

CHEM 123 Course Description

Chem 123 is Part III in an introductory sequence for chemistry majors. This course covers physical and chemical properties of substances used in consumer products. It is an introduction to the fundamental structures, nomenclature and properties of hydrocarbons, organic functional groups, polymers, and biomolecules. These concepts are applied to the areas of food and nutrition, pharmacology, environmental science, and consumer chemistry. Course includes weekly lab experiments.

Course Objectives

- ability to draw structures of organic compounds
- writing basic reactions of important functional groups
- principles of organic separations
- ability to understand topics including
 - stereochemistry
 - synthetic and natural polymers
 - biomolecules, including carbohydrates, lipids, proteins, and nucleic acids
- ability to apply learned concepts to areas of consumer chemistry
- scientific oral and written communication skills

Lecturer: Dr. Susan Rutkowsky, Chemistry Department
Lecture: M W F 12:00 – 12:50 PM in PISB 108
Office Hours: M W 10:00-11:00 AM or by appointment

E-mail contact for general course inquiries:

Dr. Susan Rutkowsky: email: sar@drexel.edu

E-mail contact for OWL inquiries:

Dr. Paul Deroo: email: pwd26@drexel.edu

Course Website: Bb Learn, CHEM 123

You will always find here the most current syllabus course schedule and announcements about changes in the course, labs and exams. Check it regularly. You can get there through DrexelOne ("My Courses") or directly (<http://learn.dcollege.net/>).

1. Required Textbook:

Custom textbook: Chem 123 Majors Chemistry III. Chapters 10-22, 25 of *Introduction to General, Organic, and Biochemistry*, 10th Edition. Bettelheim, Brown, Campbell, Farrell, Torres. Brooks/Cole, Cengage Learning, 2013.

2. Laboratory Manual:

Laboratory Manual CHEM 123 Majors Chemistry III, Drexel University, Academic Year 2013-2014. S. A. Rutkowsky.

3. Required Supplementary Materials:

a) An OWL account access code, packaged as part of the textbook bundle.

You will receive an OWL instructions email.

Note: OWL accounts cannot be shared.

b) Safety Glasses

c) Lab Coat

3. Grading structure:

Activity	% Grade	Additional Information
Exams	30	Three 50-minute exams will be given during lecture on April 25, May 9, and May 23
Recitation	10	A recitation grade will be determined based on both attendance and recitation participation.
OWL Assignments	10	
Final Exam	25	You must score at least 45% on the final to pass the course.
Labs	25	You must score at least 55% in lab to pass the course.
Total	100	

Grading policy: Students who meet all the requirements will earn an A- if they score at least 90% overall, B- \geq 80%, C- \geq 70%, D \geq 60%. If a question arises about an exam grade, for instance, feel free to contact me with your concerns. Any questions about final course grades should be raised as soon as possible. Be aware that the course instructor(s) may contact you via e-mail if there are problems with your final grade or course components.

4. Lectures:

Lectures will be given on topics as indicated on the course schedule, including chemical demonstrations. Some material not discussed in the text will be covered. Lecturer may call upon students to provide feedback from time to time. You are responsible for reading all material in these sections whether covered in lecture or not. The course schedule is provided as a guide and will be revised if dictated by prevailing circumstances (e.g., weather). Regular attendance to lecture is highly recommended.

5. Exams:

Three, 50 minute exams will be given as indicated on the course schedule. Each exam is worth 100 points and will be given during lecture. Dates are posted on the course schedule. After the commencement of the exam, no student will be allowed to leave the testing room without handing in the exam. Once a student leaves the testing room,

he/she will not be allowed to re-enter it for any reason. Students arriving late to the exam, after any other student has left, will not be permitted to take the exam. Questions will be a mixture of multiple-choice questions and open-ended questions. Exams may include questions on lab material. All students are responsible for bringing to the exam their own operational writing instruments and calculators - no sharing will be allowed. It generally takes 2-5 school days for grades to be reported back to students. Be aware that active cell phones and the use of random-access devices (e.g., MP3 players, Palm Pilots, iPods) are NOT ALLOWED in exam rooms.

There will be an opportunity to make up **only one** missed exam. During the last week of classes, a make-up exam will be given. The exam will be cumulative and will be taken at once by all students who are eligible to take it. To be eligible to take the make-up exam, a student must e-mail me with a reasonable explanation for missing the initial exam. Eligible students will be notified by email regarding the date, time and location of the exam. *The make-up exam can only be used to replace a missed exam; it cannot be used to improve a grade on an exam that was taken.* There will be no opportunity to retake the make-up exam, regardless of the reason for missing it.

6. Final Exam:

The final exam will be a 2-hour cumulative exam held during final exam week. The date, locations and start time will be announced in class and posted on the course website. **NO MAKE UP WILL BE GIVEN FOR THE FINAL EXAM. STUDENTS MUST BE PRESENT FOR THE FINAL.** After the commencement of the exam, no student will be allowed to leave the examination room without handing in the exam. Once a student leaves the examination room, he/she will not be allowed to re-enter it for any reason. Students arriving late to the exam, after any other student has left, will not be permitted to take the exam. The exam will consist of multiple-choice questions and open-ended questions. There is no penalty for guessing. All students are responsible for bringing to the exam their own operational writing instruments and calculators - no sharing will be allowed. Be aware that active cell phones and the use of random-access devices (e.g., MP3 players, Palm Pilots, iPods) are NOT ALLOWED in exam rooms, and such may be confiscated if they are found. **The final exam will cover material from the entire term. A student who does not score at least 45% on the final exam will not pass the course, regardless of his/her prior performance in the course.**

Final Exam Week is June 10 – June 13. Students should expect to be at Drexel the entire week. The final exam will not be rescheduled to accommodate travel plans.

7. Recitations:

There is a **50 min Recitation** weekly.

The Recitation grade will be determined based on both participation and attendance to the Recitation Classes. Since there are 10 Recitations, each missed recitation will translate into 5 points lost. Well-above average participation (i.e., much more than the rest of the fellow students) may compensate for 1 missed recitation.

The problems assigned for Recitation are listed in the Course Schedule. For the last 2 recitations, each student will choose an organic compound found in a product and

present a 10-15 minute PowerPoint presentation. Topics cannot be duplicated by another student and cannot duplicate topics presented during lecture. At least one (non-wikipedia) source must be used.

8. Laboratories:

The purpose of the laboratory is to supplement the course material. Subject matter not covered in the lecture part of the course will be covered in the lab. Exams may include questions on lab material. The major objective of the lab part of the course is for you to obtain training in the chemical laboratory, in experimental techniques and in recording and reporting of experimental results. You will have a chemistry lab every week beginning in week 1. All laboratory instruction is given in Disqué Hall. **If you are more than 5 minutes late to lab, you will not be permitted to perform the experiment at that time, and must make up the lab at another time.**

You are required to submit a legible, handwritten Procedure at the beginning of the lab period. This procedure should provide a brief summary of what you will be doing during the lab period. If you do not turn in the procedure, you will still be allowed to complete the lab, but you will forfeit the 5 points associated with that report component; late submissions of the procedure will not be accepted.

You can make up only one experiment in Week 10. Therefore, you are strongly advised to attend all of your regularly scheduled lab sessions. You will perform 9 weeks of experiments. Some experiments are 2-week experiments, while others are 1-week. Therefore, some will require formal lab reports, while others will not. Specific instructions will be given. **To get a passing grade for CHEM 123, you must obtain a cumulative lab grade of 55% or higher.**

Laboratory Schedule

Week	Experiment	No.	Lab Reports	
1	Alkanes & Alkenes	1		
2	Aldehydes & Ketones	2	Lab Report 1 (Exp. 1 & 2)	Hand in lab rep 1
3	Aldehydes & Ketones (cont'd) Synthesis of Ethyl Salicylate	2 3		
4	Synthesis of Ethyl Salicylate (cont'd)	3	Lab Report 2 (Exp. 3)	Hand in lab rep 2
5	Amino Acids	4		
6	Separation & Identification of Volatile Compounds Through GC	5		
7	Extraction of Curcumin from Turmeric	6	Lab Report 3 (Exp. 4 & 5)	Hand in lab rep 3
8	Qualitative Analysis of 14 Household Compounds & Mixtures	7	Lab Report 4 (Exp. 6)	Hand in lab rep 4
9	Synthesis of Copper Pigments	8	Lab Report 5 (Exp. 7)	Hand in lab rep 5
10	Make-up Lab			

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Lab Reports: The data sheet from the labs must be signed by your instructor prior to your leaving the lab. **Each student is required to submit an individual lab report.** You may collaborate with your lab partner on the calculations, but the rest of the report must represent your individual work. Any lab reports that are direct copies of any other will receive zero (0) points. **Your lab report is due according to the schedule above.** Ensure that the cover page of your report displays your lab instructor's name as well as the other essential information (your name, course number, section number, exp. title). A blank cover page is available on the course homepage. **Five points will be deducted for each day (not including weekends or holidays) that the report is late.** Any report submitted more than two weeks late is worth zero (0) points.

Safety in the lab: Everyone is required to wear safety glasses or goggles and a lab coat while in the lab. Prescription glasses must be covered with safety goggles unless written documentation is provided to the instructor that indicates that their lenses meet or exceed the ANSI Z87 1-1989 standard and are equipped with side shields. All students must sign a form stating that you understand and will abide by this policy prior to being allowed to work in the lab. It is recommended that a pair of safety glasses is purchased from the Drexel Bookstore prior to coming to the lab.

GENERAL INFORMATION

Academic Dishonesty /Cheating: Students are held to the highest expectations and standards regarding honesty in all aspects of the course, including taking exams and in the preparation of laboratory reports. Cheating, including misrepresentation of the work of others as your own, will not be tolerated. Please understand plagiarism and do NOT commit it. Cases of cheating will be reported to the College of Arts and Sciences and the University. Students caught cheating will receive a failing (F) grade for the assignment and/or course.

For more information, see material in “academic dishonesty” under the “academic policies” tab at the following link:

http://drexel.edu/studentaffairs/community_standards/studentHandbook/

Disability Services: Students with disabilities who wish to request special accommodations at Drexel University need to present a current accommodation verification letter (“AVL”) to the lecturer before accommodations can be made. AVL's are issued by the Office of Disability Services (“ODS”).

Students with disabilities should see material under the “health and disability services” tab at the following link:

http://drexel.edu/studentaffairs/community_standards/studentHandbook/

Course Drop/Withdrawal: Courses may only be “dropped” during the “drop period” lasting from the beginning of the enrollment period through the end of the second week of the quarter. Students who wish to withdraw from a course must do so by 5:00 pm on the Friday of the 7th week of the quarter.

For more information regarding dropping or withdrawing from this course, see the following link:

http://www.drexel.edu/provost/policies/course_drop.asp

Tutoring: There will be a tutoring room (Stratton 106) for additional help. Days and times that it will be staffed will be announced in class and posted on the course website.

In the Course Schedule (the last page of this syllabus), sections of the text are listed. You are responsible for all material in these sections whether covered in lecture or not.

Course Schedule

Week	Lecture Topics	Text Chapter	Assigned Problems
1	M Organic Intro W Alkanes F Alkenes/Alkynes	10 11.1-11.4 11.6-11.7 11.9-11.11 12.1-12.5	<i>Ch 10:</i> 12, 29, 30 <i>Ch 11:</i> 24, 28, 29 a-f (draw structural formulas), 51, 53, 66
2	M Alkenes/Alkynes W Benzene F Petroleum	continued 13.1-13.3 11.5, lecture notes	<i>Ch 12:</i> 23, 25, 29, 42 (a, c, f), 45 <i>Ch 13:</i> 14, 15 a-d, 53 (a,b) <i>Ch 11:</i> 49
3	M Alcohols W Phenols F Ethers/Thiols	14.1-14.2 14.5 13.4 14.3-14.4	<i>Ch 14:</i> 10, 11, 12, 13, 23, 33, 34, 62, 66
4	M Amines W Aldehydes/Ketones F Exam 1	16.1-16.5 17.1-17.4	<i>Ch 16:</i> 11, 13, 17, 19 <i>Ch 17:</i> 17, 18, 19, 27, 31
5	M Carboxylic Acids W Carboxylic Acids F Carboxylic Anhydrides, Esters, Amides	18.1-18.3, 18.5 19.1-19.4	<i>Ch 18:</i> 8, 10, 19, 41, 52 <i>Ch 19:</i> 4, 5, 7, 8, 10
6	M Esters, etc. W Polymers F Exam 2	continued 12.6, 19.6	<i>Ch 12:</i> 57, 64, 65 <i>Ch 19:</i> 14, 15, 16
7	M Polymers W Chirality F Carbohydrates	lecture notes 15.1-15.5 20.1-20.3	<i>Ch 15:</i> 16, 22, 24, 26, 27 <i>Ch 20:</i> 15, 17
8	M Carbohydrates W Lipids F Exam 3	20.4-20.5 21.1-21.3	<i>Ch 20:</i> 20, 34, 36, 44 <i>Ch 21:</i> 4, 15
9	M Holiday W Lipids/Detergents F Proteins	18.4, 21.9 22.1-22.4, 22.6	<i>Ch 18:</i> 23, 24 <i>Ch 22:</i> 37, 39 Student Presentations
10	M Proteins W Nucleic Acids F Nucleic Acids	22.8-22.9 22.11-22.12 25.1-25.4 lecture notes	<i>Ch 22:</i> 40 <i>Ch 25:</i> 6, 7, 13 Student Presentations
11	M Review Final Exam Week <i>June 10 - 13</i>		Date To Be Announced