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BIOC 482.01: Biochemistry

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Biochemistry 482

Spring 2003

Instructor: Stephen Lodmell Ph.D.

Office: SC 202 Hours: 11-12 MTWF and by appointment

Phone: 243-6393

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Text: Garrett and Grisham Biochemistry, 2nd ed.

Overview: In the second semester of Biochemistry we will explore the mechanisms of enzymes and molecular motors, then we will learn about metabolic pathways and how they integrate in living systems. In the final part of the semester, we will investigate the biochemical mechanisms of the transmission of genetic information from DNA to RNA to protein.

Requirements: Students are expected to study the text carefully, and are encouraged to read the text and supplementary materials prior to the corresponding lectures. Questions or problems sets will be assigned for each chapter, but they will not be collected or graded. However, similar questions can be expected on quizzes and tests. In addition, several research and review articles will be assigned from the scientific literature.

Tests and quizzes: There will be a weekly quiz most Fridays, three midterm exams, and a comprehensive final exam. The average of your quizzes and research paper (see below) will count as one midterm test grade. You may drop your two lowest quiz grades (including any missed quizzes), but makeup quizzes will not be given. The final exam counts the same as a midterm exam. Midterm exams will be held at 7pm on three evenings during the semester, as noted below.

Review of research article: You will choose a recent (year 2002-03) research article from the primary research literature that pertains the biochemistry of metabolism in one of the following subject areas: **lipid metabolism/ weight homeostasis, amino acid metabolism, mechanism of antibiotic action or resistance**. You will write a short paper (5 page double spaced maximum) centered around this article, stating the problem, the approach/methods, and the results/interpretations in your own words. Discuss the particular data presented in the paper in detail rather than writing a general overview. Discuss the rationale for the experiments, the actual methods used, the particular results obtained in each experiment (data figure) and interpretations. You must hand in a copy of the research article with your paper. I will grade and make comments and suggestions on your work that you will then use to write a revised paper. This paper will count as three quizzes; two thirds of the grade comes from the first draft, and one third comes from the revised version. Your research paper grade can not be dropped from your quiz average.

Student participation: Students are encouraged to participate in classroom discussions and activities. 1) Please ask questions, certainly as they pertain to particular details of the lecture or readings, but also to explore relevance and connections to your own interests with respect to research, health, or other curiosity. 2) The tentative syllabus is adjustable; we can explore special topics in some detail so please feel free to recommend topics for more in-depth study. 3) Student presentations are encouraged. Many students enrolled in this class have some degree of laboratory research experience. It is highly beneficial to all of us to have student presentations during the semester to give others a chance to see what real research is going on presently at The University of Montana and elsewhere.

Notes and ERES: My class notes will be posted on the electronic reserve system (ERES) from the Mansfield Library. To access this, go to the Mansfield Library home page, then follow the link for ERES. You can access the course using either my name or the course number. A password will be required, which will be provided to you in class. Remember that these notes are what I use as an *outline* for class preparation. They are not intended to be used as a substitute for coming to class or for doing the readings.

Withdrawal/ grade option note: University policies on drops, adds, changes of grade option, or change to audit status will be strictly enforced in this course. These policies are described on p. 16 of the 2001-2002 catalog. Students should specifically note that after the 30th day of the semester, such changes are NOT automatically approved. They may be requested by petition, but the petition MUST be accompanied by documentation of extenuating circumstances. Requests to drop a course or change the grade basis to benefit a student's grade point average will not be approved.

Special accommodations: If you are registered with Disability Student Services and require special accommodations, please come talk to me to make arrangements.

BIOC482 Spring 2003

Tentative class schedule:

January 27- 31	Enzyme specificity / mechanism (ch. 15-16)
February 3-7	Molecular motors (ch. 17)
February 10-14	Metab. overview/ glycolysis (ch. 18-19)
February 17 Presidents Day Holiday – no class	
February 19-21	Glycolysis (ch. 19)
February 24- 28	TCA cycle (ch. 20)
<i>Midterm exam 1 (chapters 15-20/21)</i>	Thursday March 6 at 7:00 pm
March 3-7	Electron transport (ch. 21)
March 10-14	Photosynthesis (ch. 22)
March 17-21	Gluconeogenesis (ch. 23)
March 24-28 Spring Break	
March 31-April 4	Fatty acid metabolism (ch. 24)
<i>Midterm exam 2 (chapters 21-24)</i>	Thursday, April 10 at 7:00 pm
April 7-11	Amino acid/ nucleotide metab. (ch. 26-27)
April 14-18	Integration of pathways (ch. 28)
April 21-25	DNA: Information, Recomb., Mutation (29)
<i>Midterm exam 3 (chapters 26-29)</i>	Thursday May 1 7:00pm
April 28-May 2	Replication and Transcription (ch. 30-31)
May 5-May 9	Genetic code and Translation (ch. 32)

Final examination (comprehensive) Friday May 16, 2003 10:10 - 12:00