Chemistry 1B
General Chemistry
Spring 2018

Instructor:	Dr. Michelle Douskey 307 Latimer Hall Office Hours: TBA douskey@berkeley.edu			
GSIs	211	Tu 1-5	Alexandra Ramsay	aram781@berkeley.edu
	311	Wed 1-5	Scott Meyer	scott_meyer@berkeley.edu
	401	Th 8-12	Varsha Desai	varsha@berkeley.edu
	411	Th 1-5	Leela Velautham	leela.velautham@berkeley.edu
Class Meetings	MW 10:10-11:00 AM in 120 Latimer Hall			
Weekly Reviews	Latimer 120 on Thursday nights from 7-9pm			
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) (2) Harris' Quantitative Analysis, 8th edition (3) Lab Manual, a reader will be available soon from a local bookseller, TBD (4) iClicker1 or iClicker+ or iClicker 2 (5) Student Lab Notebook (or equivalent lab notebook with carbonless copies) (6) TI-30X IIS Calculator (or equivalent simple calculator)			
Course Website	http://bcourses.berkeley.edu			
Course Enrollment	Rose Beeler, 211 Latimer, rbeeler@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.

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

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.

EXAMS: There will be two midterm exams in this course administered during class on the following dates: March 5th and April 9th. 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 9th, from 8:00-11:00 AM. More details about the exam policies for Chem 1B can be found on our course website. The GSIs will be hosting exam review sessions the weekend before the midterms, times and locations to be announced. These sessions are mini-lectures with time for question and answer at the end and will likely involve some practice problems.

HOMEWORK: Written homework will be a combination of end of chapter problems from our textbooks and questions I've authored. Homework is due when you get to class on Wednesdays. The first paper homework is due January 24th. Each homework assignment will be worth 5 points. The GSIs will spot check five problems, so be sure to attempt to answer all the questions. You must show your own work to receive credit. The homework must convey your understanding of the material. The week of an exam, homework will not be assigned. No late homework will be accepted.

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 experiment and writing up 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 lab manual. Late lab reports will incur a 20% 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 must attend lab.
- Prior to attending any given laboratory period you must have completed all of the reading assignments and prelab assignments.
- You must prepare your notebook with a flowchart of the procedure prior to coming to lab.
- You must **arrive to lab on time**, which means no later than 8:10 AM for morning labs, 1:10 PM for afternoon labs and 6:10 PM for evening labs. In general, the first 10-15 minutes of every laboratory period are dedicated to a safety discussion, which is an important part of the experiment. Therefore, if you show up late you will not be allowed to participate in lab for that day.
- You must wear protective clothing and eyewear during the laboratory period. **Your GSI is authorized to ask you to leave** the lab for the day if you are not wearing such clothing or eyewear. Refer to the lab manual introduction for details.
- You must record detailed **observations** about the experiment. Do not just make a checklist of what you are supposed to do and then check off the procedures as you carry them out without making observations as to what actually happened. All observations must be written in your lab notebook during, not after, the laboratory period.
- You must record all expected data during, not after, the laboratory period. This includes mass of things weighed, volume dispensed, yields, etc.
- Before leaving lab, you must meet with your GSI who will ask you to confirm that certain data is present in your notebook. Upon confirmation, the GSI will initial the notebook. At this point, you are to provide them with the perforated pages of your notebook that were used in lab that day.
- You must turn in the lab report at the beginning of the lab period it is due (typically the next lab period after the experiment was completed). The lab reports will be collected as your GSI checks prelabs. Late lab reports will incur a 20% per day penalty. Lab reports cannot be submitted to the GSI using e-mail or any other type of electronic format.
- Any questions you have regarding a lab report grade must be resolved with your GSI within one week of having received the graded lab report. 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, you will earn a 0 for that experiment. The consequences of a 0 are as follows:

- If you receive one zero during the semester, this will be your dropped lab score.
- If you receive two 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 two zeros, you will receive a B.
- If you receive three zeros you will receive a failing grade in the course.

CHEATING AND PLAGIARISM: 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 solutions manuals available. When you collaborate, discuss thoroughly until you understand, then write brief notes. Do the bulk of your writing by yourself.

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

	Percent of Grade	
Lab	20%	1 lowest dropped
Participation: iClicker and other activities	2%	2 lowest dropped
Homework	8%	1 lowest dropped
Exams (2 midterms, 1 final)	70%	
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

iCLICKER TRANSMITTERS AND IN CLASS CREDIT

I will be using the iClicker student response system in class this term. iClicker helps me to understand what you know and gives everyone a chance to participate in class. I will use iClicker to keep track of attendance. I will drop 2 of the lowest scores to account for times you forget to bring your clicker to class.

You may purchase one of the following models:
The original i>clicker
i>clicker +
i>clicker 2
The mobile application, i>clicker GO or REEF polling will not be allowed

How to register:
To receive credit for the responses you submit with iClicker, you must register by January 31st. Students who register after this time will not earn credit.

Register your clicker within bcourses only
You must register your clicker within our bcourses site. Do not register your clicker on iclicker.com: if you do, I will not be able to match your responses with your name and you will not receive credit.

Unit 1 Syllabus*

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	Weekly Reading (R), Homework (H), and Lab (L) (*A* FOR ATKINS AND *H* FOR HARRIS)
15 Holiday: Martin Luther King Day	**16**	**17** Course intro, review of 1A concepts	**18**	**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. 24)** **L1:** Check In, Safety, N_2 in tires
22 Spectroscopy Review, Calibration curves	**23**	**24** Advanced Calibration Techniques	**25**	**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 Jan. 31)** **L2:** Quantitative Analysis of Dyes in Energy Drinks
29 Intro to spectroscopy	**30**	**31** Molecular Spectroscopy, Green Chemistry	**1**	**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. 7)** **L3:** Getting Started with WebMO, bring laptop to lab
5 Chemical principles of chromatography	**6**	**7** Gas chromatography	**8**	**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. 14)** **L4:** Aquatic Toxicity, algae toxicity and Kow
12 Interpreting chromatograms, chromatography theory	**13**	**14** Acid-Base concepts for chromatography	**15**	**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. 21)** **L5:** Aquatic Toxicity, algae measurement and WebMO
19 NO LAB Holiday: Presidents' Day	**20**	**21** HPLC	**22**	**Week 6** **R6:** *H* Ch 0 **H6:** *H* 24-15, 24.19 and chocolate analysis questions posted on bcourses **(due Feb. 28)** **L6:** Extraction of Orange Oil and Quantitative Analysis by Gas Chromatography
26 Exam Review, GC of Clove Extracts	**27**	**28** Exam Review, Taurine in Red Bull by HPLC	**1**	**Week 7** **R7:** *H* Ch 22, 23, 24 (selected sections) **H7:** no homework due Mar. 7 **L7:** Unknown Amino Acid
5 **Midterm #1** (in class)	**6**	**7** Intro to kinetics	**8**	**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. 15)** **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.