

## Chemistry 2A

Course Syllabus – Winter 2015

Instructor: Bryan Enderle, Ph.D.

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Office Hours: M 10:10 a.m. – 11:50 a.m., SLB 2061 (or by appointment)

Phone: 530-754-9501, Office: Sciences Lab Building 2033B

Class Info: TR 7:30 – 8:50 a.m., Sciences Lecture Hall 123

Web Page: access through <http://smartsite.ucdavis.edu/>

*(It is your responsibility to check the web page for any pertinent announcements or information.)*

Head TA: Maddy McCrea-Hendrick

Email: [mmccreahendrick@ucdavis.edu](mailto:mmccreahendrick@ucdavis.edu)

Office Hours: Posted on Class Web Page, SLB 1064 (or by appointment)

All Other TA Office Hours: Posted on Class Web Page, Sciences Lab Building 1064

TA mailboxes: In the hall outside Chemistry 149.

### Course Materials (Lecture & Discussion).

*General Chemistry - Principles & Modern Appl., UCD Custom Ed., Petrucci et al.*

Enderle's Chemistry 2A Lecture Notes & Practice Exams (*Available at Davis Copy Maxx, 232 3<sup>rd</sup> St.*)

Mastering Chemistry Student Access Kit; Scientific Calculator

Student Solutions Manual and Study Guide for the text by Gelmini et al. (*optional*)

### Course Materials (Laboratory).

*Chemistry 2A Laboratory Manual, Department of Chemistry, UCD (Winter 2015 version only)*

ANSI-compliant, indirectly-vented, chemical splash safety goggles; 100% cotton chemistry lab coat

Closed-toe, closed-heel shoes; clothing that completely covers your arms and legs (*lab only*)

Laboratory Notebook with carbon pages

**Prerequisite.** You must have a minimum score of 21 on the Chemistry Diagnostic Test and 25 on the Precalculus Qualifying Exam else you will be administratively dropped from Chemistry 2A. Go to <http://chemistry.ucdavis.edu/undergraduate/chemplacement.html> for more information.

**Course Content.** The lectures will cover chapters outlined in the schedule on page 3 following the text by Petrucci et al. You are responsible for all of this material, including any parts that may not be formally presented in lecture, unless explicitly directed otherwise in lecture. Readings and problems from the text will be assigned. While the problems will not be collected or graded, it is critical that you do these (and as many additional problems as possible) in order to succeed in the class. A tentative schedule of lecture assignments is given on Page 3 of this syllabus.

### Course Goals & Objectives.

- Mastery with SI units, conversions, scientific notation, and algebraic mathematics.
- Ability to integrate concepts/equations and apply them to chemical problems associated with the topics covered.
- Understand chemical bonding as it relates to structures, hybridization, and various bonding theories.
- Ability to read, understand, and interpret the periodic table and related electronic, physical, and chemical trends.
- Basic understanding the electron and the atom as it relates to structure and quantum mechanics.
- Knowledge of the kinetic theory of gases and use of the various gas laws.
- Ability to solve chemical problems of solutions involving aqueous reactions, stoichiometry, and dilutions.

**Grading.** Exam I and Exam II are each worth 23%; the Final is worth 37%; the Laboratory is worth 11%; and the Online Homework is worth 6% of the grade. You cannot receive an incomplete in the lab portion of the class. Students must complete all laboratory experiments and turn in an acceptable report for each experiment in order to pass the course. Students who do not pass the lab portion of the course will receive an automatic failure in the course as a whole regardless of exam scores. Any excused absences of any kind must be accompanied by appropriate documentation for verification.

$$\text{Final Grade \%} = [(\text{Exam I\%}) \times 0.23] + [(\text{Exam II\%}) \times 0.23] + [(\text{Lab\%}) \times 0.11] + [(\text{HW\%}) \times 0.06] + [(\text{Final\%}) \times 0.37]$$

**Fees.** Chemistry 2A has a Course Material Fee of \$65.

**Examinations.** Two examinations will be given during lecture hours on *Thursday January 29<sup>th</sup>* and *Thursday February 26<sup>th</sup>* in assigned rooms. The exams cover all material (lecture and laboratory) since the start of the quarter (Exam I) or the last exam (Exam II). The final examination will be comprehensive and common for all 2A sections (*Tuesday March 17<sup>th</sup> 10:30 a.m. – 12:30 p.m.*). You must bring your student ID to the examinations. **No early, late, or make-up exams will be given.** It is the student's responsibility to talk to the head TA at least 2 weeks ahead of exam dates regarding conflicts or special needs. During exams, you must put your lab section and multiple choice answers on the front page else forfeit 10 points automatically. Exams will be handed back during the laboratory period. Please review your exam and compare to the answer key before leaving the laboratory. If you would like the TAs to review your Exam for a re-grade, write your reasons on the front page and return the Exam to your TA before you leave. Once you leave the laboratory class, you may not turn in your exam for a re-grade. Finally, SDC students must provide official documentation at least two weeks ahead of time from the SDC in order for your accommodations to be processed. The Head TA will process all your paperwork unless you request otherwise from the instructor before the paperwork is sent.

**Discussion and Laboratory.** These are handled by TAs. The times and rooms of your 1-hour discussion and 3-hour laboratory depend on your particular section. In discussion, participation on the weekly worksheet earns you points each week amounting to about 1% of your total grade, which is accounted for as part of your lab grade. For lab, a schedule will be given during the lab section. Note that the labs start on *Monday January 5<sup>th</sup>*. You must submit a report detailing your lab results at the beginning of the lab period immediately following the one in which the experiment was completed. You must attend and complete all labs to be eligible to pass the class. A failure in lab (< 50%) will result in a failure in the entire course. Safety rules, proper lab technique, appropriate clothing (PPE), and appropriate behavior are strictly enforced. The TAs, lab supervisor, and instructor reserve the right to remove any student from lab for unsafe or disruptive behavior resulting in a referral to SJA, a failure of that lab, and possibly the lab and lecture portion of the course. You must report any grade or points-earned issues either (1) 1 week after the due date or (2) 1 day before the final, whichever is earlier. Failure to do so will result in no change to your grade or points-earned.

#### **Enrollment Issues.**

- All enrollment issues should be directed to the Head TA. You may contact the head TA through email or see the head TA during the scheduled office hours.
- If you wish to add this course, you should be present at the start of the laboratory period of the section you want. If there is space in the section, the Head TA will give you a PTA number, which will allow you to add the course.
- You cannot add the course without a PTA number. These are available only from the Head TA and subject to available space in the particular laboratory section. You can drop the course anytime before the drop date.
- You must be present at the start of your first laboratory period in order to keep your enrollment in the course. If you are not present, you may forfeit your enrollment.

- The R0 section is only open to students who are repeating the course and have completed the satisfactorily the laboratory at UCD. Non-repeaters who enroll in the R0 section must drop and enroll in the correct section.
- If you are repeating the course and have previously completed the lab, see the Head TA as soon as possible. You are not excused from the lab until the Head TA checks that you previous lab score is satisfactory. If you are excused from the lab, the Head TA will assign you a discussion section to attend that accommodates you class schedule; formally, however, you will remain enrolled in the R0 section.

**Tutoring.** Take advantage of the Student Academic Success Center Workshops. Call 530-752-2013 or visit <http://www.lsc.ucdavis.edu> and click on the Workshops tab for more information. Sign up for these classes in 2205 Dutton Hall. Chemistry graduate students tutors can be found at: [http://chemistry.ucdavis.edu/undergraduate/tutors\\_in\\_chemistry.html](http://chemistry.ucdavis.edu/undergraduate/tutors_in_chemistry.html)

**Cheating/Plagiarism.** Cheating or plagiarism will result in a referral to Student Judicial Affairs (SJA), automatic failure of the respective assignment, and may result in dismissal/suspension from the class. In laboratory, all students must use the data collected during your laboratory period to finish each post-laboratory exercise. Students are not allowed to copy data or calculations from any other person. Post-laboratory exercises must be done entirely independently of your lab partner or other persons. All suspected violations will be referred to SJA.

**Useful Web Links.**

Petition for Repeaters & Chemistry 2A Lab Manuals

<http://chemistry.ucdavis.edu/undergraduate/chem2labs.html>

Dr. E's Online Videos of Practice Problems

<http://www.youtube.com/EnderlePhD> (select appropriate playlist)

**Tentative Lecture Schedule and Course Content.** The schedule and material covered during examinations are subject to change at the discretion of the instructor.

<b>Week of</b>	<b>Tuesday</b>	<b>Thursday</b>
Jan 5	Intro, Chp. 2	Chp. 2,3
Jan 12	Chp. 3	Chp. 3,4
Jan 19	Chp. 4	Chp. 4,5
Jan 26	Chp. 5	<b>Exam I</b>
Feb 2	Chp. 5,6	Chp. 6
Feb 9	Chp. 6,7	Chp. 7
Feb 16	Chp. 7	Chp. 8
Feb 23	Chp. 8,9	<b>Exam II</b>
Mar 2	Chp. 9	Chp. 9,10
Mar 9	Chp. 10	Chp. 10
<b>Final:</b> Tuesday March 17 <sup>th</sup> 10:30 a.m. – 12:30 p.m.		

## Chemistry 2A Laboratory Information & Schedule

Students must read the laboratory experiment, complete the pre-laboratory assignment, and complete the online pre-laboratory quiz at least 1 hour before coming to class. If you have any questions about the experiment to be performed, be prepared to ask your TA during your pre-lab introduction. All experimental data and observations will be taken directly into the laboratory notebook. Your TA must initial these entries each day before leaving the laboratory. A student must complete all labs and submit a laboratory report for all of the assigned laboratory work in order to pass the course. All laboratory work (including the online post-labs) must be submitted before the next normally scheduled laboratory meeting or at the time indicated by the teaching assistant.

### A laboratory report consists of:

*Title, Purpose, Procedure, Data Tables*

These constitute the prelab and must be prepared prior to coming to lab. Blank data tables should be made before lab. The prelab quiz is completed online at least 1 hour before coming to lab.

*Data, Calculations, Questions, Results, Summary, Conclusion*

These are done outside of lab time. The conclusion is to consist of a couple of well-written paragraphs discussing the results and possible sources of errors.

Week	Week Beginning	Experiment
1	January 5	Check In & Safety Nomenclature Lab Online Quiz ( <i>Due week of 2/2</i> )
2	January 12	Introduction to Laboratory Techniques
3	January 19	No Lab (Discussion sections will be held)
4	January 26	Observing Chemical Reactions (Dry KHP for next lab)
5	February 2	Volumetric Analysis, Part I
6	February 9	Volumetric Analysis, Part II
7	February 16	Reactions of Copper ( <i>Monday Labs will perform this lab on 3/16</i> )
8	February 23	Spectroscopy, Part I
9	March 2	Spectroscopy, Part II
10	March 9	Avogadro's Number / Check-Out
11	March 16	Reactions of Copper / Check-Out ( <i>Monday Labs Only</i> )