

CHEMISTRY 3AL - Spring 2020

- Instructor:** Dr. Matthew Jurow mjurow@berkeley.edu
- Office Hours:** M,W 3:00-4:00; chemistry library room F
GSIs: See bCourses for schedule & location changes.
You may attend office hours held by any GSI.
- Course Website:** <http://bcourses.berkeley.edu>; please check daily for announcements!
- Pre/Co-Requisites:** C- or higher in CHEM 1A and 1AL
Concurrent enrollment or at least a C- in CHEM 3A
- Required Texts:** **Understanding the Principles of Organic Chemistry: A Laboratory Course**
1st ed., Steven F. Pedersen & Arlyn M. Myers, ISBN 978-1-1114-2816-7
Organic Chemistry Laboratory Notebook
Steven F. Pedersen & Jesse H. Pedersen, ISBN 978-0-7280-3597-1
other left-over lab notebooks from CHEM 1AL also OK!
- Lecture Info:** Mon/Wed 12-1 pm (1 Pimentel; Wednesday lecture is webcast)
The lectures are repeated in the subsequent class; you do not need to attend both.
*Through 2/12: New material will be presented on Wednesday
*Starting 2/24: New material is presented on Monday.
- Lecture Schedule:**
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|---------------------------|---|
| Jan 22 & 27 | intermolecular forces & acid-base chemistry |
| Jan 29 & Feb 3 | solubility (exp. 2) |
| Feb 5 & 10 | mixed melting points (exp. 3) |
| Feb 12 | recrystallization & decolorization (exp. 6) |
| Feb 17 & 19 | NO LECTURE |
| Feb 24 & 26 | thin layer chromatography (exp. 7) |
| Mar 2 & 4 | thin layer chromatography II (exp. 8) |
| Mar 9 & 11 | column chromatography |
| Mar 16 & 18 | liquid-liquid extractions |
| Mar 23 & 25 | NO LECTURES |
| Mar 30 & Apr 1 | sodium naproxen analysis (exp. 9) |
| Apr 6 & 8 | NMR spectroscopy I |
| Apr 13 & 15 | NMR spectroscopy II |
| Apr 20 & 22 | NMR #3 and review |
- Final Exam:** **Monday, April 27th; 7:00-8:00pm**

There will be one written exam worth 35 points. The exam will focus on material that has been covered in both lab lecture and lab. This exam **MUST** be taken and you must earn a score of ≥ 10 points in order to complete the class. There are no scheduled make-up periods! You must sit for the exam at the given time.

Lab Sections:

Lab periods are 4 hours long; plan on being in lab the entire time.

Each lab is worth 15 points. For each lab, you must:

- Prepare your notebook according to the instructions posted on bCourses **before lab begins**. Your GSI will dismiss you for the day if your notebook is not prepared.
- Submit any pre-lab assignment **before lab begins**.
- Arrive on time. The beginning of every lab period is dedicated to a safety discussion and cannot be missed.
- Wear protective clothing and eyewear during the lab period. Your GSI will dismiss you for the day if you are not properly dressed.
- Record qualitative and quantitative observations in your notebook and turn in copies of your notebook pages **before you leave**.
- Turn in data analysis or post lab handouts **before you leave**.

If you are not properly dressed/prepared to participate in a given lab, you will receive a 0. If you receive three zeros, you cannot pass the course.

Lab Schedule:

Jan 20 – 24	-NO LABS-
Jan 27 – 31	A: check in & IMF worksheet
Feb 3 – 7	B: solubility & acid-base chemistry (2)
Feb 10 – 14	C: mixed melting points (3)
Feb 17 – 21	-NO LABS -
Feb 24 – 28	D: recrystallization & brown sugar (6)
Mar 2 – 6	E: TLC of analgesics (7)
Mar 9 – 13	F: TLC of herbs & spices (8)
Mar 16 – 20	G: Column chromatography
Mar 23 – 27	-NO LABS -
Mar 30 – Apr 3	H: liquid-liquid extraction of Excedrin
Apr 6 – 10	I: sodium naproxen analysis (9)
Apr 13 – 17	J: NMR worksheet #1 in lab; K: NMR 2 assigned
Apr 20 – 24	-NO LABS -
Apr 27 – May 1	Check out; K/L: NMR 2 (K) turned in, NMR 3 (L) in lab;

Weekly Schedule and Readings

Week of:	Lecture	Lab	Reading
Jan 20 th	intermolecular forces & acid-base chemistry	NO LABS	Ch 5.3, Ch 4.1.1
Jan 27 th	solubility (exp. 2)	A: check in & IMF worksheet	Ch 6.1, Exp 2
Feb 3 rd	mixed melting points (exp. 3)	B: solubility & acid-base chemistry (2)	Ch 6.3, Exp 3
Feb 10	recrystallization & decolorization (exp. 6)	C: mixed melting points (3)	Ch 7.1, Exp 6
*Feb 17	NO LECTURES: MONDAY, PLEASE WATCH COURSE CAPTURE	NO LABS	
Feb 24 th	thin layer chromatography (exp. 7)	D: recrystallization & brown sugar (6)	Ch 7.8.3, Exp 7
Mar 2 nd	thin layer chromatography II (exp. 8)	E: TLC of analgesics (7)	Exp 8
Mar 9 th	column chromatography	F: TLC of herbs & spices (8)	Ch 7.8.4, Ch 7.2.2, Ch 7.3.3, bCourses
Mar 16 th	liquid-liquid extractions	G: column chromatography of Excedrin	Ch 7.6.1, Ch 7.7, bCourses
Mar 23 rd	No Lecture	NO LABS	
Mar 30 th	sodium naproxen analysis (exp. 9)	H: liquid-liquid extraction of Excedrin	Exp 9
Apr 6 th	NMR spectroscopy I	I: sodium naproxen analysis (9)	Ch 8.1
Apr 13 th	NMR spectroscopy II	J: NMR worksheet #1 (in class) K: NMR worksheet #2 (take home)	
Apr 20 th	NMR #3 and review	NO LABS	
Apr 27 th	final exam	K: NMR 2 turned in L: NMR 3 in class, check out	

- Safety:** To ensure your own safety and that of your classmates in the chemistry laboratory, you must dress for lab in long pants and closed toed/heeled shoes. You must wear the provided safety glasses, lab coat, and gloves at all times such that you have no skin exposed below your neck. Long hair must be tied back. **This also applies to “dry” labs such as worksheets and check-in/check-out days!** Eating, drinking, chewing gum, and reckless/careless conduct are prohibited in the lab rooms. If you fail to adhere to any of these safety requirements, your GSI will send you home and you will receive a zero for that lab.
- Tardiness:** Every lab period begins promptly with a mandatory safety lecture from your GSI. Late arrivals will be sent home and assigned a zero for that lab.
- Absences:** Your lowest lab score will be dropped. Any absence **must** be used as your dropped score. You cannot pass the course with three or more absences, even if they are excused. If you miss a lab it cannot be made up later. **There are no make-up lab periods!**
- Late Work:** Late pre-lab assignments will not be accepted. Forgotten notebook pages and late data analysis handouts will incur a one-point penalty for each day after the original deadline. Work that is more than one week late will not be accepted. If your DSP accommodations or extenuating circumstances (illness, etc.) necessitate an extension, it is your responsibility to communicate with your GSI as soon as possible and initiate a plan for handing in the work.
- Re-grade Requests:** You may request a re-grade soon after the work is returned. This is appropriate when you believe a genuine **error** has been made in the grading process. Requests made after more than one week will not be considered.

Schedule Conflicts: The Department of Chemistry does not allow time conflicts. If you have scheduled a class that conflicts with the lab, lecture, or exams for this course, we cannot accommodate this conflict. You need to work with the instructor of the **other** course that allowed the time conflict to arrange accommodations for all conflicts, **including exams**.

DSP: Please arrange with the Disabled Students' Program to have your Letter of Accommodation sent **as early as possible**. Lab courses are somewhat unique, so please reach out if you would like to discuss a custom accommodation not specifically outlined in your letter.

Ethics: All work you do for this class must be original, including pre-lab assignments, in-lab observations, and data/spectral analyses. As such, submitted work may be analyzed using plagiarism prevention software. Some experiments are explicitly collaborative, and you will share data with your lab partner(s); extra care should be taken to ensure that your post-lab analyses are your own original work.

Unethical behavior in this class will be reported to the Office of Student in Conduct and will result in a 0 on the relevant assignment.

Grades: The point total for this course is 200, broken down as follows:
165 points for lab assignments (15 points each, best 11 scores)
35 points for the end of semester lab exam

Typically, grades at the end of the semester will be assigned as follows, but every semester is different.

A and A-	180–200
B+, B, and B-	160–179
C+, C, and C-	140–159
F	0–139