

Chemistry 365

Biochemistry, Cell & Molecular Biology I

Spring 2022

Instructor:

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Because our class is large and we don't have TAs, I won't be able to respond to emails effectively. Rather than emailing me directly, questions about course material or homework or course logistics should be posted on the "Discussions" page of the Chem 365 Canvas site, where other students can offer helpful comments and solutions. I'll be monitoring these Discussions and I'll address them in class and in office hours. If you do need to email me, I'll do my best to reply within 24 hours.

Course meetings:

Tues and Thurs, 12:30–1:45 PM PST, NE-060 or via Zoom

The original plan was for our class to meet in person in NE-60, but because of the current surge in the pandemic we will start the semester by meeting via Zoom. Links to these meetings are posted in the "Zoom" page of the Chem 365 Canvas site. You will need an SDSU email and Zoom account to join. I strongly recommend that you attend these meetings. If for any reason you can't make it, recordings will be posted on the Canvas site. Because the pandemic has made it difficult for some people to attend our class meetings, I will not be assigning grades for attendance. If we end up going back to in person meetings, compliance with [CSU / SDSU vaccination and facial covering policies](#) will be required.

Office hours:

Times to be determined based on mutual availability, synchronous via Zoom

Office hours will be held using Zoom. I'll create a poll during the first week of class to find times that work best for everyone. Once we decide on times, I'll post links to the meetings in the "Zoom" page of the Chem 365 Canvas site. I think you'll find that office hours are the best way to discuss questions about course material and homework. Some of the questions you'll have will be difficult to address on the Discussions page or by email. Luckily, such questions are usually much easier to talk about in person or, in our case, over Zoom. Office hours will not be recorded.

Textbook and course material:

Our textbook is *Fundamentals of Biochemistry: Life at the Molecular Level*, 5th Edition, D. Voet, J. Voet & C.W. Pratt (John Wiley & Sons, Inc.)

An eBook version of the text is provided by [Immediate Access](#) for free through the add/drop date. After that, your SDSU student account will be charged a special reduced price for use of the eBook for the remainder of the semester, unless you opt-out by 11:59 PM on the add/drop date. You can visit <http://www.shopaztecs.com/immediateaccess> for

additional information about Immediate Access pricing, digital subscription duration, print add-ons, opting out, and other frequently asked questions.

A link to the eBook is posted in the “Modules” page of the Chem 365 Canvas site. Additionally, as the course progresses, other course materials including readings, videos, homework, and discussion questions will also be posted to the Canvas site. I’ll make announcements about where to find these items during class.

Course details:

Prerequisites: Chemistry 232 and 232L, Biology 203 and 203L

Course description: Chem 365 is the first in a series of integrated courses: Chem 365, Biol 366, Biol 366L, Biol 567, and Biol 567L. As such, this course is designed to provide you with the tools to succeed in your future upper division biology courses. But Chem 365 does more than just that. It describes a framework for studying and understanding biological systems at their most fundamental level—the molecules that make them up. Ultimately, these molecules and their collective interactions are responsible for all the complex phenomena observed in the living world. Fostering an appreciation for these incredible molecules is the main goal of the course. Along the way, we will address several more specific learning goals, including those listed below

Specific learning objectives:

- 1) identify the structures and chemical properties of important biomolecules and biopolymers. These include nucleotides and nucleic acids, amino acids and proteins, carbohydrates and polysaccharides, and lipids and membranes;
- 2) connect the structures and chemical properties of these molecules to their modes of interaction and, ultimately, to their collective biological functions;
- 3) communicate the “central dogma” of molecular biology, including the molecules and processes involved, and situations where the central dogma is violated;
- 4) predict whether a biochemical process will occur or not using thermodynamic principles, with special emphasis on the role of entropy;
- 5) apply basic mathematical equations to predict binding yields, buffering capacity, cooperativity, and enzyme kinetics and inhibition

Resources available to students: The text is the primary resource for the course. A link to the eBook is posted in the “Modules” page of the Chem 365 Canvas site.

Exams: There will be 3 exams, including the final. All exams necessarily will be cumulative, because material from the beginning of the course forms the foundation for what comes next. That said, the primary focus of each exam will be on the most recently covered material.

Homework: There will be weekly homework assigned throughout the semester. If you submit the homework by the due date, and if you can show that you’ve made a serious attempt to solve every problem, then you’ll receive full points for that homework. Otherwise, you’ll receive zero points. Homework submitted after the due date will receive zero points, and there will be no make-up homework. At the end of the semester, your lowest homework score will be dropped.

Participation: During class, we will work example problems together using Zoom polls and group discussions. Outside of class, you will be expected to contribute to the “Discussions” page of the Chem 365 Canvas site, by asking questions about course material and homework, and by providing helpful suggestions to questions posted by others. During group work, it is essential that we use good [netiquette](#) and treat each other with respect. Students who will fail to do so may be subject to disciplinary actions by the University. Please understand that I take this very seriously.

Reading: There will be assigned reading to be completed before each class. Material that we cover in class will build on the reading, so it is important to do the reading before class.

Grading:

Exam 1: 25%

Exam 2: 25%

Final Exam: 25%

Homework: 25%

I may choose to curve each exam to have an average score of around 70%. However, if the class average is higher than 70%, then I will not curve down. At the end of the semester, your final grade will be determined based on the following scale

A = \geq 92.5%

A- = 89.5-92.4%

B+ = 87.5-89.4%

B = 82.5-87.4%

B- = 79.5-82.4%

C+ = 77.5-79.4%

C = 72.5-77.4%

C- = 69.5-72.4%

D+ = 67.5-69.4%

D = 62.5-67.4%

D- = 59.5-62.4%

F < 59.4%

Important dates:

Exam 1: February 17th, in class; covering chapters 1-3 of the text*

Exam 2: April 7th, in class; focusing mainly on chapters 4-7*

Final Exam: May 12th, 10:30-12:30 PST, link TBD; focusing mainly on chapters 8-12*

Please confirm the final exam date here:

https://registrar.sdsu.edu/calendars/final_exam_schedule/spring-2022-final-exam-schedule

*The chapters covered in each exam may vary depending on how fast we’re able to move through the material.

Schedule conflicts: Emergencies happen, especially during a global pandemic. If you have an emergency that conflicts with one of our exams, please let me know as soon as you can. If you know in advance that you have a conflict with one of the exam dates, email

me at least one week beforehand with your reason for why you can't make it. If you miss an exam for any reason other than a valid emergency, and if you did not communicate your conflict to me one week in advance, then you will not be able to make up that exam.

Accommodations: If you are a student with a disability and you need accommodations for this class, please contact Student Ability Success Center (sascinfo@sdsu.edu, sdsu.edu/sasc) to get an accommodation letter as soon as possible. Please allow 10-14 business days for this process. Accommodations are not retroactive, and I can't provide accommodations based upon disability until I've received an accommodation letter from Student Ability Success Center.

Resources for students: A complete list of all academic support services is available on the Student Affairs' [Academic Success](#) website. [Counseling and Psychological Services](#) at (619) 594-5220 offers confidential counseling services by licensed therapists; you can Live Chat with a counselor at http://go.sdsu.edu/student_affairs/cps/therapist-consultation.aspx between 4:00pm and 10:00pm, or you can call San Diego Access and Crisis 24-hour Hotline at (888) 724-7240.

Student Privacy and Intellectual Property: [The Family Educational Rights and Privacy Act](#) (FERPA) mandates the protection of student information, including contact information, grades, and graded assignments. I will use Canvas to communicate with you, and I will not post grades or leave graded assignments in public places. Students will be notified at the time of an assignment if copies of student work will be retained beyond the end of the semester or used as examples for future students or the wider public. Students maintain intellectual property rights to work products they create as part of this course unless they are formally notified otherwise.

Religious observances: According to the University Policy File, students should notify their instructors of planned absences for religious observances by the end of the second week of classes.

Statement on Cheating and Plagiarism: The University adheres to a strict [policy](#) regarding cheating and plagiarism. The California State University system requires instructors to report all instances of academic misconduct to the Center for Student Rights and Responsibilities. Academic dishonesty will result in disciplinary review by the University and may lead to probation, suspension, or expulsion. Instructors may also, at their discretion, penalize student grades on any assignment or assessment discovered to have been produced in an academically dishonest manner. The [Student Conduct Code](#) prohibits conduct disruptive to instruction, including academic dishonesty and the unauthorized recording, dissemination, or publication (including on websites or social media) of lectures or other course materials.

SDSU Economic Crisis Response Team: If you or a friend are experiencing food or housing insecurity, or any unforeseen financial crisis, visit sdsu.edu/ecrt, email ecrt@sdsu.edu, or walk-in to Well-being & Health Promotion on the 3rd floor of Calpulli Center.

Statement on sexual violence: As an instructor, one of my responsibilities is to help create a safe learning environment on our campus. I am required to share information regarding sexual violence on SDSU's campus with the [Title IX](#) coordinator, Gail Mendez (619-594-6464), who will contact you to let you know about support services at SDSU and

possibilities for holding accountable the person who harmed you. If you do not want the Title IX Officer notified, you can speak confidentially SDSU's Sexual Violence Victim Advocate (619-594-0210) or Counseling and Psychological Services (619-594-5220, psycserv@sdsu.edu).

Land acknowledgment: For millennia, the Kumeyaay people have been a part of this land. This land has nourished, healed, protected and embraced them for many generations in a relationship of balance and harmony. As members of the San Diego State University community, we acknowledge this legacy. We promote this balance and harmony. We find inspiration from this land, the land of the Kumeyaay.

Disclaimer: I have made every effort to make this Syllabus as complete and accurate as possible. But there will inevitably be changes during the semester. These will be posted on the Chem 365 Canvas site and announced in class. It is the responsibility of each student to pay attention and be aware of these changes.