Chemistry 1B
General Chemistry

Instructor:	Dr. Michelle Douskey Office Hours: Tuesdays and Thursdays 11AM-12PM douskey@berkeley.edu			
GSIs	211	Tu 1-5	Derek Garcia	derek.garcia@berkeley.edu
	311	Wed 1-5	Tsung-Yen Lee	leety@berkeley.edu
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Class Meetings	Mondays and Wednesdays 10:10-11:00 AM in 120 Latimer Hall			
Weekly Reviews	Fridays 10:10-11:00 AM in 120 Latimer Hall			
Required Materials	In an effort to help students save money I am requiring older editions of the two textbooks for this course. If you have other editions, I'm sure it will be fine. I will make sure these books are on reserve at the Chemistry Library so you can compare your books to the ones required. (1) Chemical Principles, The Quest for Insight, Atkins and Jones, 6th Ed (Same book as 1A Fall 2015, 2016, etc.)* (2) Harris' Quantitative Analysis, 8th edition* (3) Lab Manual, available on the course website as pdfs for free (4) Dedicated lab notebook (very flexible, no need for carbonless copies, just keep yourself organized for lab!) (5) TI-30X IIS Calculator (or equivalent simple calculator for exams, not your phone) (6) A tool for digitally editing a pdf like writing math or drawing molecules (e.g. Wacom tablet, an iPad etc.). See technology requirements below. (7) Access code to an online site for lab simulations (This will be available soon, I hope! I am still in negotiations with the publisher to get the best deal for students possible.) *Note: due to COVID the Berkeley librarians have secured online ebook access to both textbooks. More information on how to access these books will be available soon on the course homepage.			
Course Website	http://bcourses.berkeley.edu			
Course Enrollment	Natalie Johnson, 330 Latimer Hall, njohnson614@berkeley.edu			

EXPECTATIONS: In this course, the main goal is for you to develop your critical thinking skills in chemistry by learning about a wide variety of applications. Specifically, we will be building knowledge of chemistry, but also about the scientific process in general. Green chemistry will be a major focus in the laboratory and the lecture.

BCOURSES: You can log on to bcourses using your Calnet ID. In addition to posting relevant course information, we will be using bcourses as an online management tool for the grading database. You will be able to check your grades online throughout the semester.

TECHNOLOGY REQUIREMENTS

- Internet access and a computer, tablet, or other device capable of accessing the bCourses and Gradescope websites and using Zoom.
- The Student Technology Equity Program (STEP) may be able to assist you in obtaining the technology needed to be successful in an online course. https://technology.berkeley.edu/STEP
- All lab reports and exams in this course will require typed or handwritten digital annotation of pdf files. It is important for grading that you do not edit the pdf template but instead add your work to the boxes provided. Options for digital annotation hardware include a touchscreen device and stylus (e.g. iPad etc.) or a writing tablet attached to a computer (e.g. Wacom tablet). Every student also has access to Adobe products so it is very easy to add text and upload calculation pictures to your lab report using Acrobat.

Note: Due to limitations in the grading process (file quality/readability issues), it might not be sufficient to complete these assignments on paper with a printer/scanner workflow. Files that do not meet the legibility requirements might not be graded. If your only option for lab reports is printing, writing by hand and scanning your work, please discuss strategies with your GSI so you can be sure to submit legible assignments for grading.

CLASS ACTIVITES: Class time will consist of lecture, chemistry demonstrations, discussions, short group activities/problem solving and chemistry questions. Participation in discussion is expected and will maximize your learning. Your participation in chemistry questions during class will contribute to your grade.

PARTICIPATION, GOOGLE FORMS AND IN CLASS CREDIT: I will be using the google forms for participation credit in class this term. Often the questions will be in the form of choose and explain. Be thorough in your explanations to earn full credit. You do not have to be correct, but you do have to give a sincere effort to answer the questions. Each explanation should be a short paragraph with your reasoning. You must be logged in to your Berkeley email in order to access these forms.

LAB: Detailed information about the laboratory portion of the course can be found in the lab manual. There will be twelve experiments total, some of which will be multi-week experiments. The lab period lasts for 4 hours beginning with a brief prelab discussion facilitated by your GSI. The rest of the lab time will be devoted to performing the online experiment and writing your lab report. In most instances, lab reports are due the week after you complete lab and collect data. Students must always turn in their own work, even when collaborating with lab partners. Consult the schedule listed in the calendar. Late lab reports will incur a 2 points per day penalty. Attendance and completion of all lab experiments is mandatory.

In order to earn points for any given experiment, the following conditions must be met:

- You should attend lab. If you miss lab, or need to complete lab asynchronously, arrange to complete the alternate assignment with your GSI for lab participation credit.
- Prior to attending any given laboratory period, you must have completed all of the reading assignments and completed the online prelab 30 minutes prior to the start of your section. Upload your prelab to gradescope.
- Guidelines for what to write in the lab notebook are in the lab manual. You must prepare your notebook with a flowchart of the procedure prior to coming to lab. Also list the goal and purpose of each experiment. Notebook pages from each experiment will be added at the end of each lab report for online submission to Gradescope. Please consult the training video posted on the course website.
- You must record detailed **observations** about the remote experiment in your lab notebook. For the purpose of remote instruction, any notebook you use is acceptable as long as your work is legible. Typing in a word doc and adding pages to your lab report pdf is also acceptable.
- Your lab observations might include mass of things weighed, volume dispensed, concentrations, yields, texture, smell, color, temperature, etc.
- Lab report sheets and notebook pages must be submitted as a pdf online to Gradescope 30 min. prior to your next lab section.
- Any questions you have regarding a lab report sheet grade must be resolved with your GSI within one week of having received the graded lab report sheet. All regrades are subject to final approval by the course instructor.

If you do not complete all of the above conditions for any given lab experiment, you will earn a 0 for that experiment. The consequences of a 0 are as follows:

- If you earn one zero during the semester on a lab report, this will be your dropped lab score.
- If you earn three zeros during the semester, you not only will lose the points associated with one experiment – as one lab score will be dropped –, but your course grade will also be lowered by one third of a grade. For example, if you earn enough points to get a B+ in the class, but you have three zeros, you will earn a B.
- If you earn four zeros you will automatically earn a failing grade in the course.

HOMEWORK: Written homework will be a combination of end of chapter problems from our textbooks and questions I've authored. We will post a pdf of the homework questions we want you to complete. Homework is due by end-of-day Fridays online through Gradescope. Each homework assignment will be worth 5 points. GSIs will spot check five problems, so be sure to attempt to answer all questions. You must show your own work to earn credit. The homework must convey your personal understanding of the material. The week of an exam, homework will not be assigned. **No late homework will be accepted.**

Guidelines for Uploading Homework to Gradescope: You are responsible for uploading your assignment every week to Gradescope. Assignments will open on Wednesday each week after class and will be due the following Friday by 11 pm. When uploading your assignment, the allowed formats are either a picture file or PDF (so you can photograph or scan your work to upload). Be sure every question is nicely labeled and easily found on each page. **Do not split questions between different pages!** When you upload your work, you will select the page each question can be found on, so if your work is split between pages, it will not be graded appropriately.

EXAMS: There will be two midterm exams in this course administered during class on the following dates: March 8th and April 12th. If you cannot be present to take the exams at these times, you cannot take Chem 1B. Exam questions will be taken from material covered in the course from lecture, lab, discussion, demonstrations, and applications. The final exam for this course will be cumulative and will be on Wednesday, May 12th, from 8:00-11:00 AM. More details about the exam policies for Chem 1B will be posted on our course website. The GSIs will be hosting exam review sessions the weekend before the midterms, details to be announced. These sessions are mini-lectures with time for question and answer at the end and will likely involve some practice problems.

BONUS POINTS: Throughout the semester there will be several opportunities to compete surveys for a few bonus points. These will be announced via the course website as a bcourses announcement.

HONOR CODE: The honor code for UC-Berkeley states,

"As a member of the UC Berkeley community, I act with honesty, integrity, and respect for others."

Incidences of cheating will be taken seriously and paperwork will be filed with the Office of Student Conduct. Resist the temptation to copy answers from other students or solutions you find online. In the spring and summer literally hundreds of students used chegg answers to cheat on an exam. In the fall, over fifty people put answers from the internet on their exam. They were reported to the office of student conduct. When you collaborate, discuss thoroughly until you understand, then write brief notes. Do the bulk of your writing by yourself.

Academic Integrity and Exams

Exams in this class will have specific guidelines listing allowed resources (e.g. specific websites, documents, and/or personal notes that have been submitted in advance.)

You ARE NOT allowed to use any other resources or to communicate about the questions or content of any exam with anyone other than Dr. Douskey or your GSI, directly or indirectly, until after the exam submission deadline. This includes, but is not limited to the following:

- Viewing websites other than the ones specified in the exam instructions.
- Talking, emailing, texting, videochatting, using social media, etc.
- Posting and/or viewing posts related to these questions on “tutoring” (Q&A) websites, including but not limited to chegg.com and coursehero.com.

CLASSROOM CLIMATE: We are all responsible for creating a learning environment that is welcoming, inclusive, equitable, and respectful. If you feel that these expectations are not being met, you can consult your instructor(s) or seek assistance from campus resources (see the Academic Accommodations website).

CLASSROOM ACCOMMODATIONS: The purpose of academic accommodations is to ensure that all students have a fair chance at academic success. Disability, or hardships such as basic needs insecurity, uncertain documentation and immigration status, medical and mental health concerns, pregnancy and parenting, significant familial distress, and experiencing sexual violence or harassment, can affect a student’s ability to satisfy particular course requirements. Students have the right to reasonable academic accommodations, without having to disclose personal information to instructors. For more information about accommodations, scheduling conflicts related to religious creed or extracurricular activities, please see the Academic Accommodations hub website: https://evcp.berkeley.edu/programs-resources/academic-accommodations-hub#accommodations. This website also provides a range of helpful campus resources.”

GRADING POLICY: The different aspects of the course will be graded as follows.

	Percent of Grade	
In class Participation:	5%	2 lowest dropped
Lab	20%	1 lowest dropped
Homework	10%	1 lowest dropped
Exams (2 midterms, 1 final)	65%	
Course Total	100%	

OVERALL GRADE FOR THE COURSE:

Your overall grade for the course will be determined by the number of points you earn in the course. The intended grade ranges for the course are listed below. Since I am grading on a straight scale, everyone has the chance to succeed and students are encouraged to help each other understand the material to maximize learning. The ranges for the +/- cutoffs will not be published or released to students (not even at the end of the semester). Grade cutoffs may be lowered in extreme circumstances, but they will not be raised. If you earn greater than 87.5% in this class, you are guaranteed to fall in the 'A' range. For example if you earn 88% of the course points you will earn an A- in the class.

Grade	Percentage Range
A	87.5-100
B	75.0-87.4
C	60.0-74.9
D	45.0-59.9
F	<45.0

Unit 1 Syllabus*

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	Weekly Reading (R), Homework (H), and Lab (L) (*A* FOR ATKINS AND *H* FOR HARRIS)
18 Holiday: Martin Luther King Day	**19** No class yet	**20** Course intro, review of 1A concepts	**21**	**22** Weekly Review	**Week 1** **R1:** *H* Ch 0, 1; *A* Fundamentals **H1:** *A* A.25-30, H 0-2, 0-4, 1-15, 1-28, 1-30 and green chemistry questions posted on bcourses **(due Jan. 29)** **L1:** Check In, Safety, N_2 in tires
25 Spectroscopy Review, Calibration curves	**26**	**27** Advanced Calibration Techniques	**28**	**29** Weekly Review	**Week 2** **R2:** *A* MT2 (pg. 146-147), *H* Ch 5, 17 **H2:** *H* 17-6, 17-7, 17-8, 17-10, 17-16, 5-23, 5-24, 5-25ab, 5-30, **(due Feb. 5)** **L2:** Quantitative Analysis of Dyes in Energy Drinks
1 Intro to spectroscopy	**2**	**3** Molecular Spectroscopy, Green Chemistry	**4**	**5** Weekly Review	**Week 3** **R3:** *A* Ch 4, *H* Ch 5, 17 **H3:** *A* 4.17, 4.18, 4.25, 4.26, 4.27, 4.28, 4.29, 20.76 **(due Feb. 12)** **L3:** Getting Started with WebMO, bring laptop to lab
8 Chemical principles of chromatography	**9**	**10** Gas chromatography	**11**	**12** Weekly Review	**Week 4** **R4:** *A* Ch 6, skim 19, 20, *H* Ch 22, 23 (selected sections) **H4:** *A* Ch 6.4, 6.6, 6.8, 6.12, 6.14, 6.102, 19.29, 19.30, 20.68 **(due Feb. 19)** **L4:** Aquatic Toxicity, algae toxicity and Kow
15 NO CLASS Holiday: Presidents' Day	**16**	**17** Interpreting chromatograms, chromatography theory	**18**	**19** Weekly Review	**Week 5** **R5:** *A* Ch 12, 13 (review concepts); *H* Ch 24 (selected sections) **H5:** *A* 12.1, 12.2, 12.43, 12.53; *H* 22-28, 22-45, 23-9 **(due Feb. 26)** **L5:** Aquatic Toxicity, algae measurement and WebMO
22 Acid-Base concepts for chromatography	**23**	**24** HPLC	**25**	**26** Weekly Review	**Week 6** **R6:** *H* Ch 0 **H6:** *H* 24-15, 24.19 and chocolate analysis questions posted on bcourses **(due Mar. 5)** **L6:** Extraction of Orange Oil and Quantitative Analysis by Gas Chromatography
1 Exam Review, GC of Clove Extracts	**2**	**3** Exam Review, Taurine in Red Bull by HPLC	**4**	**5** Weekly Review	**Week 7** **R7:** *H* Ch 22, 23, 24 (selected sections) **H7:** no homework due Mar. 12 **L7:** Unknown Amino Acid
8 **Midterm #1** (in class)	**9**	**10** Intro to kinetics	**11**	**12** NO Weekly Review	**Week 8** **R8:** *A* Ch 15 **H8:** *A* 15.1, 15.2, 15.3, 15.4, 15.5, 15.6, 15.7, 15.8, 15.59, 15.60 **(due Mar. 20)** **L8:** Thin Layer Chromatography (TLC) of Thyme Leaf Extracts

A complete syllabus for the whole semester will be available on the course website as we proceed.