

# Syllabus for ORGANIC CHEMISTRY LAB I - CHEM 3100

<b>Lecture Class</b>	Thursdays 4:00 pm - 4:50 pm	Petit Science Center 362
<b>Laboratory</b>	Thursdays 5:00 pm - 8:45 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](mailto:siyer@gsu.edu)

**3. Office Hours:** **Monday and Friday 11-noon or by appointment.**

**4. Textbooks:**

1. Experimental Organic Chemistry, Wilcox and Wilcox.
2. GSU Chemistry 3100 Laboratory Manual.
3. Introduction to Spectroscopy, Pavia, Lampman and Kriz, 3rd edition.
4. The Organic Chem Laboratory Survival Manual, Zubrick, 8th edition.

**5. Course Objectives:** This course is your first introduction to Organic Chemistry laboratory techniques. It's a fun 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.

<b>6. Grading:</b>	1. Final Exam	100 points
	2. Final Report	100 points
	3. Midterm Report	100 points
	4. Homework, notebook, quizzes, Etc.	160 points

**Total Points                      460 points**

## **Grading Scale:**

A+ 95%  
A 90% or above  
A- 87%  
B+ 84%  
B 80%  
B- 77%  
C 70%  
C- 66%  
D 62%  
F <60%

**7. Important Dates:**

March 1	Last day to withdraw (W)
March 14 -18	Spring break
April 21	Last laboratory to check out
April 28	Final Exam (4:00 pm -6:00 pm)
April 28	Final Report ( <b>report is NOT accepted without notebook</b> )

**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 two weeks into the new semester.

**9. Desire2learn:** Please check Desire2learn 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. (March 3) 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 or exams.

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

Week	<b>TENTATIVE SCHEDULE</b>	Tasks	Reading assignments Lab Text Pages
1/14	Safety, Lab Check-in, and Instruments Demonstrations, Students receive unknowns (Wrap the caps with parafilm to avoid evaporation) <b>Project overall: Identification of 3 Unknown Organic Compounds</b>	Write unknown numbers and key combinations in the notebook and roll, <b>Safety Quiz</b>	Read
1/21	Separation and Purification of Benzoic acid and Acetanilide by <b>Extraction</b> and <b>Re-crystallization</b> ,		104; 106; 117
1/28	<b>Extraction</b> of Caffeine from tea leaves. <b>Melting point:</b> Melting points reading of benzoic acid and acetanilide	<b>Homework 1, Due</b>	84; 118
2/04	<b>Sublimation</b> of caffeine and infrared (IR) spectrum analysis. <b>Extraction</b> of trimyristin from nutmeg, and its re-crystallization in hot ethanol	<b>Quiz 1</b>	84; 120
2/11	Esterification of acetic acid. Physical properties: Refractive Index (RI), infrared spectrum (IR) and %yield.	<b>THE MIDTERM REPORT FORM</b>	315
2/18	<b>Simple distillation:</b> Purification of neat liquid (NL); <i>save NL for chemical tests on week 10, use lots of parafilm.</i> How to determine density <b>Introduction to Infrared (IR) Spectroscopy</b>	<b>Quiz 2</b>	4-68
2/25	<b>Fractional distillation</b> <b>Infrared (IR) Spectroscopy (continued)</b> ----- (slides). <b>Introduction to Gas Chromatography (GC)</b>	<b>MIDTERM REPORT IS DUE.</b>	4-68
3/03	<b>Last day to withdraw and possibly receive a "W"</b>		

3/10	<b>Infrared (IR) Spectroscopy</b> <b>Fractional distillation, CONTINUE:</b> Separation of Low boiler (LB) and high boiler (HB), Boiling Point, <b>Gas Chromatography (GC)</b> <b>GC ON</b>	<b>Homework 2 Due (IR-lab man.)</b>	4-68
3/17	<b>SPRING BREAK</b>		
3/24	Fractional distillation: <b>(IR) Spectroscopy, Chemical Tests</b> Continue separation of high boiler and low boiler <i>IMPORTANT: save LB and HB for chemical tests on week 10</i>	<b>GC ON</b> <b>Homework 3</b>	4-68; 529
3/31	<b>Boiling point check up for LB.</b> Continue separation of LB, HB, Chemical Characterization Tests	<b>GC ON</b> <b>Quiz 3 IR</b>	529
4/7	Chemical Characterization Tests Introduction Mass Spectrometry	<b>GC ON</b>	
4/14	Mass Spectrometry, <b>slides, request an mass spectrum of the unknown if you have more difficulty to identify</b>	<b>Last week to use GC</b> <b>Homework 4, Chem. tests</b>	208-231
4/21	Miscellaneous Topics, How to study for the FINAL EXAM. Form of Final Report / Lab work completion, <b>only bp, chemical tests, IR, RI, density and books search are allowed, no more distillations</b>	<b>GC OFF</b> Last week to request MS of <b>ONLY ONE</b> of the unknowns <b>Quiz 4, Chem. Tests, and MS. CHECK OUT</b>	
4/28	<b>FINAL EXAM</b>	<b>Final report</b>	