

# Chemistry 365

## Biochemistry, Cell & Molecular Biology I

### Spring 2021

#### Instructor:

Rees Garmann

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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 email me, I'll do my best to reply within 24 hours.

#### Course meetings:

Tues and Thurs, 12:30–1:45 PM PST, synchronous, via Zoom

Our regular class meetings will be held via Zoom during the times listed above. Links to these meetings are posted in the "Zoom" page of the Chem 365 Canvas site. You will need an SDSU email, an associated Zoom account, and a stable internet connection to join. Attendance is required, since we'll be engaging in group work together that will count for points toward your final grade. For students that can't participate in group work because they're living in a sufficiently different time zone, send me an email—we'll figure something out.

#### 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 office hours in the "Zoom" page of the Chem 365 Canvas site. I've found that office hours are the best way to discuss questions about course material and homework. Some of the questions you'll encounter during the semester will be hard to answer 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.

#### 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 of February 2nd, 2021. 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, February 2nd, 2021. 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. And you can email [immediateaccess@aztecmail.com](mailto:immediateaccess@aztecmail.com) if you need help accessing the eBook or opting out of it.

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—and 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, binding 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 will be necessarily 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, sometimes in breakout rooms. Outside of class, we will 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. Participation points for the course will be awarded based on your attendance and engagement in these group activities. During group work, it will be essential that we use good [netiquette](#) and treat each other with respect. Students who fail to do so will forfeit all

of their participation points for the semester and may be subject to further disciplinary actions by the University.

*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: 20%

Participation: 5%

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 18<sup>th</sup>, in class; covering chapters 1-4 of the text\*

Exam 2: April 6<sup>th</sup>, in class; focusing on chapters 5-9\*

Final Exam: May 13<sup>th</sup>, 10:30-12:30 PST, link TBD; focusing on chapters 10-12\*

Please confirm the final exam date here:

[https://registrar.sdsu.edu/calendars/final\\_exam\\_schedule/spring\\_2021\\_final\\_exam\\_schedule](https://registrar.sdsu.edu/calendars/final_exam_schedule/spring_2021_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 before the exam 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, I am eager to help you. Please contact Student Ability Success Center at (619) 594-6473 to get an accommodation letter as soon as possible. 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](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.

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

*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.