Syllabus for General Biochemistry II MBioS414/514
Spring 2008

MWF 11:10 am, Todd 430

Lecturers:

Lisa M. Gloss	Fulmer 270	5-5859	lmgloss@wsu.edu	Course coordinator
William B. Davis	Fulmer 275	5-4930	wbdavis@wsu.edu	
John A. Browse	Clark 443A	5-2293	jab@wsu.edu	

Required course materials:

Text: *Lehninger Principles of Biochemistry*, *4th Edition* by Nelson & Cox, 2005

Course web page on WSU's eLearning site: https://elearning.wsu.edu/webct

Lecturer and Topics

Gloss, 12 lectures; Jan 7 to Feb 4 (Jan 21, MLK Day, University holiday)

I. Introduction to Metabolism, Enzyme Mechanisms & Carbohydrate structures
II. Carbohydrate metabolism
  A. Metabolism of carbohydrates to pyruvate
  B. Tricarboxylic Acid Cycle
  C. Gluconeogenesis
  D. Glycogen metabolism

EXAM 1 Thursday, Feb 14, 7 pm. Please notify Dr. Gloss of any conflicts.

Davis, 8 lectures; Feb 6 to Feb 25 (Feb 18, President's Day, University holiday)

I. Bioenergetics
II. Respiratory chain and oxidative phosphorylation.
III. Photosynthesis
  A. Light Absorption; the Z Scheme
  B. Photophosphorylation

EXAM 2 Thursday, Feb 28, 7 pm. Please notify Dr. Davis of any conflicts.

Gloss, 12 lectures
27 Feb to Mar 31 (10 to 14 Mar, Spring break)

I. Amino Acid Metabolism
  A. Overview of Amino Acid Catabolism & Biosynthesis
  B. Transamination and other PLP-dependent reactions
  C. Biochemistry of C_1 Units (SAM, THF & B_{12})
  D. Selected catabolic reactions
  E. Selected biosynthetic reactions
II. Urea Cycle
III. Nucleotide Metabolism
  A. Purines & Pyrimidines: biosynthesis, salvage and catabolism
  B. Biosynthesis of nucleotide triphosphates

EXAM 3 Thursday, April 3, 7 pm. Please notify Dr. Gloss of any conflicts.

Davis, 4 lectures; April 2 to April 9

I. Nitrogen fixation
II. Porphyrin metabolism

Browse, 4 lectures; April 11 to April 18

Lipid Metabolism

A. Oxidation of Fatty Acids
B. Fatty Acid Biosynthesis
C. Phospholipid & Glycolipid Metabolism

Davis, 3 lectures
April 21 to April 25

Lipid Metabolism

A. Cholesterol Metabolism
B. Arachidonate Metabolism

EXAM 4 Wednesday, April 30, 3:10 to 5:10 pm. **NOT a comprehensive final exam.**

Overview

This is the second semester of the core courses offered in graduate-level biochemistry and culmination for undergraduate majors. It will be demanding and challenging--we assume that students enroll because of a desire or need to master the fundamental body of biochemical information that focuses on metabolism and enzyme function and regulation. We expect a substantial level of motivation, maturity and discipline. It is our goal to provide training consistent with the highest national standards to students from a range of backgrounds. Accomplishing this goal requires active and responsible participation of students. We expect you to master all material covered in class, handouts and the relevant sections of the text. You should attend every class meeting, take complete notes, read the text, learn the material as it is presented and ask questions when these efforts are not sufficient. We assume that students in the course have a solid background in both biology and chemistry. Some students may find that even their best efforts cannot overcome inadequate backgrounds or other impediments. If you perceive that you are having trouble, talk with an instructor *early in the term*. We will help you decide your best strategy, which may include dropping the course in order to gain sufficient background so you can successfully take this course at a later time.

Prerequisites

2 semesters of organic chemistry (Chem 345 & 346 or the equivalent)
1 semester of advanced biochemistry (MBioS 413/513 or the equivalent)

Examinations

Students will be tested on the course material in four examinations, at the times and dates indicated on the course outline. All students are expected to take the examinations at these times. The fourth exam is given in the institutionally scheduled time during the final exam week, though it is not a comprehensive examination. Like the final exam, the first three exams are scheduled for two hours, but will be held in the evenings, rather than during the scheduled lecture period. If a student has a conflict with the exam time, it is the student's responsibility to notify the instructor giving the exam, in writing, and schedule an alternative time to take the exam. We are not allowed to reserve the room until after the first week of class so the location of the first three exams will be confirmed during the second week of class. As instructors, we have no control over the scheduling of the final exam, and are required to give the fourth exam on the university-assigned day and time. It is your responsibility to arrange any vacation travel such that you are able to take the final exam when scheduled.

Early or make-up examinations are strongly discouraged. If such examinations do occur, they may be re-written and be more difficult than the regular examination. Alternative scheduling will only be permitted for students who have submitted a written request and

received approval at least one week prior to the examination, unless there is a medical emergency. Permissible reasons for alternative exam times are limted to conflicts with teaching responsibilities, another class or a professional meeting. At times, a group of students may have the same conflict, and thus a second time may be scheduled. This alternative exam is ONLY available to the students who have submitted a written request and received approval. Rescheduling of an exam because of a medical emergency will require written documentation from a medical practitioner of the nature of the medical emergency.

Grading

It is our responsibility that the grades awarded accurately reflect our best evaluation of the degree to which each student has demonstrated mastery of the material. Our expectation, fulfilled over the many years that this course has been given, is that most students who complete the course will earn a B- or better (in recent years, >75% have done so). Thus, the mean and median of the distribution of final grades are solidly within the B range. We do not assign letter grades to each exam; rather, numerical scores are provided to give the students an assessment of where they stand in the class. When all exams have been taken, we assign final letter grades based upon the distribution of the total, summed scores for the exams. The value of each exam in the final summation is weighted by the number of lectures covered in that exam. In the assignment of grades, we are sensitive to situations in which specific students who had difficulties were able to overcome them. Weight is given to significant improvement in performance over the sequence of the exams.

514: Each exam is worth 100 points, and are weighted in the final summation by the number of lectures covered in that exam (8 to 12 lectures).

414: 414 students are graded on the same curve as the 514 students. However, your exams are shorter--expect to answer 90 out of 100 points. The totals are then scaled to 100%. Extra credit is often given for correctly answering the additional 10 points; this is at the discretion of the instructor giving the exam.

Asking questions and Help Sessions

We encourage questions during lectures and will generally address them immediately. If you are confused or unsure, it is likely that others around you are in a similar state--so ask a question. Help sessions are scheduled by the individual instructors; times and room will be confirmed during class. Help sessions provide an opportunity for students to ask questions in an informal atmosphere and to listen to the questions posed by other students and hear their answers. We expect that students attending help sessions will have made their best efforts to understand the material from lecture and text before each session. Student participation is essential at the help sessions. Additional office hours are also available upon request by making an appointment with the lecturer.

Academic dishonesty

Academic dishonesty will result in a grade of “F” for this course <u>without</u> the option to withdraw. Formal documentation will be filed with the Office of Student Conduct at WSU. Academic dishonesty is defined as cheating, falsification, fabrication, multiple submission, plagiarism, abuse of academic materials, complicity or misconduct in research (WAC 504-25-310 in Standards of Conduct for Students).”

Students with disabilities

Reasonable accommodations are available for students with a documented disability. If you have a disability and may need accommodations to fully participate in this class, please visit the Disability Resource Center (DRC). All accommodations MUST be approved through the DRC (Admin Annex Bldg, Room 205). Please stop by or call 509-335-3417 to make an appointment

with a disability specialist. If you have any questions, please contact Rosie Pavlov at pavlovr@wsu.edu or 509-335-3417.