

Syllabus for ORGANIC CHEMISTRY LAB I - CHEM 2100/3100

Spring 2018

Lecture Class	Wednesday 8:00 am - 8:50 pm	Petit Science Center 362
Laboratory	Wednesday 9:00 am - 12:45 pm	Petit Science Center 357

- 1. Instructor:** Suri S. Iyer, Associate Professor, Department of Chemistry, Georgia State University, Atlanta, GA -30302.
- 2. Email:** siyer@gsu.edu. I respond to all emails, but please don't expect an instantaneous reply as I do not check my email constantly. Please email from your gsu account and not from icollege.
- 3. Office Hours:** Wednesday, 3-4 or Friday 11-noon or by appointment. Please contact me if you need assistance on any aspects of the course.
- 4. Textbooks:**
1. GSU Chemistry 3100 Laboratory Manual.
 2. Experimental Organic Chemistry, Wilcox and Wilcox.
 3. Introduction to Spectroscopy, Pavia, Lampman and Kriz, 3rd edition.
- 5. Course Objectives:** This course is your first introduction to Organic Chemistry laboratory techniques. It is a course where you will be able to enjoy the ability to combine theory and practice. The course has been divided into two parts. In the first part, you will isolate and purify compounds from natural products to learn different extraction techniques. In the second part, you will purify unknown liquids by distillation and analyze using spectroscopic techniques and report the structure. In the lecture component of the course, you will learn the fundamental principles of different techniques and learn how to interpret data. You will also learn how to write laboratory reports in a scientific manner. Overall, this course will teach you the basics of experimental Organic Chemistry and improve your writing skills.
- 6. Grading:**
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|--|-------------------|
| 1. Final Exam | 100 points |
| 2. Final Report | 100 points |
| 3. Work Sheet for experiments 1-4 | 050 points |
| 4. Homework, notebook, quizzes, preparation. | 150 points |
| Total Points | 400 points |
- Grading scale:** A+ 95%; A 90% or above; A- 87%; B+ 84; B 80%; B- 77%; C 70%; C- 63%; D 55%; F<50%
- 7. Important Dates:**
- | | |
|-------------|---|
| February 28 | Last day to withdraw (W) |
| March 13-19 | Spring break |
| April 11 | Last laboratory to check out |
| April 18 | Final Exam (4:00 pm -6:00 pm) |
| April 18 | Final Report (report is NOT accepted without notebook) |
- 8. Notebook:** Bound Lab notebooks are required the first day of lab. Please make all entries **in ink** at the time the experiment is being carried out. Notebooks must be handed in with the Final Report and can be collected not later than three weeks after the semester is over.
- 9. Icollege:** Please check the website regularly for announcements and any additional material I may upload.
- 10. Safety glasses:** is mandatory for all experiments and required on all days, including the first day.
- 11. Class Preparation and attendance:** Please attend all lectures and read all notes **BEFORE** coming to class. You are responsible for the timely completion of all assignments. Lectures and reading assignments will constitute the quiz materials.

12. Tentative Schedule: The schedule listed in GSU laboratory manual will be followed.

13. Reinstatement policy: University rules insist that faculty give a **WF** who are on their rolls but are no longer attending the class at the midpoint of the course. (Feb 28) We are also required to report the last day the student attended or turned in an assignment. Students are withdrawn may petition the Departmental Chair for reinstatement into their classes.

14. Disability policy: Students who require accommodation for a disability must provide a copy of a signed accommodation plan from the Office of Disability Services.

15. Cell Phones must be turned off during lectures, exams and in the laboratory!

16. Student code of conduct: Please adhere to University policy on academic honesty.

Week	Date	Tentative schedule of lectures and tasks	Quiz/Homework/Report	Reading assignments. Lab manual
1	Jan 10	Safety, Lab Check-in, Students receive unknowns (Wrap the caps with parafilm to avoid evaporation). Natural Product extraction. Trimysristin from Nutmeg	Write unknown numbers and key combinations in the notebook and roll, Safety Quiz	Read 6, 12
2	Jan 17	Natural Product Extraction. Caffeine from tea leaves. IR introduction.	Homework 1 due.	13,14
3	Jan 24	Liquid/Liquid extraction. Separation and Purification of Benzoic acid and Acetanilide by Extraction and Re-crystallization. Sublimation of caffeine and infrared (IR) spectrum analysis. Introduction to Distillations.	Quiz 1.	15,16, 18, 47-66
4	Jan 31	Esterification of acetic acid. Simple distillation. IR collection	Practice IR spectra interpretation	17,18
5	Feb 7	Complete pending experiments. Collect data for physical properties that include melting/boiling points, refractive Index (RI), infrared spectrum (IR) and calculate % yield.	Homework 2 due.	
6	Feb 14	Simple distillation: Purification of neat liquid (NL); <i>save NL for chemical tests on week 10, use lots of parafilm.</i>	Quiz 2.	23
7	Feb 21	Fractional distillation. Purification of an unknown mixture. Introduction to Gas Chromatography (GC)	Study separation techniques	24
8	Feb 28	Fractional distillation, CONTINUE: Separation of Low boiler (LB) and high boiler (HB), Boiling Point, Gas Chromatography (GC) GC ON	Homework 3 due.	27-29, 4-68
9	Mar 7	Fractional distillation: (IR) Spectroscopy, Chemical Tests Continue separation of high boiler and low boiler IMPORTANT: save LB and HB for chemical tests on week 10	Quiz 3.	
10	Mar 14	SPRING BREAK		
11	Mar 21	Introduction Mass Spectrometry. Chemical Characterization Tests Boiling point check up for LB. Continue separation of LB, HB, GC ON	Practice fragmentation patterns for Mass spectroscopy.	4-68
12	Mar 28	Chemical Characterization Tests Mass Spectrometry, slides, request an mass spectrum of the unknown if you have more	Quiz 4.	4-68

		difficulty to identify. Last week to use GC		
13	April 4	Miscellaneous Topics, How to study for the FINAL EXAM. Form of Final Report / Lab work completion, only bp, chemical tests, IR, RI, density and books search are allowed, no more distillations	Homework 4 due.	4-68
14	April 11	Last week to request MS of ONLY ONE of the unknowns Quiz 4, Chem. Tests, and MS. CHECK OUT	Study for final exam, complete report.	
15	April 18	FINAL EXAM in class.	Final report and notebook. Report not accepted without notebook.	