

Instructor Information: Gary M. Baker FW 426 gbaker@niu.edu

Please do not call my 753 office phone. Use the e-mail address listed above for all out-of-class concerns. Also note that the e-mail address that is listed for me on Blackboard - gbaker@cties.niu.edu - is wrong. Do not use it.

Office Hours: Tues, Thurs - immediately after class, or by appointment.

Course Materials:

- Textbook: *Lehninger: Principles of Biochemistry*, 5th edition.
- Textbook publisher's web site: <http://bcs.whfreeman.com/lehninger5e/>: Useful for interactive views of molecular structures and various animations.
- Instructor-provided resources: Includes *learning objectives* (Word document), *slides* (PowerPoint), and *"bridge" modules* (Word documents). These will be distributed on Blackboard.

Tentative Course Schedule:

Section 1	Week 1	
Chapter 1 - Foundations of biochemistry	Week 2	Quiz 1, Tue, August 31
Chapter 2 - Water	Week 3	Quiz 2: Tue, September 7
Chapter 3 - Amino acids, peptides, and proteins	Week 4	Exam 1: Thu, September 16
Section 2	Week 1	
Chapter 4 - The 3D structure of proteins	Week 2	Quiz 3: Tue, September 28
Chapter 5 - Protein function	Week 3	Quiz 4: Tue, October 5
	Week 4	Exam 2: Thu, October 14
Section 3	Week 1	
Chapter 6 - Enzymes	Week 2	Quiz 5: Tue, October 26
Chapter 7 - Carbohydrates and glycobiology	Week 3	Quiz 6: Tue, November 2
	Week 4	Exam 3: Thu, November 11
Section 4	Week 1	Web Project Due Date: Tue, November 16
Chapter 8 - Nucleotides and nucleic acids	Week 2	Quiz 7: Tue, November 23
Chapter 9 - DNA-based information techniques	Week 3	Quiz 8: Tue, November 30
Chapter 10 - Lipids	Week 4	Exam 4: Thu, December 9

Course Format:

1. Navigate to the "Course Documents" folder on Blackboard to access all instructor-provided resources. Open a chapter folder to access all resources relevant to that chapter. Students should download and review all relevant materials prior to class. Resources include:
 - a. *Learning Objectives* - Aligned with textbook content. Level 400 and 500 students are responsible for mastery of all listed objectives, including the listed end-of-chapter problems from the textbook. The instructor will not generally focus class time on *lower-level objectives* (e.g. list, identify, define, draw...) since answers are easily found in the textbook or online. Instead, the instructor will primarily dedicate class time to the *higher-level objectives* (e.g. rationalize, construct, predict, evaluate...) that require concept mastery and well-constructed written responses that are clear, concise, and scientifically accurate. A tentative list of these "in-class" objectives will be posted on Blackboard.

- b. Slides - PowerPoint slides are aligned with the learning objectives and have been constructed using figures from the textbook. They represent primarily an instructional resource to aid class presentation, but also include answers to many lower-level objectives.
 - c. Modules - Considerable class time will be dedicated to modules, which include "bridge" problems into real world application areas. Module problems have been aligned with selected higher-level objectives. Mastery of these problems is expected of all students.
2. This course has a combined pre-requisite of 16 semester hours of general and organic chemistry. Accordingly, there is a competency expectation in areas of general and organic chemistry that are foundational to the biochemical topics in this course. Some review of these pre-requisite concept areas will be presented by the instructor, especially in the context of chapters 1 and 2. Students, however, must take early initiative to remedy deficiencies in these areas to avoid problems that will hinder performance in this course.

Exam Format:

1. Exams will draw from the following sources: Learning objectives, end-of chapter textbook problems, and module problems. The learning objectives are, in many cases, actual exam questions. Problems (end-of-chapter or module) may be used verbatim or may be modified (different numbers, context, and so on).
2. Higher-level learning objectives that become exam questions will require written responses (typically two or three sentences). Accordingly, written communication skills and legibility are imperative, and will be factored into exam scoring. Memorization is inevitable in any course, but students that rely on this as their primary mode of learning will likely do no better than a C in this course. Keeping pace with all the material is essential, but your approach should always be aimed at comprehensive depth and clarity, not skimming or "cherry picking".

Quiz Format:

- Quizzes will draw from the learning objectives, and will be primarily focused on the lower-level objectives. These objectives have been given a **yellow highlight**.

Web Project Format:

- Full details will be provided on Blackboard, but here is an overview:
Students will be paired into teams (but with no more than one 500-lvl student in a team). Each team will select a unique, pharmaceutical drug from the Drug-Port (or similar) database at the [EBI](#) (European Bioinformatics Institute) for which at least one target-drug PDB (Protein DataBank) structure is available. On approval of the selected drug by the instructor, the student team will conduct web research using a "plug-and-play" template file. The project will be published online using a team space, such as Live Workspace, Wikispaces, or GoogleDocs.

Grading:

1. **Lvl 400 students:**
26%: Quizzes (8). Quiz content will be highlighted in the "Learning Objectives" document for each chapter. All quizzes will be administered during the first 10 minutes of class on the indicated dates.

Lvl 500 students:

10% Quizzes (8).

16% Selected Module Problems - see the Chapter folders on Blackboard for problems and submission dates; all problems must be submitted electronically.

2. **All students:**

26%: Web Project:

Lvl 500 students will have additional requirements that they will need to complete.

3. **All students:**

48%: Exams. *Students must take all four exams.* Your worst of the first three exam scores will be dropped and the remaining exams will each weight **16% ($16 \times 3 = 48$), but only if the score on all four exams is at least 68% (the likely cutoff for a C). Any exam score that is less than 68% will result in all four exam scores being factored into your final grade. In this case, each exam will weight **12%** ($12 \times 4 = 48$). There will be no exceptions to this policy.**

4. **Extra credit:** Optional extra credit questions may be included on each exam (providing no more than 5 to 10 extra points per exam for all students). In addition, lvl 400 students may be given "award points" for exceptionally well-written and accurate responses to higher level objective questions.

Course Policies and Recommendations:

- ***Attendance:*** Not recorded, but you are strongly encouraged to attend all class sessions. Regular attendance generally translates into improved performance for students.
- ***Academic Dishonesty:*** Anyone caught cheating or plagiarizing will be given an "F" for the course and the incident will be reported at the university level. Only calculators are allowed during quizzes and exams. All other electronic devices (cell phones, smart phones, PDAs, iPods, etc.) are prohibited.
- ***Behavior:*** Please act respectfully. Examples: Do not read newspapers during class; remember to silence your phones and to put them away; avoid talking with others unless engaged in a group activity or class discussion....
- ***Work Ethic:*** it is strongly recommended that you download all chapter materials from the appropriate folder on Blackboard, and try to work through them before we discuss that chapter in class. There is a lot of material, and the worst mistake you can make is waiting until an exam week before you start giving the material serious attention.

Other:

- ***Disability Statement:*** Students with disabilities will be accommodated. Anyone needing special access should speak to me early in the semester. CAAR forms are required.