Biochemistry 205 Syllabus – Fall 2012

Fall 2012
MWF 10:40 – 11:30 a.m.
Tuesday – 7:00 p.m. recitation
Fleming 101

Instructor: Robert Hondal, Ph .D., Department of Biochemistry. Given Building, B413. Phone: 656-8282. Email: Robert.Hondal@uvm.edu My office hours will be from 12:30 p.m. – 5 p.m. M, W, F. I will be available on Tuesday's and Thursday's by appointment only. If you need to see me on those days, please send me an email to schedule an appointment.

Teaching Assistant: Dr. Laura Haynes, Ph. D., Department of Biochemistry. Office: Given C411. Phone: 656-1994. Laura.Haynes@uvm.edu. Laura's office hours will be M, F from 9 – 10: 30 a.m. and T 10 a.m. to 11 a.m.in Given B420 (right across from my own office).

Course Description: This course describes the chemistry of amino acids, proteins, carbohydrates and lipids. Fundamental to the course is an understanding of proteins that are enzymes along with a description of the thermodynamics of enzymatic reactions. Special emphasis is placed on bioenergetics and metabolic processes such as glycolysis, the citric acid cycle, and oxidative phosphorylation.

Prerequisites: 2 semesters of organic chemistry (CHEM 141/143 and CHEM 142/144)

Course Text: "*Biochemistry 5th edition*" Garret and Grisham, Brooks/Cole Publishing 2013. The text is available through a special website: http://www.cengagebrain.com/micro/uvmbiochem There are additional options for purchasing the textbook as listed in the Blackboard page for the course under the Announcements section. Please read this important announcement on the Blackboard page. A student solutions manual is also available. You can purchase this through Amazon.com.

Quizzes: There will be a daily quiz in the course starting with the first lecture on August 31st. On August 29th, we will have a practice quiz and the question will be to draw the structure of the amino acid tryptophan. When you enter the classroom, you will pick up a 3 x 5 note card (provided by me) and write your name and date on the card. When I begin class, I will put a question on the board in which you will have **3 minutes** to write the answer on the note card. The quizzes will emphasize structures, but I will also ask questions from a previous lecture (not necessarily the one before). The quiz will **BEGIN** at the start of class. If you are late to class, you will not be able to take the quiz. Each quiz will be worth 3 points. While there will be a quiz everyday, for a total of 39 quizzes, only 34 of these will count towards your final total Thus you are able to miss 5 classes without penalty. This is an incentive to show up for class everyday. The more times you show up for class, the more points you earn as I will sum all 39 quizzes for your total points for the numerator, but only take a total of 34 quizzes as the denominator. You can therefore earn 117 points out of 102 total points on the quizzes. Your cumulative percentage on the quizzes will be multiplied by 0.08 to calculate your final total. In other words, you can

potentially earn up to 1.2% bonus towards your final grade. In addition, there will be bonus question on the quizzes (randomly inserted) that can allow you to earn further bonus points on the quizzes.

Recitation/Exam Hour: There is a recitation that is associated with the registration of this course at 7:00 p.m. to 9:45 p.m. on Tuesday's. The TA will lead this recitation every Tuesday to go over the previous week's quizzes, go over assigned chapter problems, or go over a recently completed exam. The goal is to help you learn the material. **Recitations will be held in Fleming 101.** You do not have to attend the recitation. However, you do have to attend the exam scheduled at this time since it is scheduled through the Registrar. The ONLY exceptions will be for students with a UVM scheduled conflict (for example an athletic event). If you have another exam scheduled at this time, you will have to make arrangements with the instructor of that class as this time is scheduled through the Registrar. If you have an emergency or other extreme situation, you need to contact me.

Additional Recitations: There will be an additional recitation from 6 to 8 p.m. on Thursday's and Fridays in **Given C443.** These sessions will be conducted by myself (Robert Hondal). These are alternative times to work on problems and have questions answered if you cannot attend the regularly scheduled Tuesday recitation. I encourage those students who feel that they need additional help to come see me during those time periods.

Grading:

Quizzes = 8%
Exam 1 = 17%
Exam 2 = 22%
Exam 3 = 25%
Final = 28%
Total = 100%

Each exam will be cumulative. This means that on Exam 2, I can go back and ask you something from the material related to Exam 1. On the third exam, I will be able to ask you about something we covered from the material related to Exams 1 and 2. The final exam is cumulative. After the exams are graded you will have ONE week to contest the grading or scoring of a question.

Grading Distribution:

97% - 100%	= A+
93% - 96%	= A
89% - 92%	= A-
85% - 88%	= B+
81% - 84%	= B
77% - 80%	= B-
73% - 76%	= C+
69% - 72%	= C
65% - 68%	= C-
61% - 64%	= D+
57% - 60%	= D
53% - 56%	= D-
52%	= F

Note on Grading: The College of Arts and Sciences guidelines call for a 3.33% allotment to each grade bracket. Using those guidelines an A+ would be 96.66% to 100%, an A would be 93.33% to 96.65%, etc. I have made my grading system based on a 4% bracket. However, I reserve the right to adjust an *individual* bracket +/- 2% based on the final distribution. The most likely scenario would be a **downward** adjustment of 1%. This adjustment will be based upon breaks in groups of student grades between each bracket. For example, if there were only a few students in the 93 – 96% bracket and 15 students closely grouped between 90.6 and 92.4%, then the new "A" would be 90.6 to 95%.

University Student-Athlete Policy: "Students participating in intercollegiate athletics should plan their schedules with special care, recognizing the primary importance of all of their university academic responsibilities. Each semester, members of UVM varsity and junior varsity teams are responsible for submitting their planned schedule of athletic competitions in writing to their instructors by the end of the second full week of classes. Students and instructors should then discuss potential conflicts between course requirements and intercollegiate competitions. When an unavoidable conflict exists, the student and instructor should seek a resolution which permits the student to address the course requirement and participate in the athletic competition. The instructor has final authority on this matter."

Academic Integrity: Offenses against the UVM Code of Academic integrity are taken very seriously and suspected violations of the code will be forwarded to the Center for Student Ethics and Standards for further investigation. All students should read The University of Vermont's Code on Academic Integrity. This Code is available as a PDF file at the following web address: www.uvm.edu/policies/student/acadintegrity.pdf

Please take the time to read this policy. I will be following this policy strictly when dealing with cases of academic misconduct.

Religious Holidays: The following statement is the University's policy on religious holidays: "Students have the right to practice the religion of their choice. Each semester students should submit in writing to their instructors by the end of the second full week of classes their documented religious holiday schedule for the semester. Faculty must permit students who miss work for the purpose of religious observance to make up this work."

Medical Disability: Students with a medical disability that will necessitate in a longer exam period should see me during the first week of class.

Class Motto: "Praan" – This means "life" or "steam of life" in Bengali. It is the title of a poem by the Bengali poet Rabindranath Tagore. This song is featured in the video "Where the hell is Matt? 2008". Please see www.youtube.com/watch?v=zlfKdbWwruY Please search the web and explore this beautiful poetry and song. Our motto seems appropriate as we will be studying the chemical basis for the extraordinary thing we call "life" on our planet this semester.

Date	Lecture	Topic
8-27		Introduction - The elements of life
8-29	1	The elements of life – Chapter 1 and notes
8-31	2	Cell basics – Chapter 1
8-31	**Last Day to add Classes**	
9-3	**Labor Day – No Class**	
9-5	3	Water, pH, and pKa – Chapter 2
9-7	4	Water, pH, and pKa – Chapter 2
9-10	5	Buffers – Chapter 2
9-10	**Add/Drop, Pass/No Pass, Audit Deadline**	
9-12	6	Thermodynamics of Biochemistry - Ch. 3
9-14	7	Thermodynamics of Biochemistry - Ch. 3
9-17	8	Thermodynamics of Biochemistry - Ch. 3
9-19	9	Amino Acids and Peptides – Chapter 4
9-21	10	Amino Acids and Peptides – Chapter 4
9-24	11	Protein Architecture – Chs. 6 and 5
9-25	**Exam 1 (covers lectures 1-8, Chps 1-3) 7-9 p.m. in Fleming 101**	
9-26	12	Protein Architecture – Chs. 6 and 5
9-28	13	Protein Architecture/Folding – Chs. 5 and 6
10-1	14	Protein techniques – Chapter 5
10-3	15	Protein techniques – Chapter 5
10-5	16	Enzymes and Kinetics – Chapters 13, 14
10-8	17	Enzymes and Kinetics – Chapters 13, 14
10-10	18	Enzymes and Kinetics – Chapters 13, 14
10-12	19	Enzyme Mechanism – Chapter 14
10-15	20	Enzyme Mechanism – Chapter 14
10-17	21	Cofactors and Coenzymes
10-19	22	Enzyme Regulation – Chapter 15
10-22	23	Enzyme Regulation – Chapter 15
10-23	**Exam 2 (covers lectures 9-21, Chps 4-6, 13-15) 7-9 p.m. in Fleming 101**	
10-24	24	Carbohydrates – Chapter 7, sections 1-3
10-26	25	Lipids – Chapter 8
10-29	26	Lipids – Chapter 8
10-29	**Last Day to Withdraw (receive a W)**	
10-31	27	Introduction to Metabolism – Chapter 17
11-2	28	Introduction to Metabolism – Chapter 17
11-5	29	Glycolysis – Chapter 18
11-7	30	Glycolysis – Chapter 18
11-9	31	Glycolysis – Chapter 18
11-12	32	TCA cycle – Chapter 19

11-13	**Exam 3 (covers lectures 22-31, Chps 7,8, 15, 17, 18) 7-9 p.m. in Fleming 101**	
11-14	33	TCA cycle – Chapter 19
11-16	34	TCA cycle – Chapter 19
11-19	**Thanksgiving Break**	
11-21	**Thanksgiving Break**	
11-23	**Thanksgiving Break**	
11-26	35	TCA cycle – Chapter 19
11-28	36	Oxidative Phosphorylation – Chapter 20
11-30	37	Oxidative Phosphorylation – Chapter 20
12-3	38	Oxidative Phosphorylation – Chapter 20
12-5	39	Oxidative Phosphorylation – Chapter 20

12-10 Final Exam 10:30 a.m. – 1:15 a.m. in Fleming 101 (emphasizes lectures 32-39, but is cumulative.) The exam will be a 55/45 split between old/new.

The schedule above is subject to change.

Assigned Problems:

Chapter	**Problems**
1	2, 3, 4, 7, 8, 9, 10
2	1, 3, 4, 5, 6, 7, 8, 10, 13, 16, 21, 23
3	1,3, 5, 6, 7, 8, 10, 11, 13, 15,
4	2-9, 13, 14, 15, 16, 18, 19
5	1, 2, 3, 4, 5, 6,
6	3, 4, 7, 8, 10, 11, try 16
7	1, 4, 5, 10, 14
8	2, 4, 5, 6
13	1-5, 7, 9, 10, 11, 12, 16
14	1, 5, 9, 10, 11-18
15	2, 12
17	1-9, 12, 15,
18	1-5, 7-13, 15-17, 19, 21
19	1, 4, 7, 9, 10, 16, 17