

Course Information

Semester & Year:	Summer 2023
Course ID & Section #:	CHEM-2-E6332
Instructor's name:	Dr. David Duberow
Day/Time:	MTWTh 9:30 – 11:45 am (<i>lecture, face-to-face or online</i>) MTWTh 12:15– 1:50 pm (<i>mandatory face-to-face lab</i>)
Location:	SC106 (Eureka Campus)
Number of proctored exams:	5
Number of units:	5.0

Instructor Contact Information

Office location:	SC216F
Office hours:	MTWTh 9:00 – 9:30 am
Phone number:	707-476-4327
Email address:	David-Duberow@redwoods.edu

Required Materials

Textbook title:	<i>Fundamentals of General, Organic, and Biochemistry</i> (recommended)
Edition:	3 rd or later (4 th preferred)
Author:	McMurry and Castellion
ISBN-13:	978-0131486843
ISBN-10:	0131486845
Other materials:	Scientific or graphing calculator (required) Safety goggles (required)

Catalog Description

An introduction to basic chemical principles. Serves as a beginning course for allied science students including nursing, and as general education. Students learn to classify matter and to describe physical and chemical phenomena such as atomic structure, compounds, energy, solutions, acids and bases, nuclear chemistry, and organic chemistry, both qualitatively and quantitatively, at an introductory level. Includes a coordinated lab experience.

Course Student Learning Outcomes

1. Analyze the fundamental features of chemistry including measurement, mathematical conversion of measured physical properties such as mass, volume, density, pressure, temperature, solutions, concentrations and dilutions.
2. Demonstrate knowledge of the qualitative features of chemistry including physical and chemical properties, naming and writing chemical formulas of compounds and evaluating chemical reactions.
3. Differentiate typical acid and base formulas and compare/contrast the behavior associated with acids and bases.
4. Analyze chemical reactions to quantitatively determine theoretical yield.

Prerequisites

High school algebra

Course Overview

Chemistry 2 is a one-semester course designed to introduce students to a variety of fundamental concepts in chemistry, with a particular emphasis on applications in allied health professions. No prior knowledge of chemistry is required, although high school or Elementary Algebra is a prerequisite. General topics include scientific math (measurements, the metric system, dimensional analysis), matter and energy, elements and compounds (atomic structure, nuclear chemistry, the periodic table, ionic and covalent bonding, chemical formulas, nomenclature), chemical reactions, mole calculations, stoichiometry, solubility, properties of gases, thermodynamics, acid/base chemistry, organic compounds.

Canvas Information

Course materials including lecture notes and videos, handouts, lab procedures, homework assignments and solutions, practice exams, announcements, and grades, will be posted on the course page on Canvas. Please monitor this site frequently to stay current on the material. Canvas can be accessed at <https://redwoods.instructure.com>. Your login ID is the same as your Webadvisor ID, and your initial password is your 8-digit birth date. For tech help, email its@redwoods.edu or call 707-476-4160. Canvas help for students is available online at <https://webapps.redwoods.edu/tutorial>. A Canvas orientation workshop can be accessed here: <https://redwoods.instructure.com/courses/6781>.

Homework

Homework problems are assigned at each lecture and are due at the beginning of the following Monday lecture unless otherwise stated. *Late homework will be accepted for partial credit only.* If you are unable to attend lecture, you must make arrangements to turn in your work by 9:30 am (email submission as a scanned PDF is acceptable). Daily problems are graded on a five-point scale unless otherwise noted and scaled to a total of 200 points at the end of the term.

Proctored Exams

There will be four midterm exams given during the normal class period. Exams will be directly related to the lecture material, homework problems, and lab work from the weeks preceding the exam. A cumulative final exam will be given on **Thursday, July 20th**. Make-up exams are permissible only for serious illness or family emergency and must be documented. All exams are proctored, in-person, closed-book, and must be completed individually without outside notes. Any instances of cheating will result in a zero for the assignment and disciplinary action by the college.

Evaluation & Grading Policy

Midterm 1	(Monday, June 12):	100 pts	10%
Midterm 2	(Wednesday, June 21):	100 pts	10%
Midterm 3	(Monday, July 3):	100 pts	10%
Midterm 4	(Monday, July 17):	100 pts	10%
Final Exam	(Thursday, July 20):	200 pts	20%
Homework		200 pts	20%
Lab		200 pts	20%
TOTAL		1000 pts	100%

Letter grades will be assigned based on the following scale:

A	92-100%	B+	88-89%	C+	78-79%	D	60-69%
A-	90-91%	B	82-87%	C	70-77%	F	0-59%
		B-	80-81%				

Class Schedule

The following is a rough timeline for the material I intend to cover; however it is subject to change based on the needs of the class. The first portion of the course is designed to familiarize you with the essentials of good science. We will gradually transition into more specific concepts in general chemistry, with an emphasis on problem solving. The final week will give you a preview of organic chemistry, which is covered in greater detail in CHEM 3.

Date	Lecture	Text Reference (4th ed)	Lab
29-May	No Class: Memorial Day		No Lab
30-May	Evolution of chemistry, the scientific method	1.1	Lab Safety
31-May	Measurements, metric units, uncertainty	2.1 - 2.4	Measurements and Significant Figures
1-Jun	Significant figures in calculations, scientific notation	2.4 - 2.6	Measurements and Significant Figures
5-Jun	Dimensional analysis, density	2.7 - 2.8, 2.11-2.12	Density of a Solid
6-Jun	Energy and temperature, heat, specific heat	2.9 - 2.10	Density of a Solid
7-Jun	Phases of matter, phase changes, classification of matter	1.2 - 1.6	Density of a Solid
8-Jun	Atomic models, isotopes	11.1 - 11.4, 11.10 - 11.11	Lecture: Nuclear reactions
12-Jun	Midterm 1 review		Midterm 1
13-Jun	Electron configurations, periodic trends	3.4 - 3.8, 4.1 - 4.7	No Lab
14-Jun	Ions, ionic bonding, classification of compounds, formulas	4.8 - 4.11, 5.10	Compounds: Formulas, and Names
15-Jun	Covalent bonding and Lewis dot structures	5.1 - 5.6, 5.8	Compounds: Formulas, and Names
19-Jun	Molecular shape	5.7, 5.9	Molecules: Lewis Structures, VSEPR, and Polarity
20-Jun	Intermolecular forces, chemical reactions	8.11 - 8.15	Molecules: Lewis Structures, VSEPR, and Polarity
21-Jun	Chemical equations, mole calculations	6.1 - 6.4	Midterm 2
22-Jun	Empirical formula and percent composition	9.3	Empirical Formula
26-Jun	Solutions, solubility	9.1 - 9.2, 9.4 - 9.5	Precipitation Reactions
27-Jun	Solution concentration, molarity	9.7 - 9.8	Precipitation Reactions
28-Jun	Properties of gases	8.2 - 8.10	Galvanized Nail
29-Jun	Stoichiometry	6.5 - 6.7	Galvanized Nail
3-Jul	Midterm 3 review		Midterm 3
4-Jul	No Class: Independence Day		No Lab
5-Jul	Enthalpy, Gibbs free energy	7.1 - 7.3	Crime Solvers
6-Jul	Chemical kinetics, equilibrium, Le Chatelier's principle	7.4 - 7.8	Crime Solvers
10-Jul	Electrolytes, equivalents, colligative properties	9.9 - 9.13	Lecture: diffusion, osmosis, dialysis
11-Jul	Acids and bases	4.12, 10.1 - 10.3	Vinegar Titration
12-Jul	Acids and bases	10.4 - 10.11	Vinegar Titration
13-Jul	Buffers	10.12 - 10.13	Synthesis of Aspirin
17-Jul	Midterm 4 review		Midterm 4
18-Jul	Organic chemistry, alkanes	12.1, 12.3 - 12.7	Synthesis of Aspirin
19-Jul	Functional groups	12.8 - 12.10, 12.2	Synthesis of Aspirin
20-Jul	Final Exam		No Lab

Tips

One of the goals of this course is for you to become proficient in active learning. Think about the concepts as I introduce them in lecture, and ask questions early if you don't understand something. Often, we will be working in groups to solve problems, so please bring a calculator to lecture and come prepared to participate. When you read the text, think through the examples and work the practice problems. These exercises force you to apply what you are reading and are the best way to track your understanding. Budget two hours of coursework outside of class for each hour spent in class and spread this time evenly over the entire week. Try to find a regular group of classmates with whom you can meet regularly and work together on problems and discussions. Finally, if you find yourself struggling at any point, please come to see me during office hours, stop me after class, or email me. Concepts in chemistry tend to build on each other, and so not correcting an early misunderstanding will only hurt you in the long run.

Laboratory

Chemistry is fundamentally an experimental science, and as such it is best learned when it is experienced hands-on. Laboratory work will be an essential part of this course and will include both group work and chemical experimentation. A handout for each experiment will be posted to Canvas prior to lab and will include all background, procedures, and report sheets necessary for the experiment.

Because our time in lab is limited, it is essential that you arrive prepared, having read the experiment thoroughly. You will be far more capable of making good observations and processing information efficiently if you are familiar with the procedure. More importantly, you will be far less likely to endanger yourself and/or your labmates if you are aware of what you are doing. *Be sure to check the laboratory schedule on the previous page regularly to ensure you are prepared for the correct experiment.*

Proper lab attire must be worn at all times. Safety glasses are required for each experiment, even if particularly hazardous chemicals are not being used. *All students must wear safety glasses in the lab room whenever any group is conducting an experiment.* Long pants and closed-toed shoes are encouraged. It is strongly recommended that contact lenses not be worn in the lab, as they can trap chemicals and interfere with the eyewash in the event of an emergency. Students dressed inappropriately for lab may be asked to leave.

Regular lab attendance is mandatory throughout the term, except in cases of *dire, documented emergency*. **If you miss lab during the first week of the term, you will be dropped from CHEM 2.** Although you are welcome to work on calculations and follow-up questions at home, your data and observations must be complete before leaving lab.

Most importantly, all students are expected to conduct themselves in compliance with posted safety regulations at all times. You will have the opportunity to work with dangerous chemicals over the course of the term. Treat these chemicals with respect.

The laboratory component of CHEM 2 is worth 20% of your overall grade, with each lab report equivalent to 20 of the total 1000 points in the course. Points are awarded based on the accuracy of your results, answers to follow-up questions, and overall quality of your records. *Report sheets are due one week after the completion of a given experiment unless otherwise stated in class.* In addition, “discretionary points” may be deducted from any experiment score for flagrant instances of poor lab etiquette. Specific behaviors warranting deductions include, but are not limited to, arriving to lab late or inappropriately dressed, rushing through experiments, spilling reagents, being uncooperative with your labmates, and leaving before your group has finished an experiment.

Admissions Deadlines and Enrollment Policies

Summer 2023 Dates:

Classes begin:	May 30
Last day to add a course:	June 8
Last day to drop course without a “W” and with refund:	June 8
Census Day:	June 9
Last day for student- or faculty-initiated withdrawal (no refund):	June 30
Independence Day (all campuses closed):	July 4
Summer session ends:	July 20

Students who have experienced extenuating circumstances can complete & submit the ***Excused Withdrawal Petition*** to request an Excused Withdrawal (EW) grade instead of the current Withdrawal (W) or non-passing (D, F & NP) grades. The EW Petition is available from the Admissions and Records Forms Webpage. Supporting documentation is required.

Accessibility

College of the Redwoods is committed to making reasonable accommodations for qualified students with disabilities. If you have a disability or believe you might benefit from disability-related services and accommodations, please contact your instructor or [Disability Services and Programs for Students](#) (DSPS). Students may make requests for alternative media by contacting DSPS at 707-476-4280, or on the first floor of the Student Services Building.

If you are taking online classes, DSPS will email approved accommodations for distance education classes to your instructor. In the case of face-to-face instruction, please present your written accommodation request to your instructor at least one week before the needed accommodation so that necessary arrangements can be made. Last-minute arrangements or post-test adjustments cannot usually be accommodated.

Academic Dishonesty

In the academic community, the high value placed on truth implies a corresponding intolerance of scholastic dishonesty. In cases involving academic dishonesty, determination of the grade and of the student's status in the course is left primarily to the discretion of the faculty member. In such cases where the instructor determines that a student has demonstrated academic dishonesty, the student may receive a failing grade for the assignment and/or exam and may be reported to the Chief Student Services Officer or designee. The Student Code of Conduct ([AP 5500](#)) is available on the College of the Redwoods website. Additional information about the rights and responsibilities of students, Board policies, and administrative procedures is located in the [College Catalog](#) and on the [College of the Redwoods website](#).

Disruptive Behavior

Student behavior or speech that disrupts the instructional setting will not be tolerated. Disruptive conduct may include, but is not limited to: unwarranted interruptions; failure to adhere to instructor's directions; vulgar or obscene language; slurs or other forms of intimidation; and physically or verbally abusive behavior. In such cases where the instructor determines that a student has disrupted the educational process, a disruptive student may be temporarily removed from class. In addition, the student may be reported to the Chief Student Services Officer or designee. The Student Code of Conduct ([AP 5500](#)) is available on the College of the Redwoods website. Additional information about the rights and responsibilities of students, Board policies, and administrative procedures is located in the [College Catalog](#) and on the [College of the Redwoods website](#).

Inclusive Language in the Classroom

College of the Redwoods aspires to create a learning environment in which all people feel comfortable in contributing their perspectives to classroom discussions. It therefore encourages instructors and students to use language that is inclusive and respectful.

Setting Your Preferred Name in Canvas

Students have the ability to have an alternate first name and pronouns to appear in Canvas. Contact [Admissions & Records](#) to request a change to your preferred first name and pronoun. Your preferred name will only be listed in Canvas. It does not change your legal name in our records. See the [Student Information Update form](#).

Emergency Procedures/Everbridge

College of the Redwoods has implemented an emergency alert system called Everbridge. In the event of an emergency on campus you will receive an alert through your personal email and/or phones. Registration is not necessary in order to receive emergency alerts. Check to make sure your contact information is up-to-date by logging into WebAdvisor <https://webadvisor.redwoods.edu> and selecting 'Students' then 'Academic Profile' then 'Current Information Update.'

Please contact Public Safety at 707-476-4112 or security@redwoods.edu if you have any questions. For more information see the [Redwoods Public Safety Page](#).

In an emergency that requires an evacuation of the building anywhere in the District:

- Be aware of all marked exits from your area and building
- Once outside, move to the nearest evacuation point outside your building (please review the [campus emergency map](#) for evacuation sites)
- Keep streets and walkways clear for emergency vehicles and personnel
- Do not leave campus unless it has been deemed safe by the campus authorities.

Community College Student Health and Wellness

Resources, tools, and trainings regarding health, mental health, wellness, basic needs and more designed for California community college students, faculty and staff are available on the California Community Colleges [Health & Wellness website](#).

[Wellness Central](#) is a free online health and wellness resource that is available 24/7 in your space at your pace.

Students seeking to request a counseling appointment for academic advising or general counseling can email counseling@redwoods.edu.

Student Support Services

The following online resources are available to support your success as a student:

- [CR-Online](#) (Comprehensive information for online students)
- [Library Articles & Databases](#)
- [Canvas help and tutorials](#)
- [Online Student Handbook](#)

[Counseling and Advising](#) offers academic support that includes academic advising and educational planning

Learning Resource Center includes the following resources for students:

- [Academic Support Center](#) for instructional support, tutoring, learning resources, and proctored exams.
- [Library Services](#) to promote information literacy and provide organized information resources.
- [Multicultural & Diversity Center](#)

Special programs are also available for eligible students include:

- [Extended Opportunity Programs & Services \(EOPS\)](#) provides services to eligible income disadvantaged students. These services include textbook award, career academic and personal counseling, school supplies, transportation assistance, tutoring, laptop, calculator and textbook loans, priority registration, cap and gown, workshops, and more.
- The TRiO Student Success Program provides eligible students with a variety of services including trips to 4-year universities, career assessments, and peer mentoring. Students can apply for the program in [Eureka](#) or in [Del Norte](#)
- The [Veteran's Resource Center](#) supports and facilitates academic success for active-duty military, veterans and dependents attending CR through relational advising, mentorship, transitional assistance, and coordination of military and veteran-specific resources.