

## Introductory Biochemistry, CHEM 3700, Spring 2019, 3 Credits

Section 1, MWF, 1:30-2:20 PM, BNR102

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**Office Hours:** Mon 3:00-4:00 PM (Widt 241) or by appointment.

**Course Content:** In this course, we will cover in one semester the range of topics typically included in the field of biochemistry. Chem 3700 is appropriate for most pre-health professionals, and other pre-professionals who need a complete coverage of biochemistry in less depth. This course contrasts with the chemistry 5700/5710 series, where the same topics are covered in more depth over two semesters. The overall goal of Chem 3700 is to provide students with the big picture of all of the topics typically covered in biochemistry. Further, students will be given more detailed views of the major classes of biological macromolecules, the metabolic pathways used in energy and precursor production, and the information pathways. Prerequisites for the course include chemistry 2300 or 2320 or equivalent.



**Text:** Recommended, but not required. *Biochemistry: A Short Course*, by Tymoczko, Berg, and Stryer.

The most recent edition is the 3rd edition (ISBN 1-4641-2613-5). The 1<sup>st</sup> or 2<sup>nd</sup> editions will work fine as well. Softbound, spiral, and ebook versions are available.

**Canvas:** The lecture notes, exam keys, grade sheet, etc. for this course will be available through the course Canvas page. This site is found at [canvas.usu.edu](http://canvas.usu.edu). Username = Banner ID; Password = Banner pin. Only students who are registered for the class will have access to the course Canvas page.

**Instruction Mode:** Blended

**Credit hour designation:** Each 50 min of lecture carries the expectation of a minimum of two hours of out of class student work.

**Lecture Recordings:** The audio portion of each lecture is recorded and made available after class in Canvas. In addition, video recordings of lectures from two years ago are available in Canvas. Note that the content from two years ago is similar, but not identical to, the content from this year. You are responsible on quizzes and exams for the content from this year.

**Exams:** There will be three mid-term exams and one final exam in this course. The three mid-term exams are worth 99 points each and will cover material presented in lecture and from the textbook readings. The exams will have 33 multiple choice questions with each question worth 3 points. The final will have 66 multiple choice questions worth 3 points each for a total of 198 points. Approximately 33 questions on the final will cover lecture material since the third exam, with the remaining questions on the material covered on the three exams. All exams are closed book and are strictly limited to the time assigned for the exam. No internet connected devices. You may have a simple calculator. Exams will be administered at the USU Testing Center and will be available over several days. Please schedule a place to take the exam well in advance. Any exam not completed by the closing day and time will be scored as a zero with no make-up exam. <https://testing.usu.edu/>

**Review Sessions:** Review sessions will be held before each exam. The sessions will be held as noted in the calendar below.

**Quizzes:** There will be 18 online quizzes, one for each learning module. Each quiz will have 5 questions with each question worth 1 point. Quizzes will be taken online through Canvas. You can take the quizzes anytime during the open window before the next exam. Once the window is closed, there will be no make-ups. Each quiz can be taken up to two times, with the best grade earned being recorded. Some questions will change for each try on the quiz.

**Grading:** Grades will be based on a total of 585 points. At a minimum, the University Grading Scale will be used: A 100-93.00%, A- to 90.00%, B+ to 87.00%, B to 83.00%, B- to 80.00%, C+ to 77.00%, C to 73.00%, C- to 70.00%, D to 60.00%, F below 60.00%.

1st Hour Exam .....	99 pts.
2nd Hour Exam .....	99 pts.
3rd Hour Exam .....	99 pts.
Comprehensive Final Exam .....	198 pts.
Eighteen quizzes worth 5 pts each .....	90 pts.
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Total	585 pts.

**Missed Exams:** Anyone missing one of the mid-term exams for legitimate reasons as specified in the USU General Catalog will be eligible to take the make-up exam offered on 4/16/19 **by appointment only**. This makeup exam will be comprehensive through the material covered to that date in the course. This is the only make-up exam that will be offered. Make up exams will only be given by approval of the instructor. You must contact me either before or within a week of the missed exam to schedule the make-up exam. Missed exams that are not made-up will be scored as zero.

**Assessment:** Assessment of the course will include the University online IDEA evaluation conducted at the end of the course. Information from the evaluation will be used to improve the course.

**Provisions:** This course will adhere to the USU Academic Policies and Procedures Manual found at the web site <http://www.usu.edu/policies/> and in the student code <http://www.usu.edu/student-services/studentcode/>. Any student with a disability who requires accommodation must contact the instructor. The disability must be documented by the Disability Resource Center. Course materials may be requested in alternative formats.

**How to succeed in this class:** Your success depends on how you score on the quizzes and exams. The course is graded on the university grading scale with no curving.

Suggestions for how to do well on the quizzes and exams-

- Before each class, read the suggested chapter material in the book and look at the lecture notes in Canvas. This priming exercise will make lectures easier to follow.
- Attend class. As soon as possible after lecture, go over your notes and fill in parts that you do not fully understand using material from the textbook, audio or video recordings, or study group discussions. Use the practice exam questions to test your level of preparation.
- Writing is important to learning. Highlighting with a marker is not an effective way to transfer knowledge to your brain. Rather, putting concepts in your own words and writing them down results in assimilation of the concepts. Take notes in class. Upgrade your notes after class.
- Make flash cards. This is one method for writing concepts down and can be effective in remembering key facts.
- Study groups. Join a peer group of 2-4 student that get together 1-3 times per week to go over the notes and practice exams.
- Take your quizzes on time. It is important to take the quizzes as you progress through the modules. Sign up early for the exams in the testing center to make certain you have a testing time.
- Ask questions. If something is unclear, send a question to the professor via email. Talk in your study groups. Go to the web and read (e.g. Wikipedia) or watch videos (Khan Academy).

Day	Date	Lecture	Module	Topic	Chapter 3 <sup>rd</sup> ed*	Chapter 2 <sup>nd</sup> ed*	Chapter 1 <sup>st</sup> ed*	Notes
M	1/7	1	1	Introduction/Organic Review	1,2	1,2	1,2	Quiz 1-5 open
W	1/9	2	2	Protein Structure and Function	3	3	3	
F	1/11	3		“ “	4	4	4	
M	1/14	4		“ “				
W	1/16	5	3	Enzymes	6	6,7	5, 6	
F	1/18	6		“ “	7	8.1-8.2	7	
M	1/21			Holiday				
W	1/23	7	4	Regulatory Strategies	8,9	9.1-9.3	8	
F	1/25	8		“ “				
M	1/28	9	5	Nucleic Acids	33	33	32	
W	1/30	10		“ “				
F	2/1	11		“ “				
M	2/4	12		In class review				
<b>M-R</b>	<b>2/4-7</b>		<b>1-5</b>	<b>Exam 1- testing center M to R</b>				Quiz 1-5 close R at 8 PM
W	2/6	13	6	Carbohydrates	10	10	9	Quiz 6-8 open
F	2/8	14		“ “				
M	2/11	15	7	Lipids and Membranes	11	11	10	
W	2/13	16		“ “	12	12	11	
F	2/15	17		“ “	13	13.1-13.4	12	
M	2/18			holiday				
W	2/20	18	8	Metabolism	14	14	13	
F	2/22	19		“ “	15	15	14	
M	2/25	20		In class review				
<b>M-R</b>	<b>2/25-2/28</b>		<b>6-8</b>	<b>Exam 2 at testing center M-R</b>				Quiz 6-8 close R at 8 PM
W	2/27	21	9	Glycolysis	16	16	15	Quiz 9-13 open
F	3/1	22		Gluconeogenesis	17	17	16	
M	3/4	23		“ “				
W	3/6	24	10	TCA Cycle	18	18	17	
F	3/8	25		“ “	19	19	18	
M	3/18	26	11	Ox Phosph.	20	20	19	
W	3/20	27		“ “	21	21	20	
F	3/22	28	12	Photosynthesis	22	22	21	
M	3/25	29		“ “				
W	3/27	30	13	Calvin/Pentose Phosphate	23, 24	23,24, 25	22,23, 24	
F	3/29	31		Glycogen Metabolism	25,26	26	25	
M	4/1	32		In class review				
<b>M-R</b>	<b>4/1-4</b>		<b>9-13</b>	<b>Exam 3 at testing center M-R</b>				Quiz 9-13 close R at 8 PM
W	4/3	33	14	Fatty Acid Metabolism	27, 28	27, 28	26, 27	Quiz 14-18 open
F	4/5	34	15	Amino Acid Metabolism	30	30	31	
M	4/8	35		“ “	31	31.1-31.2	29	
W	4/10	36	16	DNA Replication	34	34	33	
F	4/12	37		“ “				
M	4/15	38	17	RNA Synthesis	36	36	35	
W	4/17	39		“ “	37, 38			
F	4/19	40	18	Protein Synthesis	37, 38, 39, 40	38, 39, 40	37, 38, 39	
M	4/22	41		In class review				
<b>R-W</b>	<b>4/25-5/1</b>		<b>1-18</b>	<b>Final Testing Center</b>				Quiz 14-18 close Wed at 8 PM

\*Stryer edition as noted. Read all sections unless noted otherwise.