CHEM 370 Syllabus Spring 2013

Class Meets: MWF 8 – 8:50 AM, Faraday Hall 144

Instructor:

Professor Gary M. Baker
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Office Hours: Immediately after class, or by appointment.

If you e-mail me, then you must **include "CHEM 370" in the subject field and your name and z number in the body of the message**. I will not reply to e-mails that do not have this information.

Textbook: *General, Organic, and Biochemistry*, Denniston *et al.*, 7th ed., 2011 (A Kindle version is available).

There are no good choices, in my opinion, of a dedicated textbook in biochemistry that is appropriate for CHEM 370 in terms of both level and scope. This is one of the reasons that I selected a textbook that also includes general and organic. A basic understanding of biochemistry requires significant proficiency in various general and organic chemical concepts. An integrated textbook, such as the Denniston book, provides a consistent set of resources for all students that can be easily referenced as needed (by simply perusing the earlier chapters). Case in point: How many of you can still compare and contrast the structure and properties of an *amine* and an *amide*? The biochemistry of many practical compounds, such as pharmaceuticals and nutrients, is difficult to discuss without knowledge of simple organic groups and their properties.

Tentative Course Schedule: **Monday, Jan 21 is a holiday**

Section	Chapters	Exam or Quiz Date
I	Review of Chemical Concepts Chapter 16 – Carbohydrates Chapter 16 Chapter 16	Week 1 Week 2 **Quiz 1** - Jan 25 (F) Week 3 **Quiz 2** - Feb 1 (F) Week 4 **Exam 1** - Feb 8 (F)
II	Chapter 17 – Lipids Chapter 17 Chapter 18 – Proteins Chapter 18	Week 5 Week 6 **Quiz 3** - Feb 22 (F) Week 7 **Quiz 4** – Mar 1 (F) Week 8 **Exam 2** - Mar 8 (F)
Mar 10 – 17		*Spring Recess*
III	Chapter 19 – Enzymes Chapter 19 Chapter 20 – Molecular Genetics Chapter 20	Week 9 Week 10 **Quiz 5** - Mar 29 (F) Week 11 Week 12 **Exam 3** - Apr 12 (F)
IV	Selected Topics in Metabolism from Chapters 21, 22, and 23.	Week 13 Week 14 Week 15 Week 16: **Exam 4** - May 6 (M) 8:00-9:50

Disclaimer: A comprehensive survey of biochemistry is impossible in a 3 credit hour course unless the intent is to provide a very superficial coverage of many, often disconnected, topics. Superficiality promotes excessive reliance on memorization, which is contrary to my teaching philosophy.

Course Description:

CHEM 370 is a beginning biochemistry course for non-chemistry majors with emphasis on dietetics and clinical science. The course is intended to show how biochemistry can provide a unifying perspective on subjects that are relevant to both nutrition and medicine. For example, what is the chemical basis for spikes in blood sugar in patients that consume high glycemic index foods, or why does Celebrex (an anti-inflammatory drug) increase the risk of thrombosis or stroke? Modules and activities are provided that give students practice and reflection in these and other applied areas.

Course Format:

Class format will consist primarily of instructor presentations, but will also include class activities to identify and fix weakness areas. Modules posted on Blackboard will be emphasized in class and are designed to engage students in topics related to their career area (e.g. dietetics, clinical technology…). Students are encouraged to make these connections and to bring them up in class for further discussion or analysis. Think, pair, share activities will be given in class to activate background knowledge and to discover areas where more conceptual work is needed. Other pedagogical strategies may be used, such as decision trees or guided inquiry, to assist students with more difficult conceptual areas, such as acid-base properties. Accordingly, class attendance is very important to your success in the course as it will promote cooperative learning and ensure that you do not miss any material that could end up on exams. Your ability to connect information across multiple courses is essential for success in CHEM 370.

Exam Format:

Exam formats include calculations, drawing structures of simple inorganic and organic compounds or groups, sketching and labeling graphs, single word or phrase responses, and some short essay responses. Legibility, spelling, clarity, and accuracy are factored into grading.

Blackboard Collaboration:

Students are encouraged to use the **Study Teams** feature on Blackboard to create small study groups to help solve module problems, or to use the **Collaborate** feature to post information about assigned chapter problems. I'll see how this goes, but these two features will be a potential way for students to generate some extra credit for the course. I'll announce more in class.
In addition, the **Discussions** feature will allow students to post questions about course content.

Policies:

Attendance: CHEM 370 is not an online course, nor do I provide podcasts or other transcripts of my lectures. Regular attendance and note-taking is strongly encouraged, but it is not factored into your grade.

Grading: There are five exams, as noted in the *Tentative Course Schedule*. Exams 1, 2, and 3 are each 100 points, and exam 4, which is comprehensive, is 200 points. Your worst score in exams 1, 2, and 3 will be dropped. Each of the five quizzes is 20 points, giving a total of 500 points for the course. Letter grade scoring will be as follows:

A: 445+ points
B: 385 – 444
C: 325 – 384
D: 250 – 324
F: < 250

Role of Pre-Requisite Course Material:

Please note that I may *not* keep pace with the Tentative Course Schedule, due to gaps in student background that may require additional class time to address. The relevant background that I consider very important for this course is *dimensional analysis* (a strategy for doing unit conversions) and *practical organic compound decoding (recognition of simple organic groups and important molecular properties)*. Historically, students enter CHEM 370 with very little retention of pre-requisite course material. I will therefore periodically administer

assessments to provide me with some benchmark information about your background in general or organic chemistry areas that I feel are essential for biochemistry.

Student Responsibility:
Quizzes and exams begin promptly at 8:00 AM. You will have until 8:10 AM to complete and hand in the quiz. Exams 1, 2, and 3 must be handed in *no later* than 8:55 AM. After that, I will walk out of the room and your exam will not be scored. Exam 4, given on the Monday during final exams week, must be completed within the allotted time, 8:00 AM to 9:50 AM. ***No electronic devices (cellular phones, smart phones, iPods, tablets, Kindles…) may be used during an exam***, other than a simple calculator. If discovered, then your exam will receive a zero. There will also be seating rules for every exam and quiz, which will be explained in class.

Materials: PowerPoint slides for each chapter are posted on Blackboard. Module files are also posted. Mastery of these modules (and relevant textbook content) is essential for success in CHEM 370. ***Do not ignore the modules and focus only on the PowerPoint slides***. You will *not* be successful in CHEM 370 if you ignore them.

Missed Exams: My general policy is that there are ***no make-up exams***. If you miss one of the first three exams, your score on that exam (a zero) is dropped, as described in the Grading Policy. Exemptions will be granted only if appropriate arrangements were made with the instructor ***prior*** to the scheduled date for an exam, and only if a *legitimate*, *verifiable* reason is presented. Vacations and funerals are not legitimate. A Health Services note is not sufficient, as these are easy to obtain during most walk-ins. I do understand that unforeseen emergencies arise; these will be handled case-by-case, but be aware that the burden of proof is on you.

Academic Dishonesty: University polices on academic dishonesty are strictly followed. Take the NIU tutorial to learn about academic dishonesty.

Accommodations:
Anyone needing special accommodations due to a disability must contact the Disability Resource Center on campus to make the necessary arrangements.