

CHEMISTRY C485 BIOSYNTHESIS AND PHYSIOLOGY **(Biochem II) FALL 2015**

INSTRUCTOR: Theodore Widlanski (please call me Ted)
Office - Chemistry 329B
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LECTURE: 8:00 – 8:50 MWF

OFFICE HOURS: M. 9:00-10:00 (C311) and by appointment
Office hours on Wed. Review problem session 7:00-8:30 (C 033)

I encourage you to make a habit out of using office hours, whether with me, or the associate instructor. If you are having difficulties with the material, or personal and/or health problems are starting to affect your academic performance, get help immediately. The instructor and associate instructors will make every reasonable effort to ensure that you obtain the help you need to master the material. However, if you fall too far behind, it will be very difficult to catch up! Scheduled problems sessions on Wed. will be used to review the material for the Friday quiz. If you cannot make office hours feel free to schedule a convenient time to meet me.

Associate Instructor: Michael Priestly
Email: mpriestl@umail.iu.edu
Office Hours: TBA. Review problem session Th Time TBA location TBA

WEB SITE; ANNOUNCEMENTS AND POSTS: All announcements, posts, information (including this syllabus) can be found at:
<http://courses.chem.indiana.edu/c485/default.asp>

Important information and deadlines for chemistry students (as well as standard course policies) may be found at:
http://courses.chem.indiana.edu/documents/Student_Policies.pdf

COURSE PHILOSOPHY: You are what you eat. I would like you to understand how that works. Accordingly, we will focus on basic physiology and metabolism (catabolism and anabolism). The material is very broad, but also very complex. Depending on your background, you may be more comfortable in some areas of the course rather than others. Don't be discouraged! Because of the complexity of the material, the course is structured so that you can be successful without mastering every detail of the material. What will count most is a good overall understanding.

COURSE GOALS: At the end of this course, you should have a working understanding of the logic of metabolic pathways, how energy is generated by the body and how basic biomolecules are assembled and degraded. You should also have a good working knowledge of the basis of energy generation and how it is used in different situations. This course will also introduce you to metabolic diseases, including diabetes and a variety of enzymopathies. Along the way, we will be dissecting and discussing a number of important and topical theories about our understanding of diet and health. Much popular understanding of these subjects is flawed, and we will enjoy the opportunity to debunk a number of myths about diet, exercise and lifestyle choices.

In addition to developing a solid grounding in the understanding of metabolism, this class will help you perfect a number of important learning strategies and useful skills. Primary among these will be analytical thinking skills and the ability to correlate large amounts of diffusely-related information. From time to time the instructor will point these out opportunities and provide didactic explanations of how these techniques operate and how best to master them.

TEXT: Berg, Tymoczko, and Stryer, Biochemistry, (7th Edition)

If you have not already obtained a copy of the Student Companion to the text, it is strongly advised that you do so. Homework questions will regularly be assigned from the Student Companion, and well as supplements to be distributed.

Useful texts: No Biochemistry text is perfect. B.T.S. is a good text, but is a bit deficient in amino acid metabolism. I will supplement the text with online notes in this area. In addition, Garrett & Grisham has a slightly more comprehensive section on this material, and McMurry and Begley (The Organic Chemistry of Biological Pathways) provides excellent mechanistic information on the transformations we will discuss. Both of these texts will be on reserve in the library.

eMAIL: Please do not use email to ask complicated questions. Questions on subject material should be handled during office hours. Do not use email as a surrogate for face-to-face communication. You should email the instructor if your question cannot wait for office hours, an appointment, or the next class meeting. Do not email me using Oncourse, as I do not routinely monitor this site.

GRADES and EXAMS: Course grades will be determined based on four one hour exams and a two hour comprehensive final. Course grades are based on total points, not averages. The hour exams will be given during class periods. The final examination will be held during the scheduled examination period. Each in-class exam will count for 100 points plus any available extra credit. The final exam is worth 200 points plus any available extra credit. Your final score will be a sum of all the exams plus any points acquired from quizzes. There will be no make-up exams. The lowest hour exam will be dropped. You may miss hour exams without penalty (provided you follow proper

notification protocol). The grade on the comprehensive final (divided by 2) will be substituted. If you come to an hour exam, you must take it. You cannot walk out without handing in your exam. **If you choose to skip an hour exam, you must email both me and the AI prior to the exam (by 12 the night prior to the exam) to tell us you are not taking it, or you will receive a grade of zero for the exam.** The final exam is not optional. Students are strongly advised to take all hour exams.

There will be a review session during the week preceding all hour exams. Tentative scheduling- Tuesday 5:30-7:30.

Quizzes

There will be a weekly quiz on Friday whenever there is no hour exam. Each quiz will be worth 5 points and there are ten total. You should think of these quizzes as an opportunity to earn extra credit points. There are no make-up quizzes. Quizzes will be based on review questions that are posted on the course web site. Quizzes usually have 10 questions worth ½ point each. Quizzes will be rounded up to the nearest whole point. No ¼ pt partial credit.

Grading Scale

Instructor's discretion	A+
425 or higher	A range
424-325	B range
324-250	C range
249-200	D
<200	F

Plus and minus grades will be assigned.

Regrade requests are permitted on all tests except the final. To receive consideration, they must be submitted in writing no later than the class period immediately following the period when tests were returned. **No late regrades.** Please look carefully at the answer key before submitting a regrade. The entire test will be regraded.

EXAM DATES: Please see topic list.

WITHDRAWALS: Students should familiarize themselves with the various withdrawal and drop dates stipulated by the College. All withdrawals and paperwork pertinent to withdrawals are handled in the UGO, Chemistry 012. The **professor's signature is not required.** Please see http://courses.chem.indiana.edu/documents/Student_Policies.pdf

INCOMPLETES: Incompletes are only allowed for reasons of prolonged illness or similar distress. The regulation is as follows: "A grade of I may be given only when the work of the course is substantially completed and when the student's work is of passing

quality." **If you skip more than one hour exam, you cannot get an I in this class.**
Please see http://courses.chem.indiana.edu/documents/Student_Policies.pdf

HOMEWORK PROBLEMS: Suggested problems will be assigned. Work as many of them as you need to master the concepts involved. Problem sets will not be graded. It is appropriate for students to work together on assigned problems. **50% or more of the hour exam questions will be similar to or identical to homework problems and review problems.**

HANDOUTS AND COURSE ASSIGNMENTS: All handouts and assignments will be put on the web. If you miss a lecture and do not get a handout or an assignment, or lose your handout, do not come to the lecturer or the AI to get them. You can get them off the web site or from a friend. Course notes will not be available from the instructor, but class summaries and review sheets will be posted periodically on the web site.

Professional Conduct and Behavior: It is essential that you maintain a professional attitude toward classwork. Learning the material is your job and your responsibility. Unprofessional behavior, such as repeated lateness to lecture, sleeping in class, cell phone interruptions, eating and drinking (**eat breakfast before class**) or other disruptive activity is unacceptable. Come to class prepared to learn and participate. The instructor will enforce suitable standards of professional conduct by whatever means he deems appropriate.

Cheating: Don't do it. If we catch you, you will get an F. It doesn't make sense to risk your academic career for the sake of trying to garner a few extra points on an exam.

C-485 TOPICS LIST- APPROXIMATE DATES AND SCHEDULE

<u>Week</u>	<u>Date</u>	<u>Topic</u>	
1	Aug. 24	Review glycolysis & Krebs cycle	
	26	Review glycolysis & Krebs cycle	
	28	Photosynthesis Ch 19	quiz 1
2	31	Photosynthesis Ch 19	
	Sept 2	Photosynthesis Ch 19	
	4	Calvin Cycle Ch 20	quiz 2
3	7	Labor Day	
	9	Calvin Cycle Ch 20	
	11	Calvin Cycle Ch 20	quiz 3
4	14	Calvin Cycle Ch 20	

	16	Glycogen Metabolism Ch 21	
	18	HOURLY EXAM 1	
5	21	Glycogen Metabolism Ch 21& 14	
	23	Glycogen Metabolism Ch 21	

6	25	Glycogen Metabolism Ch 21	quiz 4
	28	Fatty Acid Metabolism Ch 22	
	30	Fatty Acid Metabolism Ch 22	
7	Oct 2	Amino Acid Catabolism Ch 23	quiz 5
	5	Amino Acid Catabolism Ch 23	
	7	Amino Acid Catabolism Ch 23	
	9	Fall Break	

8	12	Amino Acid Catabolism Ch 23	quiz 6
	14	Amino Acid Biosynthesis Ch 24	
	16	HOURLY EXAM 2	
9	19	Amino Acid Biosynthesis Ch 24	quiz 7
	21	Amino Acid Biosynthesis Ch 24	
	23	Amino Acid Biosynthesis Ch 24	
10	26	Amino Acid Biosynthesis Ch 24	quiz 8
	28	Amino Acid Biosynthesis Ch 24	
	30	Amino Acid Biosynthesis Ch 24	

11	Nov 2	Nucleotide Biosynthesis Ch 25	
	4	Nucleotide Biosynthesis Ch 25	
	6	HOURLY EXAM 3	
12	9	Nucleotide Biosynthesis Ch 25	quiz 9
	11	Nucleotide Biosynthesis Ch 25	
	13	Lipid Biosynthesis Ch 26	
13	16	Lipid Biosynthesis Ch 26	quiz 10
	18	Lipid Biosynthesis Ch 26	
	20	Lipid Biosynthesis Ch 26	

Thanksgiving Break.....

14	30	Integrated Metabolism Ch 27	
	Dec 2	Integrated Metabolism Ch 27	
	4	HOURLY EXAM 4	
15	7	Modern Drug Design Ch 35	quiz 11
	9	Modern Drug Design Ch 35	
	11	Modern Drug Design Ch 35	

Finals Week Dec 14-18