

## Biochemistry 410 Fall Semester 2017

Room 108 Biochemistry Building

**Section 509-512** - TR 11:10AM-12:25PM

**Section 517-520** - TR 12:45PM-02:00PM

Dr. Leisha Mullins

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**Office Hours:** Tuesday and Thursday 2:30 – 4:30 PM.

**Course Objectives:** The overall emphasis in Biochemistry 410 – Comprehensive Biochemistry is to give you the fundamental understanding of the principles and concepts of biochemistry as a scientific discipline with emphasis on the molecular and macromolecular design, conformation, function and dynamics of proteins, nucleic acids and carbohydrates.

**Prerequisites:** One year of organic chemistry is a required prerequisite. Biochemistry is an advanced interdisciplinary subject requiring expertise in biology, chemistry and mathematics. You are expected to remember and be able to apply the general concepts of chemical equilibria, pH, pK and organic functional groups.

**Textbook:** Fundamentals of Biochemistry 5th, by Voet, Voet and Pratt. To do well in this class, you should read the appropriate chapter(s) in the text **PRIOR** to the day(s) it will be discussed in class. **IF YOU DO NOT READ THE TEXT, YOU WILL NOT DO WELL IN THIS CLASS.** It will not be possible to cover all the important material in class, but you will be told what specific information you need to know (Chapter Objectives).

**Grading:** The course grade will be determined solely from the total points accumulated from the exams, homework and quizzes (total possible points = 600). **There will be no opportunity to earn extra credit by doing extra work.** You must get at least 60% of the required points (357) to pass (D or above). Grade breakdowns will be as follows:

Percentage	Final Point total	Final Grade
90-100%	537-600	A
80-89%	477-536	B
70-79%	417-476	C
60-69%	357-416	D
0-59%	0 - 356	F

**Examinations:** Three exams: all exams count toward the final grade (i.e. none are discarded)

Exam #1	W 09/27	100 pts	7:30 – 9:00PM	Kleberg 115
Exam #2	W 10/25	100 pts	7:30 – 9:00PM	Kleberg 115
Exam #3	W 11/29	100 pts	7:30 – 9:00PM	Kleberg 115

<b>Final Exam:</b>	<b>Section 509-512</b> - TR 11:10AM-12:25PM	F 12/08	3-5 pm	150 pts
	<b>Section 517-520</b> - TR 12:45PM-02:00PM	W 12/13	8-10 a.m.	150 pts

All finals will be in Biochemistry 108

### **Recitation sessions:**

Section	Time	Room	TA
509	T 06:30PM-07:20PM	BICH 108	Mengqui Jiang (jmq811@tamu.edu)
510	W 05:20PM-06:10PM	BICH 108	Benjamin Osborn (ruy343@tamu.edu)
511	R 06:30PM-07:20PM	BICH 106A	Dongyin Su (dongyin@tamu.edu)
512	R 05:20PM-06:10PM	BICH 106A	Dat Truong (dattruong89@tamu.edu)
517	R 04:20PM-05:10PM	BICH 106A	Dat Truong (dattruong89@tamu.edu)
518	T 05:30PM-06:20PM	BICH 108	Mengqui Jiang (jmq811@tamu.edu)
519	W 03:00PM-03:50PM	BICH 108	Benjamin Osborn (ruy343@tamu.edu)
520	R 05:30PM-06:20PM	BICH 107	Dongyin Su (dongyin@tamu.edu)

**Recitation:** You are required to attend your scheduled recitation section. The recitation session are designed as small group sessions to practice problems and to discuss difficult concepts in more depth.

**Assignment Policy:** All assignments will be due on the dates indicated in the syllabus. Any changes in the due dates will be announced in class and posted to eCampus. It is your responsibility to be aware of any changes. **All university excused makeup quizzes must be completed before your next scheduled recitation class begins.** Absences for doctor's appointments and illnesses do not allow you to turn in the homework late because you can FAX, scan or picture/email your homework or contact me via email before the start of class. This mode of turning in an assignment is only acceptable for doctor's appointments for illness and you must turn the paper copy along with the doctor's note by the next class period. The purpose is to document your completed work as of the due date, therefore we must be able to read the assignment but only the paper copy will be graded. **For ALL University excused trips, you must turn in or complete assignments BEFORE you leave for the trip!** The instructor and the TAs are under no obligation to provide an opportunity for the student to make up work missed because of an unexcused absence.

**Assignments:**

Recitation "Quizzes"	Best 9 of 10 X 10 pts assignments	90 points
Homework	3 x 20 points	60 points
Exams	3 x 100 points	300 points
Final Exam		150 points

**Examination and Quiz information:** The course is cumulative. Material learned at the beginning is relevant to your understanding of topics covered later. A representative set of problems will be available on eCampus. It is your responsibility to master these problems PRIOR to a quiz or examination. The exams and final are comprehensive. The format for the exams will be predominantly multiple choice. The quizzes will be predominantly short answer / structure drawing and the final will be all multiple choice.

Four blank scantrons (gray & white, 8 ½ x 11 in., 150 question, Form no 0-101607-TAMU) will be collected from every student prior to the first exam. These scantrons will be handed out with the exam.

Bring to every exam and quiz: photo I.D., pencil(s) and non-programmable calculator ( ±, √, x, log x, 10x, ln x and ex). Programmable calculators will not be allowed. Any student caught cheating on an exam will receive zero points on that quiz or exam and will be reported for scholastic dishonesty.

**Regrades:** \*\*\*\*Regrade requests must be made IN WRITING no later than ONE WEEK after the exam is handed back. The entire exam will be subject to regrade, not just a specific problem. NO REGRADES will be accepted after that time. \*\*\*\*

**Attendance Policies:** It is YOUR responsibility to attend lectures and recitation. It is to your advantage to attend lectures, as most (but not all) of the exam material will be covered during lecture.

**Attendance at exams is mandatory.** You must have a university-excused absence to make up exams, see <http://student-rules.tamu.edu>. Per the student rules, if a student is seeking an excused absence, the student must notify the instructor as soon as possible after the absence. **If the absence occurs the same day as a scheduled exam or other graded procedure, the student must notify his/her instructor or department by the end of the next working day after the absence in order to ensure full rights.** The student is responsible for providing **satisfactory** evidence to the instructor within one week of his or her absence return to substantiate the reason for absence. If the absence was excused, the instructor must either provide the student an opportunity to make up the exam or other work missed or provide a satisfactory alternative. The instructor is under no obligation to provide an opportunity for the student to make up work missed because of an unexcused absence.

If it becomes necessary to change the date of a regularly scheduled exam, all efforts will be made to avoid class conflicts. If a class conflicts remains, the student will be required to take the rescheduled exam within 1 day of the new exam schedule. **Class conflicts for announced exams (regularly or rescheduled) do not constitute a university excused absence such that you take the makeup exam rather than the regular exam.**

**Religious Holidays:** TAMU allows excused absences for religious holidays, see <http://student-rules.tamu.edu>. I am always willing to work with students in regards to these religious holidays. **However, it is your responsibility to inform me several days prior to the holiday regarding your intended absence.** It is not acceptable, to inform me the day of, or the day after an exam that you missed the exam because of the observance of a religious holiday. As with any other university excuse, I expect proper documentation that you attended the religious event. Again, talking with me prior to the event allows us to avoid any problems.

**Make-up exams:** Make-up exams for any of the regular exams will only be given to students who miss the scheduled exam for an officially recognized absence. **The format of the make-up exam may be different from the regular exam ( e.g. oral, written or all multiple choice).** Students with non-officially recognized absences are not eligible to take the make-up exam and will receive a score of 0 for the missed exam. Please note: You must have my prior permission to take a makeup exam and all makeup exams are given during the day. Since most exam absences are due to short duration illness, a tentative makeup exam schedule is shown below. You will be expected to rearrange your schedule to take the exam at the indicated time! Documented long term illness will be handled in a different manner than indicated below!

Make-up for Exam #1	Friday, September 29	9 - 11 AM
Make-up for Exam #2	Friday, October 27	9 - 11 AM
Make-up for Exam #3	Friday, December 1	9 - 11 AM

**PLEASE NOTE:** The handouts used in this course are copyrighted. By "handouts," I mean all materials generated for this class, which include but are not limited to syllabi, quizzes, exams, lab problems, in-class materials, review sheets, and additional problem sets. Because these materials are copyrighted, you do not have the right to copy the handouts, unless I expressly grant permission.

As commonly defined, plagiarism consists of claiming the ideas, words, writings, etc, of another person as your own work. This means you are committing plagiarism if you copy work of another person and turn it in as your own, even if you should have the permission of that person. Plagiarism is one of the worst academic sins, for the plagiarist destroys the trust among colleagues without which research cannot be safely communicated.

If you have any questions regarding plagiarism, please consult the latest issue of the Texas A&M University Student Rules, under the section "Scholastic Dishonesty."

**American with Disabilities Act (ADA):** The American with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the Department of Student Life for Students with Disabilities in Room 126 of the Koldus Building, or call 845-1637.

**Comments about studying for the course:** Information may be presented during lectures that is not available in the text. Class attendance is recommended. Similarly, there is more information in the text than can be covered in lecture. The lectures are designed to complement the text. Therefore, it is highly recommended that you read the appropriate chapters in the text before the day they will be covered in class. Supplemental Material will be made available on eCampus as needed. All students are encouraged to use the interactive resources placed on eCampus. Finally, it will be beneficial to work the problems sets. They will provide you with opportunities to apply the concepts and principles discussed in class.

**Important Note:** My intention is for this course to be a challenging and rewarding experience for you. The course is difficult but not impossible. This is not a memorization and regurgitation class. Biochemistry is not a passive class. You cannot simply read the textbook or sit in lecture (i.e. not taking notes) and expect to perform well on the exams. You must actively engage your mind by working on the material. The more you work with the material via study, working problems, asking and answering question the better prepared you will be. The bulk of Biochemistry 410 is application. In lecture, we will go over the concepts and work a few problems. We cannot go over all the various possible applications in lecture so you must work problems on your own. If you can work with someone that requires you to answer questions, this helps because you must articulate your thoughts like you would on an exam. Study like you test. Practice bringing the information out. Do not simply "stuff" it in!

You must develop good study habits ASAP. If you study often and effectively, you will succeed in this class. If you wait until the week or the weekend before the exam, you might do O.K. on one or two test, but you will also have difficulties. Learn the concepts, practice applying them, do not memorize "formulas"! However, do not stop at the concepts. The "big picture" is important, but so are the DETAILS that make up the big picture. If you omit the details, there is no big picture!

When I tell you to memorize a structure, equation or number, do so right away. I always tell you what I expect and I mean it and will test on it! Over the course of the lectures, I will emphasize the important material (generally repeating myself many times) and tell you how you will be required to apply and utilize the information. As much as possible in lecture, I will work sample problems. However, due to time constraints, most example problems will be

worked in recitation. There will be recitation quizzes which are designed to keep you up with the material. Additionally, there will be an abundance of problems for you to work. These problems are geared to helping you master the material prior to the exam. Contrary to popular opinion, my tests are not impossible. Challenging yes, but not impossible. They are impossible if you do not work problems. This means working the problems on your own, without help from the notes, textbook or someone else.

If you have any questions please come and see me. I cannot always answer questions during class, but I am available either before or after lecture depending on the class time. Please do not hesitate to call upon me. I try as much as possible to answer email. If your question is too complicated to quickly answer by email, then I will ask you to come to my office. Some emails do get lost, so if I do not reply in a day or two, please check back. Some times rather than replying specifically to you, I will put an announcement on eCampus, so please check there also. While I do my best to answer your questions and make myself available, I am not an on demand service open 24/7. I cannot always drop everything to accommodate your needs, especially the day before the exam. I will not answer emails on the weekend nor after 5 PM the day before an assignment is due or the day before the exam. So plan ahead!

**Good luck and success to you in all of your studies.**

**Tentative Recitation Schedule  
Biochemistry 410     Fall Semester 2017**

Week	Date	Topic	Quizzes
1	08/29 to 08/31	Thermodynamics	
2	09/05 to 09/07	Acid Base Chemistry	Thermodynamics quiz
3	09/12 to 09/14	AA acid/base	Amino Acid Quiz
4	09/19 to 09/21	Protein Structure / Folding	AA/Peptide Acid/Base quiz
5	09/26 to 09/28	NO RECITATION	
6	10/03 to 10/05	Hemoglobin	Hemoglobin quiz
7	10/10 to 10/12	Enzymes	Enzymes Quiz
8	10/17 to 10/19	Enzymes	Enzymes Quiz
9	10/24 to 10/26	NO RECITATION	
10	10/31 to 11/02	Protein Techniques	
11	11/07 to 11/09	Nucleotides	Nucleotide Structure quiz
12	11/14 to 11/16	Carbohydrates, lipids and Membranes	Carbohydrate quiz, lipid quiz (double quiz)
13	11/21 to 11/23	NO RECITATION	
14	11/28 to 11/30	NO RECITATION	

## Lecture and Exam Schedule ( ± One Lecture)

		Lecture	Recitation
T 08/29	Chapter 1	Introduction /Thermodynamics	
Th 08/31	Chapter 1	Thermodynamics	
T 09/05	Chapter 2	Non Covalent bonds and weak acid base chemistry	Thermodynamics Quiz (10 pts)
Th 09/07	Chapter 4	Amino Acids - Structure	
T 09/12	Chapter 4	Amino acids –Acid Base Properties	Amino Acid Structure Quiz
Th 09/14	Chapter 5.1/6	Peptide – Acid Base : Proteins: Primary	(10 pts)
T 09/19	Chapter 6	Proteins: Primary and secondary	Amino Acid / Peptide
Th 09/21	Chapter 6	Proteins: Globular and Fibrous Proteins	Structure Acid Base Quiz
		<b>Homework 1 Due in Class</b>	(10 pts)
T 09/26	Chapter 6	Protein: Folding and Diseases	
<b>W 09/27</b>		<b>Exam 1</b>	<b>No recitation</b>
Th 09/28	Chapter 7	Hemoglobin	
T 10/03	Chapter 7	Hemoglobin	Hemoglobin quiz (10 pts)
Th 10/05	Chapter 11/12	Enzymes	
T 10/10	Chapter 11/12	Enzymes	Enzyme Quiz (10 pts)
Th 10/12	Chapter 11/12	Enzymes	
T 10/17	Chapter 11/12	Enzymes	Enzymes Quiz (10 pts)
Th 10/19	Chapter 11/12	Enzymes	
		<b>Homework 2 Due in Class</b>	
T 10/24	Chapter 5	Protein Techniques and Methods	
<b>W 10/25</b>		<b>Exam 2</b>	<b>No recitation</b>
Th 10/26	Chapter 5	Protein Techniques and Methods	
T 10/31	Chapter 3	Nucleotides & Nucleic Acids Nucleotide Techniques	
Th 11/02	Chapter 24	Nucleic Acid Structure	
T 11/07	Chapter 8	Carbohydrates – Mono Structure	Nucleotide Structure quiz (10
Th 11/09	Chapter 9	Lipid Structure	pts)
T 11/14	Chapter 8	Complex Carbohydrates	Lipid Structure Quiz (10 pts)
Th 11/16	Chapter 9	Membrane	Carbohydrate Structure Quiz (10
			pts)
T 11/21	Chapter 9	Membrane	No recitation
		<b>Homework 3 Due in Class</b>	
<b>Th 11/23</b>		<b>THANKSGIVING</b>	
T 11/28	Chapter 10	Membrane Transport	No recitation
<b>W 11/29</b>		<b>Exam 3</b>	
Th 11/30	Chapter 10	Membrane Transport	
		Membrane Transport “Quiz/Homework” Due in class	
		but will be accepted on Tuesday Dec 5 (10 pts)	
T 12/05		Flu	
<b>F 12/08</b>	<b>11:10AM-</b>	<b>Biochemistry Room 108</b>	
<b>Final Exam</b>	<b>12:25PM</b>	<b>3-5 PM</b>	
	<b>Class</b>		
<b>W 12/13</b>	<b>12:45PM-</b>	<b>Biochemistry Room 108</b>	
<b>Final Exam</b>	<b>02:00PM</b>	<b>8-10 AM</b>	
	<b>Class</b>		

We will cover Signal Transduction (chapter 13) if we get ahead in the lecture schedule

## **Guidelines for students enrolled in Biochemistry 410**

### Recitation Attendance

- Attendance is not optional. You must attend recitation each scheduled week.
- You must stay for the entire class.
- You must notify the TA of University excused absences before the missed class.
- If you are sick, a doctor's note is required for the assignment to count
- Missing recitation for a short term illness does not entitle you to an extra week for the assignment due in the missing recitation.
- For ALL University excused trips, you must turn or complete assignments BEFORE you leave for the trip!

### Quizzes

- If we can't read it, we won't grade it.
- Do not come late to recitation. Do not come to recitation immediately before an end of class quiz. Do not leave immediately after a beginning of class quiz. Doing either will earn you a zero on your quiz, even if the quiz is at the end of class.

### Homework presentation rules for BICH 410

- Always include the question sheet as a cover sheet.
- NEVER put your answers on the question sheet
- You must staple, NOT paper clip your pages
- You need to answer the questions in order
- You must write neat and clearly
- Do not squeeze your answers into the smallest space possible!
- Skip lines between the various parts of a single question and between questions
- Each equation should have its own line
- BOX your answers
- Show COMPLETE work – give your thought process!
- Annotate your work (e.g. for "Lysine", for "Sodium", for "this fatty acid", "in round 1")
- Do not write on the back of a page. Please only use the front. It slows down the grading if we need to flip the page front to back to front over and over.

Failure to follow the homework presentation rules will result in points deducted from your assignments

### Regrades

- Regrade requests must be made within one week of the day the graded assignment is ready for turn back (not one week from the day you pick it up!).
- All recitation request go to the TA.
- Any "missing" recitation points on eCampus must be brought to the attention of the TA with in one week of the posting of points by Dr. Mullins

### Practice Problems

- It is your responsibility to MASTER the practice problems in a timely manner.
- Most, if not all, of the quiz questions and exam questions will be of the type covered in the practice problems
- You should maintain a single spiral notebook where you work all sample problems.
- When you come to me to ask how you can get a better grade, I will ask to see the notebook!