

CHEM 370 - Syllabus for spring 2015 semester

Instructor Information: Gary M. Baker
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Class Location: Faraday Hall (FH) 144

Office Hours: MW, immediately after class. Tu, 11:00 a.m.

Course Materials:

- Recommended Textbook: *General, Organic and Biological Chemistry*, 7th Ed., by Stoker. The loose-leaf edition will not be available in bookstore until around January 16. The 6th edition would also work, which can be purchased or rented from various sources. I cover only chapters in biological chemistry (Part III), but the other parts (I and II) allow quick reference to various general and organic chemistry concepts that are needed in this course.

Tentative Schedule:

		Week beginning:
Chapter 18: Carbohydrates	Week 1	1/12
Chapter 18	Week 2	1/19 Martin Luther King Day, 1/19 – University is closed.
Chapter 19: Lipids	Week 3	1/26
Chapter 19	Week 4	2/2 Exam 1: Friday, 2/6
Chapter 20: Proteins	Week 5	2/9
Chapter 20	Week 6	2/16
Chapter 21: Enzymes and Vitamins	Week 7	2/23
Chapter 21	Week 8	3/2 Exam 2: Friday, 3/6
Spring break	Week 9	3/9 – No class this week.
Chapter 22: Nucleic Acids	Week 10	3/16

Chapter 23: Biochemical Energy Production	Week 11	3/23
Chapter 24: Carbohydrate Metabolism	Week 12	3/30
Chapter 24	Week 13	4/6 Exam 3: Friday, 4/10
Chapter 25: Lipid Metabolism	Week 14	4/13
Chapter 25 Chapter 26 Protein Metabolism	Week 15	4/20
Chapter 26	Week 16	4/27
	Week 17	5/4 Exam 4: Monday, 5/4 8:00 – 9:50 a.m.

Student Learning Outcomes:

- *Apply dimensional analysis and elementary concepts of stoichiometry and solution chemistry to solve real world unit conversion problems.* Relevant concepts include mass/volume and mol/volume relationships to describe concentration; dilution, rate, and stoichiometry (mol/mol relationships). Students will be assessed regularly on these types of problems.
- *Recognize and draw condensed, line, or structural formulas for common organic groups and functions that occur in practical organic compounds (i.e. nutrients, pharmaceuticals), and be able to describe their properties".* Relevant properties include acid-base, chirality, and reactivity (i.e. hydrolysis, condensation).
- *Describe and interpret the design and properties of biological macromolecules.* A new property is introduced with large biomolecules: molecular recognition.
- *Describe and illustrate the chemical processes involved in biological energy storage and transduction.* Energy flow in biological systems, especially catabolism, is dependent on redox chemistry and thermodynamic coupling. Storage forms of energy include triglycerides and glycogen.
- *Analyze the logic and regulation of metabolic pathways and cycles in various biological contexts (cell, tissue, organism; aerobic vs. anaerobic).*

More about course format:

- **Class:**
Mainly lecture format but I will also include GIG (group-individual group) activities.
- **Blackboard:**
Course documents, such as the syllabus and PowerPoint files, will be posted in the Content section on Blackboard. The Announcements section will provide a running record of important study items for each class.

- Online Databases:

I will occasionally use these in class. They are free and accessed using a web browser. Examples include the Protein Data Bank (PDB), Enzyme Structures Database (EC-PDB), PubChem, and perhaps others.

Exams

- Exams will be primarily objective based (multiple choice; short answer response; true or false, correct if false), but will also include some calculations (where you must show work) and structure drawing. The calculations will primarily include applied unit conversion problems. ***It is very important to keep pace with the course material, attend class regularly, and take good class notes.*** Also, try to adopt reflective strategies in your learning (ask “why” or “how”, and try to make connections across chapters); don’t just rely on memorization.

Grading:

- Each of the four exams is 100 points for a total of 400 points. Letter grade cutoffs:

A:	380 and above	C+:	288 to 312
A-:	360 to 379	C:	260 to 287
B+:	344 to 359	D:	220 to 259
B:	328 to 343	F:	219 and below
B-:	313 to 327		

- The primary sources for exams will be class notes, GIGs, and textbook materials on Blackboard (i.e. PowerPoint slides). Extra credit may be earned through a series of 10 minute quizzes given throughout the semester. Each quiz will include two or three applied unit conversion problems. A 10 minute quiz will be given during the second and third week of each exam cycle for a total of 8 quizzes, each worth 5 points for a total of 40 points. Your total quiz points at the end of the semester will be divided by 5 and the result will be added to your total point pool. Thus, the total number of points possible in this course are therefore 408, which will make it easier for you to reach a desired target grade.

All quizzes will be administered during the first 10 minutes of class time and will be promptly collected.

Example:

Suppose a student obtains the following scores:

Exam 1	82
Exam 2	61
Exam 3	88
Exam 4	51
Quizzes (Cumulative)	30 (divided by 5 = 6)

Total point calculation:
 $(82 + 61 + 88 + 51) + 6 = 288$

Grade for course = C+

Course Policies and Recommendations:

- **Attendance:** Not recorded, but all students are strongly encouraged to regularly attend class.
- **Makeup Exams and Quizzes:** There are no make-up exams or quizzes. A missed exam (except for exam 4) will score a zero, unless you had a validated emergency or you informed me of a professional

conflict at least one week before the scheduled exam. A missed quiz will not be given a makeup since their role is to generate extra credit points.

- *Electronic Devices and Internet Access:*

Use of Electronic Devices in the Classroom:

A student using **any** electronic device in class for an activity not related to the learning experience (i.e. texting during class), or without instructor authorization will receive a verbal warning for the first offense. If a second offense occurs, the student will be asked to leave class. He/she will receive a written warning. A copy of this warning will be placed in the student's academic file. A third offense results in the removal of the student from the course and an automatic F. Students are encouraged to inform the instructor if they observe another student engaged in non-compliant behavior. Otherwise, tablets or laptop use in class are encouraged if they are focused on class learning activities (i.e. accessing the PowerPoint slides; researching a group activity; using OneNote to take class notes...).

Unauthorized use of the Internet in the classroom:

A student using the internet during class for personal communication, private exploration, or any other purpose outside of the instructional activities prescribed by the professor will result in a verbal warning. Subsequent misuse of the Internet may result in loss of z-ID student access to Internet resources. Students are encouraged to inform the instructor if they observe another student engaged in non-compliant behavior.

Use of Electronic Devices during an Examination:

A **simple, dedicated calculator** is the only electronic device allowed during an examination. Use of any other electronic device (phone, tablet, etc.) will be considered an act of academic dishonesty. The student will be expelled from the exam session and will receive a grade of F. Re-examination will not be permitted. The student may also face institutional penalties for academic dishonesty.

Use of the Internet during an Examination:

A student using the Internet or a cellular network for any purpose during an examination will be considered to have committed an act of academic dishonesty. The student will be expelled from the exam session and receive a grade of F. Re-examination will not be permitted. The student may also face institutional penalties for academic dishonesty.

- *Behavior:* In addition to being compliant with the above policies, please communicate and act respectfully. Examples: Do not read newspapers during class; remember to silence your phones and to put them away; avoid whispering or talking, unless engaged in an instructor led group activity or class discussion.
- *Work Ethic:* There is a lot of material in this course. Pacing your study habits and online activities is important so that you have time to review all materials thoroughly. Waiting until the week of an exam before starting your preparation will likely force you to "cherry-pick" your way through the material. This will likely translate into a poor exam score.

Other:

- [Americans with Disabilities Statement](#).

Please read and comply with this statement if you require any type of accommodation due to a disability.

- Academic Integrity Statement:
All students are required to comply with all relevant NIU Academic Integrity (AI) standards. Relevant links can be found [here](#). All students are advised to take the NIU student tutorial on AI if they haven't already.