.0 |
| WRIT 220 [WI] | Creative Nonfiction Writing | |
| WRIT 225 [WI] | Creative Writing | |
| WRIT 301 [WI] | Writing Poetry | |
| WRIT 302 [WI] | Writing Fiction | |
| WRIT 303 | Writing Humor and Comedy | |
| WRIT 306 | Writing About the Media | |
| WRIT 310 | Literary Editing & Publication | |
| WRIT 312 [WI] | Writing for Target Audiences | |
| WRIT T380 | Special Topics in Writing | |
| WRIT 400 [WI] | Writing in Cyberspace: Writing for/about the Web | |
| WRIT 405 | Internship in Publishing | |
| Select a minimum of 9 credits of the following: | | 9.0 |
| ENGL 300 [WI] | Literature & Science | |
| ENGL 302 | Environmental Literature | |
| ENGL 303 | Science Fiction | |

| | |
|---------------|---------------------------------------|
| ENGL 305 [WI] | The Mystery Story |
| ENGL 306 | Literature of Baseball |
| ENGL 307 | Literature of Genocide |
| ENGL 310 [WI] | Period Studies |
| ENGL 315 [WI] | Shakespeare |
| ENGL 320 [WI] | Major Authors |
| ENGL 325 | Topics in World Literature |
| ENGL 330 | The Bible as Literature |
| ENGL 335 | Mythology |
| ENGL 345 | American Ethnic Literature |
| ENGL 350 | Jewish Literature and Civilization |
| ENGL 355 [WI] | Women and Literature |
| ENGL 360 [WI] | Literature and Society |
| ENGL 365 | Topics in African American Literature |
| ENGL 370 | Topics in Literature and Medicine |
| ENGL 380 | Literary Theory |

Total Credits**24.0**

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Minor in Environmental Studies

About the Minor

The Environmental Studies minor is an interdisciplinary minor designed to give students specializing in other fields a background in contemporary environmental issues and the ability to analyze such issues. For students majoring in fields such as business and engineering, the minor in Environmental Studies will provide them with the tools to make better decisions about products or projects related to environmental economics, politic pollutants, environmental policy, and environmental justice. For students who are liberal arts majors, the minor in Environmental Studies offers the opportunity to focus on the social- and natural-science aspects of the environment, and to be prepared for issues they may encounter in their careers.

All prospective students should meet with an advisor from the College as soon as possible.

Required Courses

| | | |
|----------|---------------------------------------|-----|
| ENSS 120 | Introduction to Environmental Studies | 3.0 |
| ENSS 283 | Introduction to Environmental Policy | 3.0 |
| ENVS 260 | Environmental Science and Society | 3.0 |

Select from the following: *

15.0

| | |
|--------------|--------------------------------------|
| CJS 373 | Environmental Crime |
| COM 316 | Campaigns for Health & Environment |
| COM 317 [WI] | Environmental Communication |
| ECON 351 | Resource and Environmental Economics |
| ENGL 302 | Environmental Literature |
| ENSS 244 | Sociology of the Environment |
| ENSS 285 | Introduction to Urban Planning |
| ENSS 326 | Cities and Sustainability |
| ENSS 341 | Environmental Movements in America |
| ENSS 346 | Environmental Justice |
| ENSS 348 | Delaware River Issues and Policy |
| ENVS 230 | General Ecology |
| ENVS 275 | Global Climate Change |
| GEO 101 | Physical Geology |

| | |
|----------|--|
| HIST 321 | Themes in Global Environmental History |
| HIST 322 | Empire and Environment |
| HIST 323 | The History of Climate Change |
| PHIL 340 | Environmental Ethics |
| PHIL 341 | Environmental Philosophy |
| PSCI 284 | Environmental Politics |
| PSCI 334 | Politics of Environment and Health |
| PSCI 336 | Political Economy of Climate Change |
| PSCI 338 | Cities and Climate Change |
| PSCI 369 | The Politics of Food |
| PSCI 373 | Animal Politics |
| PSY 352 | Psychology of Sustainability |
| SOC 444 | Social Movements |

Total Credits

24.0

* Other courses may be taken as electives with departmental approval.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Minor in French

About the Minor

In our globalized world, intercultural and multilingual communication is an indispensable asset for the 21st century citizen and worker. As part of the Department of Global Studies and Modern Languages, we offer language instruction rooted in communication and embedded in authentic cultural contexts. Language study opens a world of opportunities for our students, from co-ops and study abroad programs to engagement with global communities here in Philadelphia. Media and technology, as well as travel and commerce, make the study of languages more crucial than ever, for tackling global challenges such as climate change and inequality demand that our students communicate across languages and cultures.

All prospective students should meet with an advisor from the College as soon as possible.

Program Requirements

The French minor requires a minimum of 24 credits above French 103, including at least 12 credits above French 310, and at least one 400 level course.

24.0

Students can choose from the following 300 and 400 level courses.

| | |
|---------------|--|
| FREN 201 | French IV |
| FREN 202 | French V |
| FREN 310 [WI] | Advanced Writing and Speaking |
| FREN 320 | Introduction to Language for the Professions |
| FREN 330 | Introduction to Identities and Communities |
| FREN 340 | Introduction to Power and Resistance |
| FREN 350 | Introduction to Language, Media, and Society |
| FREN 410 [WI] | Advanced Grammar and Translation |
| FREN 420 | Advanced Studies in Language for the Professions |
| FREN 430 | Advanced Studies in Identities and Communities |
| FREN 440 | Advanced Studies in Power and Resistance |
| FREN 450 | Advanced Studies in Language, Media, and Society |

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore

year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Minor in Geoscience

About the Minor

Geosciences are at the core of numerous problems facing the world today and impact the lives of communities across the planet. Climate change, natural disasters, access to mineral resources and clean water, and availability of energy all shape government policies and corporate strategies and are a cause of concern for society at large.

The Geoscience minor is designed to give students specializing in other fields the skills to understand and analyze these issues. It is a natural fit for environmental science majors who wish to understand how the physical world can impact biodiversity, ecological processes, and environmental impacts. For students majoring in fields such as business and engineering, the minor in Geoscience will provide them with the tools to make better decisions about products or projects related to natural hazards and their impact, cost and availability of natural resources, energy policy, space exploration, land use, and environmental justice. For students who are liberal arts majors, the minor in Geoscience offers the opportunity to explore earth science issues that shape the social, cultural, political and scientific debate, and to be prepared for issues they may encounter in their careers.

All prospective students should meet with an advisor from the College as soon as possible.

| | | |
|----------------------|--|-------------|
| GEO 101 | Physical Geology | 4.0 |
| GEO 102 | History of the Earth | 4.0 |
| GEO Electives | | 16.0 |
| GEO 103 | Introduction to Field Methods in Earth Science | |
| GEO 201 [WI] | Earth Systems Processes | |
| GEO 205 | Dinosaurs and Their World | |
| GEO 215 | Mineralogy | |
| GEO 301 | Advanced Field Methods in Earth Science | |
| GEO 306 | Environmental Geology | |
| GEO 309 | Geochemistry | |
| GEO 312 | Sedimentology and Stratigraphy | |
| GEO 320 | Invertebrate Paleobiology and Paleoecology | |
| GEO 322 | Vertebrate Paleontology | |
| GEO 325 | Structural Geology | |
| GEO 342 | Geomorphology | |
| GEO 346 | Coastal Geology | |
| GEO 348 | Oceanography | |
| GEO 350 | Volcanology | |
| GEO 401 | Igneous and Metamorphic Petrology | |
| GEO 412 | Geology of Groundwater | |
| GEO 418 | Geophysics | |
| Total Credits | | 24.0 |

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

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Minor in Global Studies

About the Minor

Global Studies practices socially-responsible global citizenship through a unique combination of research-oriented and multilingual instruction, professional experience, and meaningful engagement with communities both here in Philadelphia and abroad.

Students experience Global Studies by:

- Examining the movement of peoples, goods, and cultures across countries and regions
- Studying global issues in concrete socio-economic, cultural, and geographical contexts
- Tackling structural inequalities from a variety of perspectives and disciplines
- Developing intercultural and language skills through unique pedagogical models
- Working with employers and communities in Philadelphia and around the world through Drexel's Co-op opportunities

All prospective students should meet with an advisor from the College as soon as possible.

Program Requirements

Students must complete at least 201 of a language before earning the GST minor.

Core requirements

Students are required to complete 4 GST courses 15.0-16.0

Globally focused electives - Examples include: * **9.0**

| | |
|----------|-------------------------------------|
| ARTH 303 | Art of China |
| ECON 342 | Economic Development |
| ENGL 325 | Topics in World Literature |
| ENVS 275 | Global Climate Change |
| INTB 334 | International Trade |
| PBHL 303 | Overview of Issues in Global Health |
| PSCI 353 | International Human Rights |

Total Credits

24.0-25.0

* Students must complete at least 9.0 credits of globally focused coursework. Courses can be from any discipline and must be approved by the department.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Minor in History

About the Minor

The history minor allows students in other majors to explore the historical background of their discipline, to better understand the origins of the contemporary world, and to build the knowledge and skills needed to understand the development of human societies over time and to understand historical episodes into their proper contexts. The minor in history is highly flexible and allows students to choose those history courses which appeal to them and which will contribute to their broader education. To complete the minor, students must take a total of six history courses (24.0 credits), five of which must be at the 200-level or above.

All prospective students should meet with an advisor from the College as soon as possible.

Program Requirements

History Electives*

*Take any 6 HIST courses; 5 of 6 must be 200-level or higher 24.0

Total Credits 24.0

Minor in History of Capitalism

About the Minor

The Minor in History of Capitalism is dedicated to the study of capitalism and the emergence of the modern world economy from a historical perspective.

Admission Requirements

Open to all undergraduate students. All prospective students should meet with an advisor from the College as soon as possible.

Program Requirements

Required Course

HIST 315 History of Capitalism 4.0

Complete 3 of the following courses: 12.0

| | | |
|----------|---|--|
| HIST 215 | American Slavery | |
| HIST 222 | History of Work & Workers in America | |
| HIST 247 | Modern England, 1815 - present | |
| HIST 264 | East Asia in Modern Times | |
| HIST 291 | Global History of Engineering | |
| HIST 292 | Technology in American Life | |
| HIST 303 | The Study of Global History | |
| HIST 316 | History of American Business | |
| HIST 322 | Empire and Environment | |
| HIST 334 | American Empire in the Nineteenth Century | |
| HIST 355 | Venice and the Mediterranean from the Middle Ages to Napoleon | |

Complete any 2 additional history courses at the 200 level or above 8.0

Total Credits 24.0

Minor in Italian Studies

About the Minor

Note: New students are no longer being accepted into this minor for Academic Year 2022-2023. Please contact Kate Hughes at kfh28@drexel.edu or 215-895-1208 for additional information.

Drexel University and Philadelphia have deep connections with the Italian and Italo-American communities, from which come many Drexel students. Additionally, a significant number of faculty members across the university have research interests that connect with Italy.

The interdisciplinary minor in Italian Studies is designed to attract students interested in a variety of aspects related to Italian culture and to make use of the deep and diverse pool of resources on Drexel's campus, in the region, and abroad.

The minor in Italian Studies requires three courses (9-12 cr.) of language study. This allows students to achieve a basic level of language proficiency, with the option to continue further in the language. It also allows students whose interests lie beyond the language to pursue substantial Italy-related coursework in other disciplines. The elective side of the minor includes 12-15 credits of coursework in Italian society and culture, including a required seminar in contemporary Italy.

All prospective students should meet with an advisor from the College as soon as possible.

Program Requirements

Required courses:

Students select 9.0-12.0 credits ITAL courses. 9.0-12.0

ITAL 230 Italy and Italians Today 3.0

Italian Studies Electives: 12.0-13.0

| | | |
|----------|---------------------------------|--|
| ARTH 102 | History of Art II | |
| ARTH 325 | Ancient Greek and Roman Art | |
| ARTH 327 | Italian Renaissance Art | |
| CULA 305 | Fundamentals of Italian Cuisine | |

HIST 355

Venice and the Mediterranean from the Middle Ages to Napoleon

SCL 419

Global Coaching Seminar

Total Credits

24.0-28.0

Minor in Japanese

About the Minor

In our globalized world, intercultural and multilingual communication is an indispensable asset for the 21st century citizen and worker. As part of the Department of Global Studies and Modern Languages, we offer language instruction rooted in communication and embedded in authentic cultural contexts. Language study opens a world of opportunities for our students, from co-ops and study abroad programs to engagement with global communities here in Philadelphia. Media and technology, as well as travel and commerce, make the study of languages more crucial than ever, for tackling global challenges such as climate change and inequality demand that our students communicate across languages and cultures.

All prospective students should meet with an advisor from the College as soon as possible.

Program Requirements

The Japanese minor requires a minimum of 24.0 credits with a minimum of 12.0 credits above JAPN 310

24.0

| | | |
|---------------|--|--|
| JAPN 201 | Japanese IV | |
| JAPN 202 | Japanese V | |
| JAPN 310 [WI] | Advanced Writing and Speaking | |
| JAPN 320 | Introduction to Language for the Professions | |
| JAPN 340 | Introduction to Power and Resistance | |
| JAPN 350 | Introduction to Language, Media, and Society | |
| JAPN 410 [WI] | Advanced Grammar and Translation | |
| JAPN 420 | Advanced Studies in Language for the Professions | |
| JAPN 440 | Advanced Studies in Power and Resistance | |
| JAPN 450 | Advanced Studies in Language, Media, and Society | |

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Minor in Jewish Studies

About the Minor

The Louis Stein Minor in Jewish Studies, housed within the College of Arts and Sciences, is designed to give students the opportunity to explore and understand the history, culture, politics, and religion of the Jewish people. Through interdisciplinary coursework, students investigate the Jewish experience from both a contemporary and a historical perspective.

The Louis Stein Minor in Jewish Studies requires 24.0 credits: 6.0-7.0 from required courses; and 17.0-18.0 from electives. Students can apply a maximum of 6.0 credits toward the minor from field study under the supervision of a faculty member.

Program Requirements

Required Courses

| | | |
|---------------|--|-----|
| JWST 101 | Introduction to Jewish Studies | 3.0 |
| Select one: * | | 3.0 |
| JWST 201 | Jewish Literature and Civilization ** | |
| JWST 202 | Jewish Life and Culture in the Middle Ages *** | |
| JWST 203 | Modern Jewish History † | |

Minor electives

18.0

Total Credits**24.0**

- * If JWST 201 (3 credits) is selected, then 18 credits of electives are needed to fulfill the minor requirements.
 If JWST 202 or JWST 203 (4 credits each) is selected, then 17 credits of electives are needed to fulfill the minor requirements.
- ** Offered concurrently with ENGL 350 Jewish Literature and Civilization.
- *** Offered concurrently with HIST 253 Jewish Life and Culture in the Middle Ages.
- † Offered concurrently with HIST 249 Modern Jewish History.

Please see the Program Director for approval of courses not on the list of suggested electives.

Suggested Electives:

- Any JWST (<http://catalog.drexel.edu/coursedescriptions/quarter/undergrad/jwst/>) course
- Any HBRW (<http://catalog.drexel.edu/coursedescriptions/quarter/undergrad/hbrw/>) course*
- ANTH 117 Introduction to World Religions
- ANTH 217 Anthropology of Interfaith Relations
- ANTH 270 Comparative Religious Ethics
- ENGL 350 Jewish Literature and Civilization
- HIST 249 Modern Jewish History
- HIST 253 Jewish Life and Culture in the Middle Ages
- HIST 260 Coexistence and Conflict: Jews, Christians, and Muslims in the Early Mediterranean
- PHIL 291 Judaism and Christianity: Two Religions or One
- PHIL 391 Philosophy of Religion
- WGST 260 Gender and Judaism

- * Only 2 HBRW courses may be count as electives.

Minor in Justice Studies

About the Minor

The Justice Studies minor is designed for students who wish to connect their major fields of study with a justice-focused curriculum. The minor explores mostly place-based social, economic, health, and environmental risk factors in ways that extend beyond the traditional criminal justice system. With emphases on engaged learning, co-curricular opportunities, and data-driven problem-solving, the Justice Studies minor both educates and gives students the tools needed to practice “justice” across a wide spectrum of broader fields of study.

Program Requirements

CJS Requirements

| | | |
|---------|--|-----|
| CJS 260 | Justice in Our Community | 4.0 |
| CJS 262 | Places of Justice | 3.0 |
| CJS 263 | Crime, Violence, and Climate Change | 3.0 |
| CJS 303 | Applications of Justice | 3.0 |
| CJS 330 | Crime Mapping I Using Geographic Information Systems | 4.0 |

Justice Studies Minor Program Electives

Students must take 9 credits of Justice Studies Minor program electives, selecting any combination of courses from the following list: * 9.0

| | |
|---------------|--|
| ANTH 112 | Language, Culture & Cognition |
| ANTH 117 | Introduction to World Religions |
| ANTH 212 [WI] | Topics in World Ethnography |
| ARTH 314 | Contemporary Art |
| ARTH 315 | African-American Art |
| COM 181 | Public Relations Principles and Theory |
| COM 210 | Theory and Models of Communication |
| COM 377 | Communication for Civic Engagement |
| ECON 201 | Principles of Microeconomics |
| ECON 365 | Behavioral Economics |
| ENSS 120 | Introduction to Environmental Studies |
| ENSS 244 | Sociology of the Environment |
| ENSS 283 | Introduction to Environmental Policy |
| ENSS 285 | Introduction to Urban Planning |

| | |
|---------------|--|
| ENSS 326 | Cities and Sustainability |
| ENSS 346 | Environmental Justice |
| ENVS 275 | Global Climate Change |
| ENTP 210 [WI] | Leading Start-Ups |
| ENTP 215 | Building Entrepreneurial Teams |
| ENTP 225 [WI] | Mindfulness & Wellbeing |
| ENTP 250 | Ideation |
| ENTP 270 | Social Entrepreneurship |
| ENTP 275 | Diversity Entrepreneurship |
| ENTP 285 | Organizational Development and Change for Corporate Entrepreneurs |
| ENTP 290 | An Entrepreneur's Introduction to Land: Its Essence, Ethics, and Opportunity |
| GST 221 | Introduction to Global Capital and Development |
| GST 231 | Introduction to Identities and Communities |
| GST 241 | Introduction to Power and Resistance |
| GST 251 | Introduction to Global Media, Arts, and Cultures |
| GST 261 | Introduction to Global Health and Sustainability |
| PSY 150 | Introduction to Social Psychology |
| PSY 252 | Death and Dying |
| PSY 254 | Psychology of Sexual Behavior |
| PSY 270 | Psychology of Hate |
| SOC 210 | Race, Ethnicity and Social Inequality |
| SOC 220 | Wealth and Power |
| SOC 221 | Sociology of the Family |
| SOC 235 | Sociology of Health and Illness |
| SOC 240 | Urban Sociology |
| SOC 244 | Sociology of the Environment |
| SOC 318 | Social Networks and Health |
| SOC 406 | Housing and Homelessness |
| WGST 101 | Introduction to Women's and Gender Studies |
| WGST 201 | Introduction to Feminisms |
| WGST 225 | Women & Human Rights Worldwide |
| WGST 240 | Women and Society in a Global Context |
| WGST 275 | Women's Health and Human Rights |

Total Credits

26.0

* Other courses are feasible upon approval from the Program Director.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

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Minor in Linguistics

About the Minor

Linguistics, the study of language, is central to human communication. Linguists study language form, meaning and context, especially by observing and analyzing human communication in its many spoken and written varieties. A knowledge of linguistics is the basis for studies in language diversity and communicative competence, the psychology of language, educational aspects of language that affect learners and classrooms, the formal logic and languages of philosophy and computer science, and the biological science of speech pathology. As a minor at Drexel, linguistics helps you develop both a desirable set of skills in communicating with diverse speakers on co-op and an academic profile that will set you apart from other applicants for work, study, scholarship opportunities, and graduate study.

Program Requirements

Required Courses

| | | |
|----------|-----------------------------|-----|
| LING 101 | Introduction to Linguistics | 3.0 |
| LING 102 | Language and Society | 3.0 |

Elective Courses (Must equal a minimum of 18 credits) 18.0

Students can use up to 8 credits of Modern Language Courses (ARBC, CHIN, FREN, GER, HBRW, ITAL, JAP, KOR, SPAN) to fulfill electives.

| | | |
|---------------|---|--|
| AFAS 301 | Politics of Hip Hop | |
| ANTH 112 | Language, Culture & Cognition | |
| BACS 255 | Multicultural Counseling | |
| COM 342 | English Worldwide | |
| COM 345 | Intercultural Communication | |
| COM 355 | Ethnography of Communication | |
| COM 491 | Senior Project in Communication I * | |
| COM 492 | Senior Project in Communication II * | |
| COM I399 | Independent Study in COM | |
| CS 171 | Computer Programming I | |
| CS 172 | Computer Programming II | |
| EDUC 216 | Diversity and Today's Teacher | |
| EDUC 236 | Early Literacy I | |
| EDUC 326 [WI] | Language Arts Processes | |
| EDUC 328 | Language Arts Processes 4-8 | |
| EDUC 365 | Foundations in Instructing English Language Learners | |
| GST 100 | Introduction to Cultural Diversity | |
| GST 101 | Becoming Global: Language and Cultural Context | |
| JWST 214 | Language and Cultural Diversity in the USA | |
| LANG T180 | Special Topics in Languages * | |
| PHIL 111 | Symbolic Logic I | |
| PHIL 121 | Symbolic Logic II | |
| PHIL 215 | Contemporary Philosophy | |
| PSY 330 | Cognitive Psychology | |
| PSY 336 | Psychology of Language | |
| WRIT 200 | Language Puzzles and Word Games: Issues in Modern Grammar | |
| WRIT 212 | Argument and Rhetoric | |

Total Credits

24.0

* Advisor permission needed, depending on topic.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

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Additional Information

All prospective students should meet with an advisor as soon as possible:

Florette Press
Academic Advisor
florette.l.press@drexel.edu
215-895-1716

Rachel Reynolds
Program Director

rrr28@drexel.edu
215-895-0498

Minor in Mathematics

About the Minor

The minor in Mathematics requires core courses in calculus and linear algebra, as well as a selection of electives from a range of other areas. The minor complements programs in physics, computer science, finance, or engineering, demonstrating further expertise and preparing students to excel after graduation.

All prospective students should meet with an advisor from the College as soon as possible.

Program Requirements

The minor in Mathematics consists of five required courses and elective courses from the specified group of courses listed below resulting in a minimum of 37.0 credits.

Required Courses

| | | |
|-------------|-----------------------|---------|
| MATH 121 | Calculus I | 4.0 |
| MATH 122 | Calculus II | 4.0 |
| MATH 123 | Calculus III | 4.0 |
| MATH 200 | Multivariate Calculus | 4.0 |
| MATH 201 | Linear Algebra * | 3.0-4.0 |
| or MATH 261 | Linear Algebra | |

Mathematics Minor Electives **

| | | |
|----------------------------|---|-----------|
| Select from the following: | | 18.0-19.0 |
| MATH 210 | Differential Equations * | |
| or MATH 262 | Differential Equations | |
| MATH 220 [WJ] | Introduction to Mathematical Reasoning | |
| MATH 221 | Discrete Mathematics | |
| MATH 222 [WJ] | Combinatorics | |
| MATH 235 | Math Competition Problem Solving Seminar | |
| MATH 250 | Mathematics of Investment and Credit | |
| MATH 285 | Differential Equations II | |
| MATH 291 | Complex and Vector Analysis for Engineers *** | |
| MATH 300 | Numerical Analysis I | |
| MATH 301 | Numerical Analysis II | |
| MATH 305 | Introduction to Optimization Theory | |
| MATH 311 | Probability and Statistics I | |
| MATH 312 | Probability and Statistics II | |
| MATH 313 | Probability and Statistics III | |
| MATH 316 | Mathematical Applications of Symbolic Software | |
| MATH 318 [WJ] | Mathematical Applications of Statistical Software | |
| MATH 319 | Techniques of Data Analysis | |
| MATH 320 | Actuarial Mathematics | |
| MATH 321 | Vector Calculus | |
| MATH 322 | Complex Variables | |
| MATH 323 | Partial Differential Equations | |
| MATH 331 | Abstract Algebra I | |
| MATH 332 | Abstract Algebra II | |
| MATH 387 | Linear Algebra II | |
| MATH 401 | Elements of Modern Analysis I | |
| MATH 402 | Elements of Modern Analysis II | |
| MATH 410 | Scientific Data Analysis I | |
| MATH 411 | Scientific Data Analysis II | |
| MATH 422 | Introduction to Topology | |
| MATH 449 | Mathematical Finance | |
| MATH 450 | Introduction to Graph Theory | |
| MATH 475 | Cryptography | |
| MATH 483 | Introduction to Monte Carlo Methods | |

| | | |
|----------------------|-----------------|------------------|
| MATH 489 | Tensor Calculus | |
| Total Credits | | 37.0-39.0 |

- * Students count only one of these two courses for their minor.
- ** A request form is available for any other mathematics courses upon the written approval prior to the beginning of the quarter in which the course is to be offered. Students should contact the Mathematics undergraduate academic advisor.
- *** Students who take MATH 291 cannot also count MATH 321 or MATH 322 toward their minor.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

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Minor in Medical Sociology

About the Minor

The minor in medical sociology is designed to give students a broader understanding of the social dimensions of contemporary medical practice. Investigating health and illness from a national and global perspective, the minor helps students understand the relations between inequalities, health care and social justice; trends in health professions; and the importance of organizations to health care. For students majoring in such fields as health sciences, nursing, or biology, the minor in medical sociology complements their scientific training with a social science focus on humans, policy, and power in healthcare.

Admission Requirements

Open to all undergraduate Drexel students. All prospective students should meet with an advisor from the College as soon as possible.

Program Requirements

| | | |
|--|--|-------------|
| Required Courses * | | |
| SOC 235 | Sociology of Health and Illness | 4.0 |
| Select three courses from the following: | | 12.0 |
| SOC 207 | Medicine and Society | |
| SOC 238 | Sociology of Health Professions | |
| SOC 271 | Sociology of Aging | |
| SOC 313 | Sociology of Global Health | |
| SOC 318 | Social Networks and Health | |
| SOC 370 | Practicum in Applied and Community Sociology | |
| SOC 405 | Medicine, Technology and Science | |
| SOC 430 | Politics of Life | |
| Select two of the following: | | 8.0 |
| SOC 210 | Race, Ethnicity and Social Inequality | |
| SOC 220 | Wealth and Power | |
| SOC 240 | Urban Sociology | |
| SOC 241 | Research Design: Qualitative Methods | |
| SOC 242 | Research Design: Quantitative Methods | |
| SOC 355 [WI] | Classical Social Theory | |
| SOC 356 [WI] | Contemporary Social Theory | |
| Total Credits | | 24.0 |

- * No more than three courses that are required for a student's major may count towards fulfilling requirements for the minor.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

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Minor in Middle East and North Africa Studies

About the Minor

This minor offers an interdisciplinary look at the Middle East and North Africa region, which holds a critically important geopolitical position in terms of not only security and energy, but also in terms of political, religious, cultural, and gender studies. Together with content courses in English offered through a variety of departments, this minor also includes 12.0 credits of Arabic language instruction.

All prospective students should meet with an advisor from the College as soon as possible.

Program Requirements

Core Requirements

Students must complete 12 credits of Arabic language coursework 12.0

| | | |
|----------|---|-----|
| MENA 101 | The Middle East and North Africa Today: Culture and Democracy | 3.0 |
|----------|---|-----|

Students must complete a minimum of 9 credits of elective courses 9.0-10.0

| | | |
|-------------|--|--|
| GST 241 | Introduction to Power and Resistance (Gender Politics in the Middle East) | |
| GST 341 | Advanced Studies in Power and Resistance (Revolution and Counter Revolution in the Arab World) | |
| HIST 206 | Race and Islam in Africa and the Middle East | |
| JWST 223 | Coexistence and Conflict: Jews, Christians, and Muslims in the Early Mediterranean | |
| or HIST 260 | Coexistence and Conflict: Jews, Christians, and Muslims in the Early Mediterranean | |

Total Credits 24.0-25.0

Study abroad, special topics, and GST courses focused on the Middle East or North Africa will be considered for elective credit. Students must receive permission from the department.

Students who complete a minimum of 8.0 Arabic credits, including ARBC 202, are eligible to receive an intermediate language certificate.

Minor in Neuroscience

About the Minor

The Neuroscience minor allows students from a vast array of disciplines the opportunity for formalized study in neuroscience. This interdisciplinary minor integrates content from cellular, molecular, and systems neurobiology with neuropsychology, providing students with a strong foundation in basic principles of neurobiology and neuropsychology. This minor is a collaborative effort between Biology and Psychology, but is open to students in any major with an interest in gaining a deeper understanding of the biological and cognitive principles underlying brain function.

Please contact Leanne Sweppenheiser at lm38@drexel.edu for additional information.

Required Courses

| | | |
|---------|--------------------------------------|-----|
| BIO 348 | Neuroscience: From Cells to Circuits | 3.0 |
| BIO 349 | Behavioral Neuroscience | 3.0 |
| PSY 312 | Cognitive Neuroscience | 3.0 |
| PSY 410 | Neuropsychology | 3.0 |

Biology and Psychology Electives *

Select 2 BIO courses 6.0

| | | |
|---------|---|--|
| BIO 414 | Behavioral Genetics | |
| BIO 461 | Neurobiology of Autism Disorders | |
| BIO 462 | Biology of Neuron Function | |
| BIO 463 | Molecular Mechanisms of Neurodegeneration | |

| | | |
|-----------------------------|--------------------------|-------------|
| BIO 465 | Neurobiology of Disease | |
| Select 2 PSY courses | | 6.0 |
| PSY 212 | Physiological Psychology | |
| PSY 213 | Sensation and Perception | |
| PSY 310 | Drugs & Human Behavior | |
| PSY 325 | Psychology of Learning | |
| PSY 330 | Cognitive Psychology | |
| PSY 336 | Psychology of Language | |
| Total Credits | | 24.0 |

A grade of "C" or better must be earned for each course in this minor to meet the requirements.

* 3 credits of research in neuroscience as BIO 497 or PSY 499 can be substituted for 1 elective in either of the categories

Minor in Nonprofit Communication

About the Minor

The minor in Nonprofit Communication is a 24.0 credit curriculum designed to familiarize students with general communication theory and practice while providing training in print and electronic communication skills peculiar to the nonprofit sector. In addition to conventional coursework, this minor will include a practicum in the form of a 3.0 credit independent study (COM I399) for one term in which students will provide service and consultation for an area nonprofit organization as selected and coordinated by the student and approved by the undergraduate program director.

All prospective students should meet with an advisor from the College as soon as possible.

Program Requirements

Core Courses

| | | |
|--------------|--|-----|
| COM 181 | Public Relations Principles and Theory | 3.0 |
| COM 375 [WI] | Grant Writing | 3.0 |
| COM 376 | Nonprofit Communication | 3.0 |
| COM 377 | Communication for Civic Engagement | 3.0 |
| COM 378 | Public Service Campaigns | 3.0 |
| COM I399 | Independent Study in COM | 3.0 |

Choose at least 2 courses:

| | | |
|--------------|---|--|
| COM 160 [WI] | Introduction to Journalism | |
| COM 222 | Interpersonal Communication | |
| COM 247 | Strategic Social Media Communication | |
| COM 265 | Audio Journalism | |
| COM 270 [WI] | Business Communication | |
| COM 282 [WI] | Public Relations Writing in the Digital Age | |
| COM 330 | Professional Presentations | |
| COM 363 | Event Planning | |

Total Credits

24.0

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Minor in Philosophy

About the Minor

A philosophy minor adds great depth and breadth to your studies and value to any degree. Philosophy classes train you to be a more effective thinker and a more critical, reflective person. They assist you in developing better reading, writing, and speaking skills by engaging you in the work of constructing and criticizing arguments. More than almost any other, a philosophy minor will broaden and enhance your education and help you develop skills you will use in your career and in everyday life. The minor has been carefully designed to provide a comprehensive structure within which each student has a range of choices. It includes one introductory course, one logic course, three "foundations" courses, one "area elective," an applied ethics course, and one 400-level philosophy seminar. We also can customize the minor further to reflect students' particular interests and goals.

Students who have completed 30.0 credits may apply for the minor through their academic advisors.

Program Requirements

Required Courses:

| | | |
|---|---|------------|
| PHIL 105 | Critical Reasoning | 3.0 |
| or PHIL 111 | Symbolic Logic I | |
| PHIL 110 | Introduction to Philosophy | 3.0 |
| Select three Philosophy Foundations Electives: | | 9.0 |
| PHIL 121 | Symbolic Logic II | |
| PHIL 151 | Ethical Reasoning | |
| PHIL 201 | Non-Western Philosophies | |
| PHIL 211 | Metaphysics: Philosophy of Reality | |
| PHIL 221 | Epistemology: Philosophy of Knowledge | |
| PHIL 231 | Aesthetics: Philosophy of Art | |
| PHIL 241 | Social & Political Philosophy | |
| PHIL 251 | Ethics | |
| Select one Philosophy Area Elective: | | 3.0 |
| PHIL 210 | Philosophy of Sport | |
| PHIL 216 | Philosophy of Time | |
| PHIL 218 | Philosophy of Mathematics | |
| PHIL 255 | Philosophy of Sex & Love | |
| PHIL 291 | Judaism and Christianity: Two Religions or One? | |
| PHIL 341 | Environmental Philosophy | |
| PHIL 351 | Philosophy of Technology | |
| PHIL 355 | Philosophy of Medicine | |
| PHIL 361 | Philosophy of Science | |
| PHIL 381 [WI] | Philosophy in Literature | |
| PHIL 385 | Philosophy of Law | |
| PHIL 391 | Philosophy of Religion | |
| Select one Applied Ethics Elective: | | 3.0 |
| PHIL 301 | Business Ethics | |
| PHIL 305 | Ethics and the Media | |
| PHIL 311 | Ethics and Information Technology | |
| PHIL 315 | Engineering Ethics | |
| PHIL 317 | Ethics and Design Professions | |
| PHIL 321 | Biomedical Ethics | |
| PHIL 323 | Organizational Ethics | |
| PHIL 325 | Ethics in Sports Management | |
| PHIL 330 | Criminal Justice Ethics | |
| PHIL 335 | Global Ethical Issues | |
| PHIL 340 | Environmental Ethics | |
| Select one Philosophy Seminar Elective: | | 3.0 |
| PHIL 481 [WI] | Seminar in a Philosophical School | |
| PHIL 485 [WI] | Seminar in a Major Philosopher | |

Total Credits

24.0

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore

year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Additional Information

For more information about Drexel Philosophy classes and programs, please visit the Department of English & Philosophy (<http://www.drexel.edu/coas/academics/departments-centers/english-philosophy/>) website or drop by to see our director anytime. The Department of English & Philosophy is located in MacAlister Hall, Room 5016. The director can be contacted at:

Dr. Peter Amato
 Director of Programs in Philosophy
 Department of English & Philosophy
 MacAlister 5030
peterama@drexel.edu

Minor in Physics

About the Minor

Physics is a science that studies the natural phenomena at all scales from that of the universe to elementary particles. This minor exposes the students to some of the basic principles of physics and would easily complement any other discipline from engineering to other sciences.

The minor in Physics requires a total of 10.0 credits from the elective list in addition to the prerequisite and core courses.

Because of the overlap in requirements between the Astrophysics minor (<http://catalog.drexel.edu/undergraduate/collegeofartsandsciences/astrophysicsminor/>) and the Physics minor, students cannot minor in both.

All prospective students should meet with an advisor from the College as soon as possible.

Program Requirements

Required Prerequisite Courses *

| | | |
|----------|--------------------------|--|
| PHYS 113 | Contemporary Physics I | |
| PHYS 114 | Contemporary Physics II | |
| PHYS 115 | Contemporary Physics III | |

Required Courses

| | | |
|----------|--------------------------|-----|
| PHYS 311 | Classical Mechanics I | 4.0 |
| PHYS 321 | Electromagnetic Fields I | 4.0 |
| PHYS 217 | Thermodynamics | 4.0 |
| PHYS 326 | Quantum Mechanics I | 4.0 |

Electives

| | |
|--|------|
| Select at least 10.0 credits from PHYS courses at the 300 level or above | 10.0 |
|--|------|

| | |
|----------------------|-------------|
| Total Credits | 26.0 |
|----------------------|-------------|

* PHYS 101, PHYS 102 and PHYS 201 will also satisfy the prerequisite requirements.

Minor in Politics

About the Minor

A minor in Politics enriches almost every major. With a minor in Politics, you can hone your analytical and critical thinking skills and take your understanding of political science and research methodology to your field of study.

Political science pairs well with economics, criminal justice, psychology, public health, history, anthropology, communications, or education.

All prospective students should meet with an advisor from the College as soon as possible.

Program Requirements

Required Courses

| | |
|--|---------------------------------------|
| Select three of the following: | 12.0 |
| PSCI 100 | Introduction to Political Science |
| PSCI 110 | American Government |
| PSCI 120 | History of Political Thought |
| PSCI 130 | Research Design for Political Science |
| PSCI 140 | Comparative Politics I |
| PSCI 150 | International Politics |
| Political Science Electives | |
| 12.0 credits of any additional 200-level or higher PSCI courses. | 12.0 |
| Total Credits | 24.0 |

Minor in Psychology

About the Minor

The minor in Psychology is intended to meet the needs of students who recognize the importance of an understanding and analysis of individual psychological processes as a key component of their education. Students in the minor learn how to ask and answer important questions regarding human behavior, cognition, and emotion to complement their major. The minor may also be of interest to students who wish to be a double major but are unable to satisfy all of the requirements in two major fields.

Entry into the minor requires that PSY 101 *General Psychology* (or an equivalent introductory course) be taken as a prerequisite. Students interested in this minor are expected to meet with the department's Academic Advisor to discuss the selection of courses appropriate to their major and their own personal interests. No more than three courses that are required for a student's major can count towards fulfilling requirements for this minor.

Required Prerequisite

| | |
|---|--------------------------------------|
| PSY 101 | General Psychology I (or equivalent) |
| Required PSY Courses | |
| Select any EIGHT additional PSY electives * | 24.0 |
| Total Credits | 24.0 |

* Suggestion options include PSY 120, PSY 240 [WI] , PSY 280, PSY 360 [WI] and PSY 342. Students are not permitted to take PSY 111 or PSY 112. All other courses are available as electives.

A grade of "C" or better must be earned in each course to meet the requirements for this minor.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Minor in Religious Studies

About the Minor

This minor provides an interdisciplinary approach to the study of religion with much flexibility to accommodate individual student interest. Students will gain a global comparative perspective on world religions.

Admission Requirements

All prospective students should meet with an advisor from the College as soon as possible.

Program Requirements

| | | |
|--|--|------------------|
| Students must complete three courses from this list | | 9.0-10.0 |
| ANTH 117 | Introduction to World Religions | |
| ENGL 330 | The Bible as Literature | |
| HIST 260 | Coexistence and Conflict: Jews, Christians, and Muslims in the Early Mediterranean | |
| PHIL 391 | Philosophy of Religion | |
| Students must complete at least 15 credits of additional elective courses, including a minimum of two different course rubrics: | | 15.0 |
| ANTH 117 | Introduction to World Religions | |
| ANTH 217 | Anthropology of Interfaith Relations | |
| ANTH 270 | Comparative Religious Ethics | |
| ENGL 330 | The Bible as Literature | |
| ENGL 335 | Mythology | |
| ENGL 350 | Jewish Literature and Civilization | |
| or JWST 201 | Jewish Literature and Civilization | |
| HIST 155 | The Historical Jesus | |
| HIST 181 | Religion, Science, and Medicine in History | |
| HIST 249 | Modern Jewish History | |
| or JWST 203 | Modern Jewish History | |
| HIST 253 | Jewish Life and Culture in the Middle Ages | |
| or JWST 202 | Jewish Life and Culture in the Middle Ages | |
| HIST 257 | The Reformation Age | |
| HIST 260 | Coexistence and Conflict: Jews, Christians, and Muslims in the Early Mediterranean | |
| HIST 358 | Witches, Demons, and Witch-hunters in European History | |
| JWST 212 | Contemporary Jewish Life | |
| JWST 216 | Yiddish Literature & Culture | |
| PHIL 102 | Introduction to Eastern Philosophy | |
| PHIL 291 | Judaism and Christianity: Two Religions or One? | |
| PHIL 391 | Philosophy of Religion | |
| RELS T280 | Special Topics in Religious Studies * | |
| RELS T380 | Special Topics in Religious Studies * | |
| Total Credits | | 24.0-25.0 |

* Special Topics courses focused on religious studies will be considered for elective credit. Students must receive permission from the department.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Minor in Science, Technology and Society

About the Minor

The minor in Science, Technology and Society (STS) allows students to explore the cultural, ethical, historical, political, and institutional dimensions of science, medicine, and technology. By taking courses in different disciplines, students develop an interdisciplinary approach that empowers them to critically analyze the social dimensions of science, medicine, and technology. STS programs, also called science and technology studies, are growing in the US and worldwide. The ability to critically identify the values and incentives built into scientific knowledge and technology design and use is highly valued in settings such as health care organizations, government agencies, public policy realms, tech industries, and more.

Additional Information

For more information about this program, please contact:

Kristene Unsworth, PhD
 Director, Center for Science, Technology and Society
 ku26@drexel.edu
 215.895.0277

Additional information can be found on Drexel's Center for Science, Technology and Society (<http://drexel.edu/coas/academics/departments-centers/science-technology-society/>) page. All prospective students should meet with an advisor from the College as soon as possible.

Select 6 - 8 classes from the list below, with a minimum of 24.0 credits. One class must be SCTS 101. At least 2 different subject areas must be represented among these classes. **24.0**

| | |
|---------------|--|
| ANTH 330 | Media Anthropology |
| ANTH 345 | Visual Anthropology |
| ANTH 355 | Digital Culture |
| ARCH 315 | Sustainable Built Environment I |
| BIO 114 | Climate Change and Human Health |
| BIO 212 | Biotechnology |
| COM 240 | New Technologies In Communication |
| COM 247 | Strategic Social Media Communication |
| COM 351 | Computer Mediated Communication |
| CJS 210 | Race, Crime, and Justice |
| CJS 220 | Crime and the City |
| CJS 273 | Surveillance, Technology, and the Law |
| CJS 274 | Sex, Violence, & Crime on the Internet |
| CJS 366 | Technology and the Justice System |
| ENGL 300 [WI] | Literature & Science |
| ENGL 302 | Environmental Literature |
| ENGL 303 | Science Fiction |
| ENGL 370 | Topics in Literature and Medicine |
| INTR 310 | Sustainability: History, Theory and Critic |
| HIST 181 | Religion, Science, and Medicine in History |
| HIST 283 | Technology and Identity |
| HIST 285 | Technology in Historical Perspective |
| HIST 287 | History of Science: Ancient to Medieval |
| HIST 288 | History of Science: Medieval to Enlightenment |
| HIST 289 | History of Science: Enlightenment to Modernity |
| HIST 290 | Technology and the World Community |
| HIST 291 | Global History of Engineering |
| HIST 292 | Technology in American Life |
| HIST 320 | Disaster in Global History |
| HIST 321 | Themes in Global Environmental History |
| HIST 340 | History of Bodies in Science, Technology, and Medicine |
| HIST 341 | Disabilities in History |
| HIST 380 | Advanced History Seminar |
| HIST 385 | Transnational History of Science, Technology and Environment |
| HSAD 210 | Health-Care Ethics I |
| HSAD 225 | Perspectives on Disability |
| HSAD 309 | Advanced Health-Care Ethics |
| HSAD 362 | Madness, Mental Health and Psychiatry in the Modern West |
| MGMT 364 | Technology Management |
| PBHL 302 | Introduction to the History of Public Health |
| PHIL 111 | Symbolic Logic I |
| PHIL 121 | Symbolic Logic II |
| PHIL 311 | Ethics and Information Technology |
| PHIL 321 | Biomedical Ethics |
| PHIL 340 | Environmental Ethics |
| PHIL 341 | Environmental Philosophy |
| PHIL 351 | Philosophy of Technology |
| PHIL 355 | Philosophy of Medicine |
| PHIL 361 | Philosophy of Science |
| PSCI 284 | Environmental Politics |
| PSCI 289 | Technology and Politics |
| PSCI 334 | Politics of Environment and Health |

| | |
|----------|--|
| PSCI 369 | The Politics of Food |
| PSCI 371 | Science, Technology, & Public Policy |
| PSCI 373 | Animal Politics |
| PSY 290 | History and Systems of Psychology |
| SCTS 101 | Introduction to Science, Technology, and Society |
| SCTS 200 | Addiction & Society |
| SCTS 202 | Innovation and Social Justice |
| SCTS 205 | Artificial Intelligence and Society |
| SCTS 207 | Medicine and Society |
| SOC 222 | Sex and Society |
| SOC 235 | Sociology of Health and Illness |
| SOC 241 | Research Design: Qualitative Methods |
| SOC 244 | Sociology of the Environment |
| SOC 261 | Sex and The City |
| SOC 276 | Global Climate Change |
| SOC 341 | Global Environmental Movements |
| SOC 346 | Environmental Justice |
| SOC 349 | Sociology of Disasters |
| SOC 405 | Medicine, Technology and Science |
| SOC 430 | Politics of Life |
| WGST 225 | Women & Human Rights Worldwide |

Total Credits

24.0

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Minor in Sociology

About the Minor

The sociology minor is designed to give students specializing in other fields a broader knowledge of contemporary social issues such as poverty, racism, economic inequality, unemployment, and environmental change through a sociological lens. For students majoring in such fields as business and engineering, the minor helps develop skills in critical thinking that go beyond the acquisition of specialized, professional techniques. It will further students' ability to systematically identify how gender, race or class, for example, shape work, medicine, technology, and society. For students majoring in another area of the liberal arts, the minor offers the opportunity to place the issues raised in the major discipline within a larger social context.

Open to all undergraduate Drexel students. All prospective students should meet with an advisor from the College as soon as possible.

Please note: No more than three courses that are required for a student's major can count towards fulfilling requirements for the minor.

Required Courses *

| | | |
|----------------------------------|---------------------------------------|-----|
| SOC 355 [WI] | Classical Social Theory | 4.0 |
| or SOC 356 | Contemporary Social Theory | |
| Select five of the following: ** | | |
| SOC 115 | Social Problems | |
| SOC 207 | Medicine and Society | |
| SOC 210 | Race, Ethnicity and Social Inequality | |
| SOC 215 | Sociology of Work | |
| SOC 220 | Wealth and Power | |
| SOC 221 | Sociology of the Family | |
| SOC 222 | Sex and Society | |
| SOC 230 | Gender and Society | |

| | |
|----------|--|
| SOC 235 | Sociology of Health and Illness |
| SOC 238 | Sociology of Health Professions |
| SOC 240 | Urban Sociology |
| SOC 241 | Research Design: Qualitative Methods |
| SOC 242 | Research Design: Quantitative Methods |
| SOC 244 | Sociology of the Environment |
| SOC 261 | Sex and The City |
| SOC 268 | Sociology of Sport |
| SOC 271 | Sociology of Aging |
| SOC 276 | Global Climate Change |
| SOC 281 | Gentrification and Neighborhood Change |
| SOC 313 | Sociology of Global Health |
| SOC 318 | Social Networks and Health |
| SOC 320 | Sociology of Deviance |
| SOC 330 | Development and Underdevelopment in the Global South |
| SOC 335 | Sociology of Education |
| SOC 340 | Globalization |
| SOC 341 | Global Environmental Movements |
| SOC 346 | Environmental Justice |
| SOC 349 | Sociology of Disasters |
| SOC 405 | Medicine, Technology and Science |
| SOC 406 | Housing and Homelessness |
| SOC 410 | Imagining Multiple Democracies |
| SOC 420 | Love, Rage & Debt: The Debt Society |
| SOC 430 | Politics of Life |
| SOC 444 | Social Movements |
| SOC T380 | Special Topics in SOC |
| SOC 450 | Capstone in Sociology |
| SOC T480 | Special Topics in Sociology |
| SOC I499 | Independent Study in SOC |

Total Credits**24.0**

* No more than three courses that are required for a student's major can count towards fulfilling requirements for the minor.

** Students must take at least three elective courses at the 300 or 400 level.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Minor in Spanish

About the Minor

In our globalized world, intercultural and multilingual communication is an indispensable asset for the 21st century citizen and worker. As part of the Department of Global Studies and Modern Languages, we offer language instruction rooted in communication and embedded in authentic cultural contexts. Language study opens a world of opportunities for our students, from co-ops and study abroad programs to engagement with global communities here in Philadelphia. Media and technology, as well as travel and commerce, make the study of languages more crucial than ever, for tackling global challenges such as climate change and inequality demand that our students communicate across languages and cultures.

All prospective students should meet with an advisor from the College as soon as possible.

Program Requirements

The Spanish minor requires a minimum of 24 credits above SPAN 103, including at least 12 credits above SPAN 310. Students can choose from the following 300 and 400 level courses.

24.0

| | |
|---------------|--|
| SPAN 201 | Spanish IV |
| SPAN 202 | Spanish V |
| SPAN 211 | Spanish for Healthcare Professionals II |
| SPAN 212 | Spanish for Healthcare Professionals III |
| SPAN 310 [WI] | Advanced Writing and Speaking |
| SPAN 320 | Introduction to Language for the Professions |
| SPAN 330 | Introduction to Identities and Communities |
| SPAN 340 | Introduction to Power and Resistance |
| SPAN 350 | Introduction to Language, Media, and Society |
| SPAN 410 [WI] | Advanced Grammar and Translation |
| SPAN 420 | Advanced Studies in Language for the Professions |
| SPAN 430 | Advanced Studies in Identities and Communities |
| SPAN 440 | Advanced Studies in Power and Resistance |
| SPAN 450 | Advanced Studies in Language, Media, and Society |

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Minor in War and Society

About the Minor

This history minor concentrates on the history of wars, military and related institutions, and their broader historical and political contexts.

All prospective students should meet with an advisor from the College as soon as possible.

Program Requirements

Complete 16 credits in the following courses: *

16.0

| | |
|-------------------------|--|
| HIST 230 | United States Military History I (before 1900) |
| HIST 231 | US Military History II (since 1900) |
| HIST 234 | The United States Civil War |
| HIST 235 | The Great War, 1914-1918 |
| HIST 236 | World War II |
| HIST 239 | The Pacific War |
| HIST 248 or JWST 226 | History of the Holocaust |
| HIST 331 [WI] | The American Revolution |
| HIST 333 | U.S.-Mexican War |
| HIST 338 [WI] | The Vietnam War |
| HIST 341 | Disabilities in History |
| HIST 370 | Conquest of Mexico |
| JWST 215 | Reconstructing History After Genocide |
| PSCI 150 | International Politics |
| PSCI 250 | American Foreign Policy |
| PSCI 310 | Civilians in Armed Conflict |
| PSCI 352 | Ethics and International Relations |
| PSCI 353 | International Human Rights |

| | |
|---|-------------|
| Complete any 2 additional history courses | 8.0 |
| Total Credits | 24.0 |

* At least 8 credits must be HIST courses.

Minor in Women's and Gender Studies

About the Minor

The minor in Women's and Gender Studies (<https://drexel.edu/coas/academics/departments-centers/center-interdisciplinary-study/womens-and-gender-studies/#news>) (WGST) offers students exciting opportunities to explore an array of topics related to genders and sexualities. All of the program's courses are interdisciplinary and wide ranging, drawing on history, literature, cultural studies, social sciences, and natural science to study genders and sexualities as they intersect with race, ethnicity, class, nationality, transnational processes, disability, religion, and other zones of experiences.

Students have a great deal of flexibility in designing a minor that addresses their interests. Students can choose from core courses within the program, as well as courses cross-listed with many departments in CoAS, and other colleges. The readings and discussions in each class represent a wide variety of perspectives concerning issues such as: trans* studies, queer studies, gender and popular culture, sexualities and race, reproductive rights, and contemporary feminist politics. WGST is a popular minor, as topics in the field are relevant to all major disciplines.

The program encourages work that is interdisciplinary, intersectional, international, and transnational. WGST graduates pursue their professional careers in various fields—from public health, law, education, media, and computer studies. Many WGST graduates continue their activist work in non-governmental organizations that engage with international politics, reproductive rights and justice, and civil rights activism.

Additional Information

Please contact WGST director Jennifer Yusin for more information about the minor and the program: jyusin@drexel.edu

Required Courses

| | | |
|----------|--|-----|
| WGST 101 | Introduction to Women's and Gender Studies | 3.0 |
| WGST 201 | Introduction to Feminisms | 3.0 |

Choose one of the following three theory courses **3.0**

| | | |
|----------|---|--|
| WGST 301 | Sex, Gender, Feminism: A Seminar in Feminist Theories | |
| WGST 308 | Queer Theory | |
| WGST 320 | Masculinities | |

Students must complete at least 15 credits of elective courses: **15.0**

| | | |
|---------------|--|--|
| AFAS 255 | Gender & Black Popular Culture | |
| ARTH 340 | Women in Art | |
| COM 246 | Media and Identity | |
| CJS 274 | Sex, Violence, & Crime on the Internet | |
| CJS 362 | Gender, Crime, and Justice | |
| ENGL 355 [WI] | Women and Literature | |
| HIST 208 | Women in American History | |
| HIST 283 | Technology and Identity | |
| PBHL 305 | Women and Children: Health & Society | |
| PHIL 255 | Philosophy of Sex & Love | |
| PSY 356 | Women's Health Psychology | |
| SMT 254 | Women & Minority Opportunities in Sport | |
| SMT 255 | Legal Foundations of Title IX | |
| SOC 222 | Sex and Society | |
| SOC 230 | Gender and Society | |
| WGST 220 | Writing on the Body | |
| WGST 225 | Women & Human Rights Worldwide | |
| WGST 230 | Arab Women Writers | |
| WGST 235 | African Francophone Women Writers: Displacement. From One Continent To Another | |
| WGST 240 | Women and Society in a Global Context | |
| WGST 255 | Gender and Black Popular Culture | |
| WGST 260 | Gender and Judaism | |
| WGST 270 | Cigarettes and High Heels | |
| WGST 275 | Women's Health and Human Rights | |
| WGST T280 | Special Topics in Women's and Gender Studies | |
| WGST I299 | Independent Study in Women's and Gender Studies | |
| WGST 301 | Sex, Gender, Feminism: A Seminar in Feminist Theories | |

| | |
|-----------|--|
| WGST 308 | Queer Theory |
| WGST 320 | Masculinities |
| WGST 324 | Retail Intersections: Social & Cultural Issues |
| WGST T380 | Special Topics in Women's and Gender Studies |
| WGST T480 | Special Topics in Women's and Gender Studies |

Total Credits

24.0

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Minor in Writing

About the Minor

The Minor in Writing provides a foundation of advanced writing knowledge and practice while also allowing a focus on areas of writing you find most interesting, enjoyable, or relevant to your goals.

The Minor in Writing can help you:

- develop rhetorical awareness and knowledge that will help you write and communicate successfully in new contexts
- acquire writing habits and practices that will help you in college classes as well as in professional, civic, and personal life
- write and think creatively and critically in a variety of genres
- develop a portfolio of work that helps demonstrate your skill and experience as a writer
- engage with ideas and modes of expression you care about and find rewarding

Choose from a selection of core courses, and then customize your experience in the minor by selecting one course from the Literacies and Theories category and three courses (or nine credits) from an extensive list of Writing Practices.

All prospective students should meet with an advisor from the College as soon as possible.

Program Requirements

Core Courses

Choose one from each pair:

| | | |
|---------------|---|-----|
| WRIT 195 | Threshold Concepts in Writing | 3.0 |
| or WRIT 200 | Language Puzzles and Word Games: Issues in Modern Grammar | |
| WRIT 210 [WI] | The Peer Reader in Context | 3.0 |
| or WRIT 211 | Advanced Composition | |
| WRIT 225 [WI] | Creative Writing | 3.0 |
| or WRIT 212 | Argument and Rhetoric | |
| WRIT 312 [WI] | Writing for Target Audiences | 3.0 |
| or WRIT 315 | Writing for Social Change | |

Literacies and Readings

Choose one course focused on reading or learning about writing in a particular genre or context:

3.0

| | |
|---------------|------------------------------------|
| ANTH 330 | Media Anthropology |
| COM 210 | Theory and Models of Communication |
| COM 220 | Qualitative Research Methods |
| COM 355 | Ethnography of Communication |
| EDUC 236 | Early Literacy I |
| EDUC 326 [WI] | Language Arts Processes |
| ENGL 200 [WI] | Classical to Medieval Literature |
| ENGL 201 | Renaissance to the Enlightenment |
| ENGL 202 [WI] | Romanticism to Modernism |

| | |
|---------------|---|
| ENGL 203 [WI] | Survey of World Literature |
| ENGL 204 | Post-Colonial Literature |
| ENGL 205 [WI] | American Literature I |
| ENGL 206 [WI] | American Literature II |
| ENGL 207 [WI] | African American Literature |
| ENGL 211 [WI] | British Literature I |
| ENGL 212 | British Literature II |
| ENGL 214 | Readings in Fiction |
| ENGL 215 [WI] | Readings in Poetry |
| ENGL 216 [WI] | Readings in Drama |
| LING 101 | Introduction to Linguistics |
| LING 102 | Language and Society |
| PHIL 105 | Critical Reasoning |
| PHIL 305 | Ethics and the Media |
| PSCI 330 | Public Opinion & Propaganda |
| PSCI 335 | Political Communication |
| WRIT 195 | Threshold Concepts in Writing * |
| WRIT 200 | Language Puzzles and Word Games: Issues in Modern Grammar * |
| WRIT 210 [WI] | The Peer Reader in Context * |
| WRIT 211 | Advanced Composition * |
| WRIT 212 | Argument and Rhetoric * |
| WRIT 250 | "Mistakes Were Made": Truth, Writing, and Responsibility |
| WRIT 295 | Forms Seminar |

Writing Practices

Choose three courses that allow you to practice writing in specific genres or contexts:

9.0

| | |
|---------------|--|
| COM 160 [WI] | Introduction to Journalism |
| COM 270 [WI] | Business Communication |
| COM 310 [WI] | Technical Communication |
| COM 320 [WI] | Science Writing |
| COM 335 [WI] | Digital Publishing |
| CULA 412 | Food Writing |
| SCRP 220 | Playwriting I |
| SCRP 225 | Playwriting II |
| SCRP 270 [WI] | Screenwriting I |
| SCRP 275 [WI] | Screenwriting II |
| SCRP 350 | TV Comedy Practicum |
| SCRP 353 | TV Drama Practicum |
| TVPR 220 | TV News Writing |
| WRIT 215 [WI] | Story Medicine |
| WRIT 220 [WI] | Creative Nonfiction Writing |
| WRIT 225 [WI] | Creative Writing * |
| WRIT 226 | Writing in Public Spaces |
| WRIT 280 | The Writers Room Lab Credit |
| WRIT 290 | Writers Room Experience |
| WRIT 301 [WI] | Writing Poetry |
| WRIT 302 [WI] | Writing Fiction |
| WRIT 303 | Writing Humor and Comedy |
| WRIT 305 | Life is Beautiful |
| WRIT 306 | Writing About the Media |
| WRIT 310 | Literary Editing & Publication |
| WRIT 311 | Writing and Reading the Memoir |
| WRIT 312 [WI] | Writing for Target Audiences * |
| WRIT 315 | Writing for Social Change * |
| WRIT 320 | Publishing Veterans' Memoirs for the Library of Congress |
| WRIT 400 [WI] | Writing in Cyberspace: Writing for/about the Web * |
| WRIT 401 | Advanced Poetry Workshop |
| WRIT 402 | Advanced Fiction Workshop |
| WRIT 405 | Internship in Publishing |
| WRIT T280 | Special Topics in Writing |
| WRIT T380 | Special Topics in Writing |

- * Courses marked with an asterisk are also listed as options for core courses for the minor. A student who elects to take one of these courses may not count it twice (once as a core course and once as an elective in the Literacies and Theories category or in the Writing Practices category). For example, a student who chooses to take WRIT 212 *Argument and Rhetoric* as a core course may not count it again as a Literacies and Theories course; however, this student could take WRIT 225 [WI] *Creative Writing* and count it as a Writing Practices course.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Certificate in Ethical Theory and Practice

About the Program

The certificate in Ethical Theory and Practice will help you develop your awareness and understanding of ethical issues. Ethics is a crucial aspect of all personal, familial, institutional, civic, business, scientific, and professional relationships. In ethics classes, you will reflect upon how and why these kinds of problems arise, the nuances and repercussions of tackling them in different ways, and some of the various ways people have thought about how to resolve them in practice. This kind of study adds depth to your understanding of the practical dimensions of all areas of life and work and prepares you for dealing with the complex moral and ethical issues that arise.

Admission Requirements

Open to Drexel students in all schools and colleges in all majors who have completed 15.0 credits.

Program Requirements

Required Courses

| | | |
|------------------------------|-----------------------------------|------|
| PHIL 105 | Critical Reasoning | 3.0 |
| or PHIL 151 | Ethical Reasoning | |
| PHIL 110 | Introduction to Philosophy | 3.0 |
| or PHIL 201 | Non-Western Philosophies | |
| PHIL 241 | Social & Political Philosophy | 3.0 |
| PHIL 251 | Ethics | 3.0 |
| Select two of the following: | | 6.0 |
| PHIL 301 | Business Ethics | |
| PHIL 305 | Ethics and the Media | |
| PHIL 311 | Ethics and Information Technology | |
| PHIL 315 | Engineering Ethics | |
| PHIL 317 | Ethics and Design Professions | |
| PHIL 321 | Biomedical Ethics | |
| PHIL 323 | Organizational Ethics | |
| PHIL 325 | Ethics in Sports Management | |
| PHIL 330 | Criminal Justice Ethics | |
| PHIL 335 | Global Ethical Issues | |
| PHIL 340 | Environmental Ethics | |
| PHIL 385 | Philosophy of Law | |
| Total Credits | | 18.0 |

Additional Information

For more information about Drexel Philosophy classes and programs, please visit the Department of English & Philosophy (<http://www.drexel.edu/coas/academics/departments-centers/english-philosophy/>) website or stop by to see our director anytime. The Department of English & Philosophy is located in MacAlister Hall, Room 5016. The director can be contacted at:

Dr. Peter Amato
 Director of Programs in Philosophy
 Department of English & Philosophy
 MacAlister 5029
 peterama@drexel.edu

Certificate in Interfaith and Religious Studies

About the Program

Only available to currently enrolled Drexel students.

The certificate in Interfaith and Religious Studies represents Drexel University's commitment to the study of spirituality and the contribution of the world's organized religions to the psychological and social well-being of individuals, groups, and societies. Through the study of the interrelationship of religions and the efforts of interfaith initiatives, students will better understand group commonalities and differences and attempts for social improvement and the resolution of conflict.

The Jewish Studies program, an interdepartmental and interdisciplinary program in the College of Arts and Sciences, has for many years taught about the centrality of religion in cultural life. In its core courses, the evolution of Judaism alongside the rise of Christianity and Islam has been studied. As the

coordinating body for the certificate in Interfaith and Religious Studies, the Jewish Studies program continues its tradition of exposing Drexel students to the leaders, thinkers, and institutions of the larger, outside community.

Program Requirements

Students must complete at least 15 credits from the list below:

15.0

| | | |
|-------------------------|--|--|
| JWST 117 or ANTH 117 | Introduction to World Religions Introduction to World Religions | |
| JWST 221 or ANTH 217 | Anthropology of Interfaith Relations Anthropology of Interfaith Relations | |
| JWST 222 or ANTH 270 | Comparative Religious Ethics Comparative Religious Ethics | |
| JWST 223 or HIST 260 | Coexistence and Conflict: Jews, Christians, and Muslims in the Early Mediterranean Coexistence and Conflict: Jews, Christians, and Muslims in the Early Mediterranean | |
| JWST 224 or PHIL 291 | Judaism and Christianity: Two Religions or One? Judaism and Christianity: Two Religions or One? | |
| JWST 225 or PHIL 391 | Philosophy of Religion Philosophy of Religion | |

Total Credits

15.0

Any travel-add-on component to these courses can be counted towards the Certificate.

Health and Medical Humanities Certificate

Only available to currently enrolled Drexel students.

About the Program

The certificate program in Health and Medical Humanities is designed for students majoring in any of the biological sciences and health professions including biomedical engineering, nursing, and public health as well as non-health-related majors such as those found in the humanities and the social sciences with the aim of promoting dialogue and mutual appreciation for various approaches to health-related issues.

The wide range of applicable courses within designated disciplines fosters an interdisciplinary context for investigating the many challenges within medicine and caregiving. This format, in turn, encourages students to explore illness, disability, dying, and healing as human experiences and to evaluate some of the limitations of an exclusively scientific perspective on medical practice and research.

The program director will help students choose courses best suited for their personal and professional interests. Note that most courses applicable to the program also fulfill humanities electives for other majors and that courses may change as departments offer more options. Students will receive periodic updates notifying them of additional course offerings.

Opportunities

Those students who successfully complete the program will receive a certificate in Health and Medical Humanities. This certificate highlights the student's proficiency in an interdisciplinary approach to health-related issues not easily attainable through isolated courses. The series of courses that make up the certificate program are also helpful in preparing for the humanities sections of the MCAT.

Program Requirements

Required Courses

| | | |
|----------|---|-----|
| ENGL 370 | Topics in Literature and Medicine | 3.0 |
| ENGL 470 | Capstone Seminar in Health and Medical Humanities | 3.0 |
| PHIL 355 | Philosophy of Medicine | 3.0 |

Select one of the following ethics courses:

3.0

| | | |
|----------|--|--|
| BMES 338 | Biomedical Ethics and Law | |
| HSAD 210 | Health-Care Ethics I | |
| HSAD 309 | Advanced Health-Care Ethics | |
| HSAD 324 | Health Technology and Ethical Responsibility | |
| HSAD 352 | Ethics in Health Care Research | |
| PBHL 309 | Public Health Ethics | |
| PHIL 251 | Ethics | |
| PHIL 321 | Biomedical Ethics | |

Select two courses from the following:

6.0

| | | |
|---------------|-----------------------|--|
| BIO 212 | Biotechnology | |
| ENGL 300 [WI] | Literature & Science | |
| HIST 278 | Medicine Before Germs | |

| | |
|---------------|--|
| HIST 285 | Technology in Historical Perspective |
| HIST 385 | Transnational History of Science, Technology and Environment |
| HSAD 313 | Evolution of Health Care in the United States |
| HSAD 316 | Health Care across Cultures |
| HSAD 318 | Health and Vulnerable Populations |
| HSAD 319 | Women and the Health Professions |
| HSAD 322 | Health-Care Law |
| HSAD 333 | Health, Illness, and the Arts |
| HSAD 343 | Health and Illness in Film |
| PBHL 101 | Public Health 101 |
| PBHL 303 | Overview of Issues in Global Health |
| PBHL 304 | Introduction to Health & Human Rights |
| PBHL 333 | Health Inequality |
| PHIL 255 | Philosophy of Sex & Love |
| PHIL 361 | Philosophy of Science |
| PSY 244 | Culture and Personality |
| PSY 252 | Death and Dying |
| PSY 355 | Health Psychology |
| PSY 356 | Women's Health Psychology |
| SCTS 101 | Introduction to Science, Technology, and Society |
| SOC 222 | Sex and Society |
| SOC 235 | Sociology of Health and Illness |
| SOC 271 | Sociology of Aging |
| SOC 313 | Sociology of Global Health |
| SOC 318 | Social Networks and Health |
| WRIT 215 [WI] | Story Medicine |
| WRIT 305 | Life is Beautiful |

Total Credits**18.0**

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Additional Information

For more information, contact the program director:

Stacey Ake, PhD (Biology), PhD (Philosophy)
Department of English and Philosophy
sea29@drexel.edu

Philosophy, Arts, and Humanities Certificate

About the Program

The certificate in Philosophy, Arts, and Humanities provides an excellent opportunity for undergraduate students in all majors to deepen and broaden their educational experience through engagement with questions and ideas related to the arts and the humanities. What is the nature of art and how is it related to ideas about "beauty?" What does art say about the experience of being human or a particular human? How do interpretations contribute to our thinking about what is true and what is right? How can competing interpretations of our duties and obligations in society and the state be assessed and evaluated? How should we understand the ways people have thought about humanity's place in the cosmos over time? These and many other related issues will be explored.

Contact your academic advisor in order to add this certificate to your program.

Program Requirements

Required Courses

| | | |
|--------------------------------|---|-----|
| PHIL 105 | Critical Reasoning | 3.0 |
| PHIL 110 | Introduction to Philosophy | 3.0 |
| PHIL 231 | Aesthetics: Philosophy of Art | 3.0 |
| Select three of the following: | | 9.0 |
| PHIL 201 | Non-Western Philosophies | |
| PHIL 255 | Philosophy of Sex & Love | |
| PHIL 291 | Judaism and Christianity: Two Religions or One? | |
| PHIL 381 [WI] | Philosophy in Literature | |
| PHIL 385 | Philosophy of Law | |
| PHIL 391 | Philosophy of Religion | |

Total Credits

18.0

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Additional Information

For more information about Drexel Philosophy classes and programs, please visit the Department of English & Philosophy (<http://www.drexel.edu/coas/academics/departments-centers/english-philosophy/>) website or stop by to see our director anytime. The Department of English & Philosophy is located in MacAlister Hall, Room 5016. The director can be contacted at:

Dr. Peter Amato
 Director of Programs in Philosophy
 Department of English & Philosophy
 MacAlister 5029
peterama@drexel.edu

Philosophy, Science, and Technology Certificate

About the Program

The certificate in Philosophy, Science, and Technology provides an excellent opportunity for undergraduate students in all majors to deepen and broaden their educational experience by exploring issues related to science and technology. What is the nature and scope of natural science? What should count as "knowledge" as opposed to "opinion"? How do the sciences produce knowledge? How do philosophers think about the reality of space, time, and mathematics? What is the role played by their technical apparatus in the ways scientists think about the things they study? Is technology a neutral factor in human life and history? What is our responsibility to the environment? These and many other questions will be explored.

Contact your academic advisor in order to add this certificate to your program.

Program Requirements

Required Courses

| | | |
|------------------------------|---------------------------------------|-----|
| PHIL 110 | Introduction to Philosophy | 3.0 |
| PHIL 111 | Symbolic Logic I | 3.0 |
| Select one of the following: | | 3.0 |
| PHIL 121 | Symbolic Logic II | |
| PHIL 216 | Philosophy of Time | |
| PHIL 218 | Philosophy of Mathematics | |
| PHIL 221 | Epistemology: Philosophy of Knowledge | |

Select three of the following:

9.0

| | |
|----------|--------------------------|
| PHIL 341 | Environmental Philosophy |
| PHIL 351 | Philosophy of Technology |
| PHIL 355 | Philosophy of Medicine |
| PHIL 361 | Philosophy of Science |

Total Credits**18.0**

Additional Information

For more information about Drexel Philosophy classes and programs, please visit the Department of English & Philosophy (<http://www.drexel.edu/coas/academics/departments-centers/english-philosophy/>) website or stop by to see our director anytime. The Department of English & Philosophy is located in MacAlister Hall, Room 5016. The director can be contacted at:

Dr. Peter Amato
 Director of Programs in Philosophy
 Department of English & Philosophy
 MacAlister 5029
 peterama@drexel.edu

Spanish for Health Professionals Certificate

Only available to currently enrolled Drexel undergraduate students.

The Spanish for Health Professionals certificate prepares students to engage Spanish-speaking populations in the field of healthcare. It offers a critical advantage to health professions students (College of Nursing and Health Professions, Public Health, Pre-Med) who will be much better positioned in the job market if they can certify their ability to use Spanish in the workplace and engage with patients in culturally sensitive ways.

Program Requirements

Category 1: Spanish language coursework *

4.0-12.0

| | |
|----------|--|
| SPAN 113 | Spanish for Healthcare Professionals I |
| SPAN 211 | Spanish for Healthcare Professionals II |
| SPAN 212 | Spanish for Healthcare Professionals III |

Category 2: Latin American/Latinx Health coursework

14.0-6.0

Students must complete between 6—14 credits of Latin American/Latinx Health coursework, and are encouraged to complete some of those credits through community-based and/or study abroad courses. **

| | |
|----------|--|
| BACS 255 | Multicultural Counseling |
| HSAD 316 | Health Care across Cultures |
| HSCI 315 | Current Issues in Health Sciences |
| NURS 312 | Leadership in Action and Community Health |
| NURS 460 | Population Health: Local & Global |
| PBHL 101 | Public Health 101 |
| PBHL 303 | Overview of Issues in Global Health |
| PBHL 304 | Introduction to Health & Human Rights |
| PBHL 309 | Public Health Ethics |
| SPAN 320 | Introduction to Language for the Professions (When focused on health professions, taught in Spanish) |

Total Credits**18.0**

* Students are required to complete a minimum of 4 credits (SPAN 212 is required), and a maximum of 12 credits of language coursework. Students who take 4 credits of language courses must complete 14 credits of Latin American/Latinx Health coursework.

** In addition to the course options above in Category 2, approved community-based/study abroad courses include: GST 231 Introduction to Identities and Communities (Disaster & Resilience in Puerto Rico: Community-Based Learning Course); LANG T180 Special Topics in Languages (Intensive Spanish for Medical Professional: Costa Rica study abroad course); HSAD 366 Global Aging Intensive Course Abroad; HSAD T480 Special Topics in Health Services Administration (Health Care Systems in Latin America: Costa Rica study abroad course) CHP 691 Public Health Practice in and with Latino Communities; CHP 692 Migration and Health; and relevant special topics and study abroad courses will be considered with department permission.

Certificate in Writing and Publishing

About the Program

The certificate in Writing and Publishing (CWP) offers currently enrolled Drexel University students the opportunity for both professional and personal development through a combination of available courses in professional writing, creative writing, and publishing. The certificate enhances employment

opportunities, opening a broad range of professional choices in cooperative employment and in the post-degree job market as skills are acquired. The CWP improves on-the-job performance as the student develops writing skills and associated professional knowledge.

The program develops core competencies through the synergy of writing and publishing courses. The courses develop the student's skills in writing and publishing both through theory and practical application.

General Requirements

The certificate in Writing and Publishing allows students to achieve certification in one or more of the following tracks:

- Professional writing and publishing (technical, business, and journalism)
- Creative writing and publishing
- Entertainment writing and publishing
- Comprehensive writing and publishing (**This track is no longer accepting new students.**)

Each track requires the completion of a minimum of six courses (18.0 credits). Tracks can be designed to meet the professional needs and personal interests of the individual student.

Working with the program director, students will choose not only the track but the courses within the track to develop an individually tailored program. Students can choose courses that will meet the general requirements of the program while also satisfying their own professional and personal requirements.

Those students who have successfully completed this program will receive a certificate in Writing and Publishing. The transcript will indicate the completion of the CWP. This certification will indicate proficiency in written communication and familiarity with techniques in publishing in a variety of venues. The certificate program in Writing and Publishing highlights the student's acquisition of skills more than they would be in a list of courses on a transcript.

The completion of the certificate demonstrates the student's commitment to writing and publishing skills. It highlights writing skills of students majoring in business and technical areas; similarly, for students in the humanities and social sciences, it certifies writing and publishing skills either in creative writing or professional writing.

Students meet with the program director to determine their track:

Harriet Levin Millan
 Director, Certificate in Writing and Publishing
 millanhl@drexel.edu

Track Requirements

Note: Many majors already require one or more of the courses leading to the certificate in Writing and Publishing or list these courses as recommended electives.

The Creative Writing and Publishing track is useful to all students as it encourages personal and professional development through creative writing and a knowledge of publishing.

Professional Writing and Publishing Track

18.0 quarter credits

The Professional Writing and Publishing track is useful for business majors or students in technical or science areas who want to highlight their acquisition of writing skills. For students majoring in the humanities, it provides an opportunity to develop areas of writing and publishing competencies in the professional arena.

This track offers three focus options:

- Business Communication and Publishing: for students interested in a career in business.
- Technical Communication and Publishing: for students interested in engineering, science, information science, and technology and careers in higher education.
- Journalism: for students interested in global journalism, communication, and international affairs.

Program Requirements

Business Communication and Publishing

Required Courses

| | | |
|-------------|--------------------------------|-----|
| COM 270 [W] | Business Communication | 3.0 |
| COM 350 [W] | Document Design and Evaluation | 3.0 |

| | | |
|------------------------------|---|-----|
| or COM 375 | Grant Writing | |
| or WRIT 312 | Writing for Target Audiences | |
| Select one of the following: | | 3.0 |
| COM 320 [WI] | Science Writing | |
| COM T380 | Special Topics in Communication Theory | |
| Select one of the following: | | 3.0 |
| COM 335 [WI] | Digital Publishing | |
| COM 340 | Modern Desktop Publishing | |
| VSCM 479 | Graphic Design Seminar: Advanced Media (Bookmaking) | |
| WRIT 310 | Literary Editing & Publication | |
| WRIT 400 [WI] | Writing in Cyberspace: Writing for/about the Web | |
| Select two of the following: | | 6.0 |
| COM 160 [WI] | Introduction to Journalism | |
| COM 315 [WI] | Investigative Journalism | |
| CULA 412 | Food Writing | |
| HNRS 301 | Honors Colloquium * | |
| WRIT 210 [WI] | The Peer Reader in Context | |
| WRIT 220 [WI] | Creative Nonfiction Writing | |
| WRIT 225 [WI] | Creative Writing | |
| WRIT 301 [WI] | Writing Poetry | |
| WRIT 302 [WI] | Writing Fiction | |
| WRIT 303 | Writing Humor and Comedy | |
| WRIT 306 | Writing About the Media | |
| WRIT 312 [WI] | Writing for Target Audiences | |
| WRIT T380 | Special Topics in Writing | |

Total Credits**18.0**

* By Director's permission only.

Technical Communication and Publishing

Required Courses

| | | |
|--|---|-----|
| COM 310 [WI] | Technical Communication | 3.0 |
| COM 375 [WI] | Grant Writing | 3.0 |
| or WRIT 312 | Writing for Target Audiences | |
| Select one of the following: | | 3.0 |
| COM 320 [WI] | Science Writing | |
| COM 350 [WI] | Document Design and Evaluation | |
| COM T380 | Special Topics in Communication Theory | |
| Select one of the following: | | 3.0 |
| COM 335 [WI] | Digital Publishing | |
| COM 340 | Modern Desktop Publishing | |
| VSCM 479 | Graphic Design Seminar: Advanced Media (Bookmaking) | |
| WRIT 310 | Literary Editing & Publication | |
| WRIT 400 [WI] | Writing in Cyberspace: Writing for/about the Web | |
| Select any two additional Certificate in Writing and Publishing courses, including but not limited to the following: | | 6.0 |
| COM 160 [WI] | Introduction to Journalism | |
| COM 315 [WI] | Investigative Journalism | |
| CULA 412 | Food Writing | |
| HNRS 301 | Honors Colloquium * | |
| WRIT 210 [WI] | The Peer Reader in Context | |
| WRIT 220 [WI] | Creative Nonfiction Writing | |
| WRIT 301 [WI] | Writing Poetry | |
| WRIT 302 [WI] | Writing Fiction | |
| WRIT 303 | Writing Humor and Comedy | |
| WRIT 306 | Writing About the Media | |
| WRIT 312 [WI] | Writing for Target Audiences | |
| WRIT T380 | Special Topics in Writing | |

Total Credits**18.0**

* By Director's permission only.

Journalism

Required Courses

| | | |
|------------------------------|----------------------------|-----|
| COM 160 [WI] | Introduction to Journalism | 3.0 |
| COM 261 [WI] | Advanced Journalism | 3.0 |
| COM 315 [WI] | Investigative Journalism | 3.0 |
| Select one of the following: | | 3.0 |

| | | |
|---------------|--|--|
| COM 335 [WI] | Digital Publishing | |
| COM 340 | Modern Desktop Publishing | |
| WRIT 310 | Literary Editing & Publication | |
| WRIT 400 [WI] | Writing in Cyberspace: Writing for/about the Web | |

Select any two additional Certificate in Writing and Publishing courses, including but not limited to the following: 6.0

| | | |
|---------------|---|--|
| COM 270 [WI] | Business Communication | |
| or COM 310 | Technical Communication | |
| COM 320 [WI] | Science Writing | |
| COM 375 [WI] | Grant Writing | |
| CULA 412 | Food Writing | |
| HNRS 301 | Honors Colloquium * | |
| VSCM 479 | Graphic Design Seminar: Advanced Media (Bookmaking) | |
| WRIT 210 [WI] | The Peer Reader in Context | |
| WRIT 220 [WI] | Creative Nonfiction Writing | |
| WRIT 225 [WI] | Creative Writing | |
| WRIT 301 [WI] | Writing Poetry | |
| WRIT 302 [WI] | Writing Fiction | |
| WRIT 303 | Writing Humor and Comedy | |
| WRIT 306 | Writing About the Media | |
| WRIT 312 [WI] | Writing for Target Audiences | |
| WRIT T380 | Special Topics in Writing | |

Total Credits 18.0

* By Director's permission only.

Creative Writing and Publishing track

18.0 quarter credits

This track is designed for students who want to develop their creative writing skills either for personal development and expression, or because they recognize that creative writing develops imagination; sharpens clarity of expression; and enhances sensitivity to other people. Creative writing is a good pre-professional concentration for pre-law, pre-med, and the social sciences. The importance of creative writing has been recognized for engineering and for business.

Select three of the following (one of which must be a 200-level course): 9.0

| | | |
|---------------|-----------------------------|--|
| WRIT 220 [WI] | Creative Nonfiction Writing | |
| WRIT 225 [WI] | Creative Writing | |
| WRIT 301 [WI] | Writing Poetry | |
| WRIT 302 [WI] | Writing Fiction | |
| WRIT 303 | Writing Humor and Comedy | |
| WRIT 306 | Writing About the Media | |
| WRIT T380 | Special Topics in Writing | |

Select one of the following: 3.0

| | | |
|---------------|---|--|
| COM 335 [WI] | Digital Publishing | |
| COM 340 | Modern Desktop Publishing | |
| COM 350 [WI] | Document Design and Evaluation | |
| VSCM 479 | Graphic Design Seminar: Advanced Media (Bookmaking) | |
| WRIT 310 | Literary Editing & Publication | |
| WRIT 400 [WI] | Writing in Cyberspace: Writing for/about the Web | |
| WRIT 405 | Internship in Publishing * | |

Select any two additional Certificate in Writing and Publishing courses, including but not limited to the following: 6.0

| | | |
|--------------|----------------------------|--|
| COM 160 [WI] | Introduction to Journalism | |
|--------------|----------------------------|--|

| | |
|---------------|--------------------------------|
| COM 261 [WI] | Advanced Journalism |
| COM 270 [WI] | Business Communication |
| COM 310 [WI] | Technical Communication |
| COM 315 [WI] | Investigative Journalism |
| COM 320 [WI] | Science Writing |
| COM 350 [WI] | Document Design and Evaluation |
| COM 375 [WI] | Grant Writing |
| CULA 412 | Food Writing |
| HNRS 301 | Honors Colloquium ** |
| WRIT 210 [WI] | The Peer Reader in Context |
| WRIT 312 [WI] | Writing for Target Audiences |

Total Credits**18.0**

* WRIT 405 must be taken twice if no other publishing course is taken.

** By Director's permission only.

Entertainment Writing and Publishing Track

18.0 quarter credits

Entertainment Writing and Publishing is designed for students in any major who want to highlight their acquisition of writing skills. For students majoring in any entertainment field it provides an opportunity to develop areas of writing and publishing competencies in the professional entertainment field.

The track is designed for students who want to pursue writing either for personal development and expression as a personal or creative pursuit or profession. The Entertainment Writing and Publishing track will give students a strong multidisciplinary introduction to writing for a variety of entertainment professions including screenwriting, sports journalism, food writing, game writing, grant writing, and more. This track is designed for both students already studying any of the entertainment fields (such as Entertainment and Arts Management), as well as other students who are interested in exploring the field.

General Requirements

| | | |
|------------------------------|---|-----|
| WRIT 306 or WRIT 226 | Writing About the Media Writing in Public Spaces | 3.0 |
| WRIT 312 [WI] or COM 375 | Writing for Target Audiences Grant Writing | 3.0 |
| Select two of the following: | | 6.0 |
| COM 265 | Audio Journalism | |
| COM 305 | Sports Journalism | |
| CULA 412 | Food Writing | |
| DSMR 315 [WI] | Media Merchandising I | |
| ENGL 323 | Literature and Other Arts | |
| HNRS 301 | Honors Colloquium * | |
| SCRIP 241 | Writing TV Comedy | |
| SCRIP 242 | Writing TV Drama | |
| SCRIP 260 | Writing Comics | |
| SCRIP 270 [WI] | Screenwriting I | |
| SCRIP 280 [WI] | Writing the Short Film | |
| SCRIP 290 | Game: Universe & Story | |
| WRIT 303 | Writing Humor and Comedy | |
| Select one of the following: | | 3.0 |
| COM 335 [WI] | Digital Publishing | |
| COM 340 | Modern Desktop Publishing | |
| VSCM 479 | Graphic Design Seminar: Advanced Media ((Bookmaking)) | |
| WRIT 310 | Literary Editing & Publication | |
| WRIT 400 [WI] | Writing in Cyberspace: Writing for/about the Web | |
| WRIT 405 | Internship in Publishing ** | |
| Select one of the following: | | 3.0 |
| COM 160 [WI] | Introduction to Journalism | |
| COM 270 [WI] | Business Communication | |
| COM 320 [WI] | Science Writing | |
| WRIT 210 [WI] | The Peer Reader in Context | |
| WRIT 220 [WI] | Creative Nonfiction Writing | |
| WRIT 225 [WI] | Creative Writing | |

| | |
|---------------|---------------------------|
| WRIT 301 [WI] | Writing Poetry |
| WRIT 302 [WI] | Writing Fiction |
| WRIT T380 | Special Topics in Writing |

Total Credits**18.0**

* By Director's permission only.

** WRIT 405 must be taken twice if no other publishing course is taken.

Comprehensive Certificate track

18.0 quarter credits

The Comprehensive Track is designed for students whose majors and minors include writing courses (either as electives or required courses) and whose schedules allow for the additional credits to obtain certification.

Select two of the following:

6.0

| | |
|---------------|--|
| COM 335 [WI] | Digital Publishing |
| COM 340 | Modern Desktop Publishing |
| VSCM 479 | Graphic Design Seminar: Advanced Media |
| WRIT 310 | Literary Editing & Publication |
| WRIT 400 [WI] | Writing in Cyberspace: Writing for/about the Web |
| WRIT 405 | Internship in Publishing * |

Select two of the following: **

12.0

Creative Writing

| | |
|-------------------------------------|-----------------------------|
| Track A | |
| WRIT 220 [WI] | Creative Nonfiction Writing |
| Any 300-level writing (WRIT) course | |

| | |
|-------------------------------------|------------------|
| Track B | |
| WRIT 225 [WI] | Creative Writing |
| Any 300-level writing (WRIT) course | |

Professional Writing

| | |
|--------------|-------------------------|
| Track A | |
| COM 310 [WI] | Technical Communication |
| COM 375 [WI] | Grant Writing |

| | |
|--------------|--------------------------------|
| Track B | |
| COM 270 [WI] | Business Communication |
| COM 375 [WI] | Grant Writing |
| or COM 350 | Document Design and Evaluation |

Journalism

| | |
|--------------|----------------------------|
| COM 160 [WI] | Introduction to Journalism |
|--------------|----------------------------|

Select one of the following:

| | |
|---------------|--------------------------------|
| COM 315 [WI] | Investigative Journalism |
| CULA 412 | Food Writing |
| WRIT 210 [WI] | The Peer Reader in Context *** |

Total Credits**18.0**

* WRIT 405 must be taken twice.

** Students select two of the following course sequences from at least two different categories.

*** By Director's permission only.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing->

program/drexel-writing-center/) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Intermediate Arabic Proficiency Certificate

The Intermediate Arabic Proficiency Certificate* offers students a language certificate at the intermediate level as proof that they are sufficiently proficient** to interact with native speakers in a basic everyday context and within standard cultural norms, whether abroad or in the United States.

Please note that this certificate is available only to currently matriculated Drexel students.

Program Requirements

The Intermediate Arabic Proficiency Certificate* offers students a language certificate at the intermediate level as proof that they are sufficiently proficient** to interact with native speakers in a basic everyday context and within standard cultural norms, whether abroad or in the United States.

The Intermediate Arabic Certificate requires a minimum of 8.0 credits*** including the successful completion of the required course, ARBC 202. Students can choose from the following courses: 8.0--20.0

| | |
|----------|-------------------------------|
| ARBC 101 | Arabic I |
| ARBC 102 | Arabic II |
| ARBC 103 | Arabic III |
| ARBC 201 | Arabic IV |
| ARBC 202 | Arabic V |
| ARBC 310 | Advanced Writing and Speaking |

Total Credits 8.0-20.0

- * Only students who place at or below the ARBC 202 level are eligible for the Intermediate Arabic Proficiency Certificate.
- ** The proficiency certificate is based on standardized outcomes set by the American Council on the Teaching of Foreign Languages (ACTFL, [actfl.org](https://www.actfl.org/) (<https://www.actfl.org/>)).
- *** Demonstrated proficiency through Drexel's placement test in ARBC 101, ARBC 102, ARBC 103, and/or ARBC 201 may reduce the number of required credits to a minimum of 8.0. (Note that completion of placement test[s] do not count toward academic credit.)
The required credits for the certificate is determined by placement level:
*For students who place into:
101 – 20 credits
102 – 16 credits
103 – 12 credits
201 – 8 credits
202 – 8 credits (student has to take 310 as well)

Intermediate Chinese Proficiency Certificate

The Intermediate Chinese Proficiency Certificate* offers students a language certificate at the intermediate level as proof that they are sufficiently proficient** to interact with native speakers in a basic everyday context and within standard cultural norms, whether abroad or in the United States.

Please note that this certificate is available only to currently matriculated Drexel students.

Program Requirements

The Intermediate Chinese Proficiency Certificate* offers students a language certificate at the intermediate level as proof that they are sufficiently proficient** to interact with native speakers in a basic everyday context and within standard cultural norms, whether abroad or in the United States.

The Intermediate Chinese Certificate requires a minimum of 8 credits*** including the successful completion of the required course, CHIN 202. Students can choose from the following courses: 8.0-20.0

| | |
|----------|-------------------------------|
| CHIN 101 | Chinese I |
| CHIN 102 | Chinese II |
| CHIN 103 | Chinese III |
| CHIN 201 | Chinese IV |
| CHIN 202 | Chinese V |
| CHIN 310 | Advanced Writing and Speaking |

Total Credits 8.0-20.0

- * Only students who place at or below CHIN 202 level are eligible for the Intermediate Chinese Proficiency Certificate.
- ** The proficiency certificate is based on standardized outcomes set by the American Council on the Teaching of Foreign Languages (ACTFL, [actfl.org](https://www.actfl.org/) (<https://www.actfl.org/>)).

*** Demonstrated proficiency through Drexel's placement test in CHIN 101, CHIN 102, CHIN 103, and/or CHIN 201 may reduce the number of required credits to a minimum of 8.0. (Note that completion of placement test[s] do not count toward academic credit.)

The required credits for the certificate is determined by placement level:

*For students who place into:

101 – 20 credits

102 – 16 credits

103 – 12 credits

201 – 8 credits

202 – 8 credits (student has to take 310 as well)

Intermediate French Proficiency Certificate

The Intermediate French Proficiency Certificate* offers students a language certificate at the intermediate level as proof that they are sufficiently proficient** to interact with native speakers in a basic everyday context and within standard cultural norms, whether abroad or in the United States.

Please note that this certificate is available only to currently matriculated Drexel students.

Program Requirements

The Intermediate French Proficiency Certificate* offers students a language certificate at the intermediate level as proof that they are sufficiently proficient to interact with native speakers in a basic everyday context and within standard cultural norms, whether abroad or in the United States.**

The Intermediate French Certificate requires a minimum of 8-20 credits*** including the successful completion of the required course, FREN 202. Students can choose from the following courses: 8.0-20.0

| | |
|---------------|-------------------------------|
| FREN 101 | French I |
| FREN 102 | French II |
| FREN 103 | French III |
| FREN 201 | French IV |
| FREN 202 | French V |
| FREN 310 [WI] | Advanced Writing and Speaking |

Total Credits 8.0-20.0

* Only students who place at or below the FREN 202 level are eligible for the Intermediate French Proficiency Certificate.

** The proficiency certificate is based on standardized outcomes set by the American Council on the Teaching of Foreign Languages (ACTFL, <https://www.actfl.org/>)

*** Demonstrated proficiency through Drexel's placement test in FREN 101, FREN 102, FREN 103, and/or FREN 201 may reduce the number of required credits to a minimum of 8.0. (Note that completion of placement test[s] do not count toward academic credit.)

The required credits for the certificate is determined by placement level:

*For students who place into:

101 – 20 credits

102 – 16 credits

103 – 12 credits

201 – 8 credits

202 – 8 credits (student has to take 310 as well)

**Students who place above 202 are encouraged to pursue a language minor.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Intermediate German Proficiency Certificate

The Intermediate German Proficiency Certificate* offers students a language certificate at the intermediate level as proof that they are sufficiently proficient** to interact with native speakers in a basic everyday context and within standard cultural norms, whether abroad or in the United States.

Please note that this certificate is available only to currently matriculated Drexel students.

Program Requirements

The Intermediate German Proficiency Certificate* offers students a language certificate at the intermediate level as proof that they are sufficiently proficient** to interact with native speakers in a basic everyday context and within standard cultural norms, whether abroad or in the United States.

The Intermediate German Certificate requires a minimum of 8-20 credits*** including the successful completion of the required course, GER 202. Students can choose from the following courses: 8.0-20.0

| | |
|--------------|-------------------------------|
| GER 101 | German I |
| GER 102 | German II |
| GER 103 | German III |
| GER 201 | German IV |
| GER 202 | German V |
| GER 310 [WI] | Advanced Writing and Speaking |

Total Credits 8.0-20.0

- * Only students who place at or below the GER 202 level are eligible for the Intermediate German Proficiency Certificate.
- ** The proficiency certificate is based on standardized outcomes set by the American Council on the Teaching of Foreign Languages (ACTFL, [actfl.org](https://www.actfl.org/) (<https://www.actfl.org/>)).
- *** Demonstrated proficiency through Drexel's placement test in GER 101, GER 102, GER 103, and/or GER 201 may reduce the number of required credits to a minimum of 8.0. (Note that completion of placement test[s] do not count toward academic credit.)
The required credits for the certificate is determined by placement level:
*For students who place into:
101 – 20 credits
102 – 16 credits
103 – 12 credits
201 – 8 credits
202 – 8 credits (student has to take 310 as well)

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Intermediate Japanese Proficiency Certificate

The Intermediate Japanese Proficiency Certificate* offers students a language certificate at the intermediate level as proof that they are sufficiently proficient** to interact with native speakers in a basic everyday context and within standard cultural norms, whether abroad or in the United States.

Please note that this certificate is available only to currently matriculated Drexel students.

Program Requirements

The Intermediate Japanese Proficiency Certificate* offers students a language certificate at the intermediate level as proof that they are sufficiently proficient** to interact with native speakers in a basic everyday context and within standard cultural norms, whether abroad or in the United States.

The Intermediate Japanese Certificate requires a minimum of 8--20 credits*** including the successful completion of the required course, JAPN 202. Students can choose from the following courses: 8.0-20.0

| | |
|---------------|-------------------------------|
| JAPN 101 | Japanese I |
| JAPN 102 | Japanese II |
| JAPN 103 | Japanese III |
| JAPN 201 | Japanese IV |
| JAPN 202 | Japanese V |
| JAPN 310 [WI] | Advanced Writing and Speaking |

Total Credits 8.0-20.0

- * Only students who place at or below the JAPN 202 level are eligible for the Intermediate Japanese Proficiency Certificate.
- ** The proficiency certificate is based on standardized outcomes set by the American Council on the Teaching of Foreign Languages (ACTFL, [actfl.org](https://www.actfl.org/) (<https://www.actfl.org/>)).
- *** Demonstrated proficiency through Drexel's placement test in JAPN 101, JAPN 102, JAPN 103, and/or JAPN 201 may reduce the number of required credits to a minimum of 8.0. (Note that completion of placement test[s] do not count toward academic credit.)
The required credits for the certificate is determined by placement level:
*For students who place into:
101 – 20 credits
102 – 16 credits
103 – 12 credits
201 – 8 credits
202 – 8 credits (student has to take 310 as well)
**Students who place above 202 are encouraged to pursue a language minor.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Intermediate Korean Proficiency Certificate

The Intermediate Korean Proficiency Certificate* offers students a language certificate at the intermediate level as proof that they are sufficiently proficient** to interact with native speakers in a basic everyday context and within standard cultural norms, whether abroad or in the United States.

Please note that this certificate is available only to currently matriculated Drexel students.

Program Requirements

The Intermediate Korean Proficiency Certificate* offers students a language certificate at the intermediate level as proof that they are sufficiently proficient to interact with native speakers in a basic everyday context and within standard cultural norms, whether abroad or in the United States.**

The Intermediate Korean Certificate requires a minimum of 8-20 credits*** including the successful completion of the required course, KOR 202. Students can choose from the following courses: 8.0-20.0

| | |
|---------|-----------------------------|
| KOR 101 | Korean I |
| KOR 102 | Korean II |
| KOR 103 | Korean III |
| KOR 201 | Korean IV |
| KOR 202 | Korean V |
| KOR 310 | Advanced Writing & Speaking |

Total Credits 8.0-20.0

- * Only students who place at or below the KOR 202 level are eligible for the Intermediate Korean Proficiency Certificate.

** The proficiency certificate is based on standardized outcomes set by the American Council on the Teaching of Foreign Languages (ACTFL, [actfl.org](https://www.actfl.org/) (<https://www.actfl.org/>)).

*** Demonstrated proficiency through Drexel's placement test in KOR 101, KOR 102, KOR 103, and/or KOR 201 may reduce the number of required credits to a minimum of 8.0. (Note that completion of placement test[s] do not count toward academic credit.)

The required credits for the certificate is determined by placement level:

*For students who place into:

101 – 20 credits

102 – 16 credits

103 – 12 credits

201 – 8 credits

202 – 8 credits (student has to take 310 as well)

Intermediate Spanish Proficiency Certificate

The Intermediate Spanish Proficiency Certificate* offers students a language certificate at the intermediate level as proof that they are sufficiently proficient** to interact with native speakers in a basic everyday context and within standard cultural norms, whether abroad or in the United States.

Please note that this certificate is available only to currently matriculated Drexel students.

Program Requirements

The Intermediate Spanish Proficiency Certificate* offers students a language certificate at the intermediate level as proof that they are sufficiently proficient to interact with native speakers in a basic everyday context and within standard cultural norms, whether abroad or in the United States.**

The Intermediate Spanish Certificate requires a minimum of 8-20 credits*** including the successful completion of the required course, SPAN 202. Students can choose from the following courses: 8.0-20.0

| | |
|---------------|-------------------------------|
| SPAN 101 | Spanish I |
| SPAN 102 | Spanish II |
| SPAN 103 | Spanish III |
| SPAN 201 | Spanish IV |
| SPAN 202 | Spanish V |
| SPAN 310 [WI] | Advanced Writing and Speaking |

Total Credits **8.0-20.0**

* Only students who place at or below the SPAN 202 level are eligible for the Intermediate Spanish Proficiency Certificate.

** The proficiency certificate is based on standardized outcomes set by the American Council on the Teaching of Foreign Languages (ACTFL, [actfl.org](https://www.actfl.org/) (<https://www.actfl.org/>)).

*** Demonstrated proficiency through Drexel's placement test in SPAN 101, SPAN 102, SPAN 103, and/or SPAN 201 may reduce the number of required credits to a minimum of 8.0. (Note that completion of placement test[s] do not count toward academic credit.)

The required credits for the certificate is determined by placement level:

*For students who place into:

101 – 20 credits

102 – 16 credits

103 – 12 credits

201 – 8 credits

202 – 8 credits (student has to take 310 as well)

**Students who place above 202 are encouraged to pursue a language minor.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/writing-intensive-courses/>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

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