Course Syllabus
Principles of Metabolism & Biochemistry (BIOL 303) Fall 2011

Course Information:
Principles of Metabolism and Biochemistry, BIOL 303 (4)
Lecture: TR 8:00 – 9:30 am, Elvey Auditorium
Recitation: M or W 2:15 – 5:15 pm
Prerequisites: BIOL 115X; 116X; CHEM 105X; 106X.

Instructing Staff:
Kriya Dunlap, Ph.D., Department of Chemistry and Biochemistry
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  Phone: 474-5125 (office)
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  Office hours: T,R 10:30-11:30 or by appointment

Bryan Mosher, Graduate Student
  E-mail: TBA
  Office hours: TBA

Course Readings/Materials:
A reserve copy is available in the BioSciences Library.

Blackboard Page: Students are expected to check the course webpage on Blackboard on a regular basis.
Login at http://classes.uaf.edu/webapps/login
Click “Principles of Metabolism and Biochemistry”
Contact us by email if you are unable to access this site.

Several learning resources will be available on the course Blackboard Page:
  a. A copy of the lecture slides will be posted just prior to class.
  b. The recitation preparatory assignments, activity instructions, and questions will be posted.
  c. A copy of this syllabus and the course calendar.
  d. Your grades will be posted on blackboard. Please check them regularly to ensure your grade was recorded accurately.

Email Notifications: On occasion, students will be contacted via email. We will assume that each student will check their university-assigned email address (username@alaska.edu) on a regular basis.

Course Description:
Welcome to Principles of Metabolism and Biochemistry. The UAF Catalogue describes the topic of this course as follows: Introduction to metabolism at the molecular level. Topics include structure and function of proteins enzyme function, biological regulation, and major pathways of carbon and nitrogen metabolism.
The goal of this course is to provide a basic understanding of metabolism by studying its major pathways, regulation, and molecular components. This course is designed as the first encounter with biochemistry for students that have taken introductory biology and chemistry courses. It will cover the fundamentals and principles of metabolism and biochemistry.

Biochemistry is the chemistry of living things. All living things have in common that they are adapted to survive, grow and reproduce. To do this they must produce a variety of biomolecules using resources they acquire from their environment. In this course we will strive for an understanding of how living organisms convert resources they acquire from their environment.

**Instructional Methods:**

2. **Lecture and Discussion.** Lectures and discussions will focus on the basic concepts of biochemistry. An important source for this information is written material. *Lehninger Principles of Biochemistry, Fifth Edition* (David L. Nelson, Michael M. Cox, W. H. Freeman, NY)
   You are expected to read the assigned textbook chapters, to attend the lectures, and take part in class exercises. The textbook and the lectures together define the material covered in the exams.

3. **Recitation.** As a student in BIOL303 you have registered in one of two recitation sessions:
   1. Mon 2:15 – 5:15 Irving I 201 (CRN 79638)
   2. Wed 2:15 – 5:15 Irving I 201 (CRN 79639)
   Recitations begin the week of September 12 and continue throughout the semester. There will be 13 recitations in total.

   In the recitation students will actively engage with the core concepts of biochemistry and metabolism. Each recitation will include a preparatory assignment, and in-class activity. The assignment is intended to be completed before coming to recitation and will help set the stage for the recitation activity. Completion of each preparatory assignment prior to recitation is required. Not completely preparatory assignment will result in docking 50% of your grade for that recitation. The activity is completed during the recitation period as part of a team. Your TA will guide you and answer questions as needed. These activities work best when all team members start with the same level of exposure to the material. Therefore, it is important to complete the assignment, but not start the activity before coming to class. There are 13 scheduled recitations. The best 12 grades will be used to acquire your final grade.

**Exams:**

There are three scheduled in-class exams during the semester plus a cumulative final. All exams count toward the course grade. Make-up exams will be allowed only for good reason. Except for cases of extreme emergencies, arrangements for make-up exams should be made prior to the regularly scheduled exam. Students are expected to provide documentation for the reasons they missed a regularly scheduled exam.

**Important Dates:**

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<thead>
<tr>
<th>Event</th>
<th>Date</th>
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<tr>
<td>Last day to withdraw with 100% tuition refund</td>
<td>Sept. 9</td>
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<tr>
<td>Last day to drop the course</td>
<td>Sept. 16</td>
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<tr>
<td>(without a “W” appearing on transcript; 50% tuition only refund)</td>
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<tr>
<td>Last day to withdraw from the course (a “W” will appear on transcript)</td>
<td>Oct. 28</td>
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<tr>
<td>Final Exam</td>
<td>Dec. 17</td>
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Course Policies:
Any student caught cheating will be assigned a course grade of “F”. The students academic advisor will be notified of this failing grade and the student will not be allowed to drop the course.

Honor Code:
As a UAF student, you are subject to the Honor Code. The university assumes that the integrity of each student and of the student body as a whole will be upheld. Honesty is a primary responsibility of you and every other UAF student. It is your responsibility to help maintain the integrity of the student community. UAF’s Honor Code is as follows:

1) Students will not collaborate on any quizzes, in-class exams, or take-home exams that will contribute to their grade in a course, unless permission is granted by the instructor of the course. Only those materials permitted by the instructor may be used to assist in quizzes and examinations.
2) Students will not represent the work of others as their own. A student will attribute the source of information not original with himself or herself (direct quotes or paraphrases) in compositions, theses and other reports.
3) No work submitted for one course may be submitted for credit in another course without the explicit approval of both instructors. Violations of the Honor Code will result in a failing grade for the assignment and, ordinarily, for the course in which the violation occurred. Moreover, violation of the Honor Code may result in suspension or expulsion.

Student Responsibilities:
Students are responsible for all material covered in class lecture. If you miss class for any reason, you will need to find out what you missed (generally, this is best accomplished by asking another student in the course for class notes). Students are responsible for reading the assigned material in the text before coming to class. Students should keep all returned, graded assignments until after final course grades have been posted on UAonline. Please have cell phones turned off unless you are expecting an emergency phone call.

Grading:
Your knowledge of the course content will be assessed via a combination of exams and recitations. Points for the various exercises will be assigned as shown below.

- 3 Hour exams @ 100 points each  
- Final exam  
- Laboratory Recitation

Total point percentages of 90, 80, 70 and 60 correspond to the lower cutoff boundaries for the grades of A, B, C and D respectively. Percentages less than 60 constitute a failing grade (“F”).

Disabilities Services
At UAF, the Office of Disability Services implements the Americans with Disabilities Act (ADA), and insures that UAF students have equal access to the campus and course materials. We will work with the Office of Disabilities Services (fydso@uaf.edu, 474-5655) to provide reasonable accommodation to students with disabilities.

Course Calendar (subject to change)

Principles of Biochemistry and Metabolism

Biology 303 Fall 2011
### Section I. Fundamentals of Biological Chemistry
1. Sept. 1  Class introduction
2. Sept. 6  Chapter 1  Foundations of Biochemistry
3. Sept. 8  Chapter 2  Water
4. Sept. 13  Chapter 3-5 (excerpts)  Amino Acids, Protein structure
5. Sept. 15  Chapter 6  Enzymes

### Section II. Molecular properties of Biomolecules
6. Sept. 20  Chapter 6  More on Enzymes and their regulation
7. Sept. 22  Exam I  **Exam includes all chapters previously covered**
8. Sept. 27  Chapter 7  Carbohydrates
9. Sept. 29  Chapter 10  Lipids
10. Oct. 4  Chapter 11  Biological membranes & Transport

### Section III. Intermediary Metabolism
11. Oct. 6  Chapter 12-13  Biosignaling & Bioenergetics
12. Oct. 11  Chapter 14  Glycolysis
14. Oct. 18  Exam II  **Exam includes all chapters previously covered**
15. Oct. 20  Chapter 14-16  Citric Acid Cycle
16. Oct. 25  Chapter 17  Fatty Acid Oxidation
17. Oct. 27  Chapter 17  Fatty Acid Oxidation
18. Nov. 1  Chapter 17  Fatty Acid Oxidation
19. Nov. 3  Chapter 18  Amino Acid Oxidation
20. Nov. 8  Chapter 19  Oxidative Phosphorylation and Photosynthesis
21. Nov. 10  Chapter 20  Carbohydrate Biosynthesis
22. Nov. 15  Exam III  **Exam includes all chapters previously covered**
23. Nov. 17  Chapter 21  Lipid Biosynthesis
24. Nov. 22  Chapter 22  Nitrogen Metabolism
25. Nov. 24  THANKSGIVING  HOLIDAY
26. Nov. 39  Chapter 23 & Suppl. Text  Integration of Metabolism & Review
27. Dec. 1  Chapter 23 & Suppl. Text  Integration of Metabolism & Review
28. Dec. 6  Chapter 23 & Suppl. Text  Integration of Metabolism & Review
29. Dec. 8  Chapter 23 & Suppl. Text  Integration of Metabolism & Review

**Dec. 17  10:15AM - 12:15PM  COMPREHENSIVE FINAL EXAM**