

BC 362 – Medical Biochemistry

Syllabus – Spring 2008

Instructor: Kevin Rice – kprice@colby.edu (Keyes 313, x5763)

Office Hours: open or by appointment

Course website: <http://www.colby.edu/chemistry/CH362/CH362.html>

Required Text: “Essential Biochemistry”

Charlotte W. Pratt and Kathleen Cornely (2004), Wiley

- *Reading assignments will be posted weekly on the course website.*
- *Supplemental reading materials may also be assigned periodically.*

Course Goals: This is an intensive course, covering many aspects of biochemistry, including: biomolecules, enzymology, and metabolism. This course is designed for students who are more likely to go on to health professional school (M.D., D.O., D.D.S., D.V.M., N.P., etc.) than to a biochemistry Ph.D. program. Therefore, we won't focus as much on the experimental nature of biochemistry. However, we cannot cede the *chemical* nature of the discipline. It is also important to recognize that biochemistry is essential to the study and practice of medicine – and this course will be valuable preparation for entrance exams and for advanced coursework in health professional school.

But don't take my word for it . . .

“I was a student of yours in the spring of 2006 in Medical Biochem. I just started my first year at Tuft's Dental School and along with that comes...biochem. Just thought you'd like to know that already in the first couple days I feel pretty well prepared for the course. Thanks! Maybe you want to pass along to your students that they should actually learn what you teach them, like I tried to do, because it all seems relevant so far!”

-Elizabeth Turner ('06), Tufts Dental School

“All medical schools will require their students to take biochemistry at one time or another. The biochemistry that I learned at Colby gave me one leg up on the other students, because I had already learned much of the material at great depths. Although many of my classmates had taken biochemistry previously as well, Colby's biochemistry seemed more advanced and better prepared me to succeed in my medical school classes.”

-Gregory Sawyer ('03), Dartmouth Medical School

“Medicine IS biochemistry, only from a broader perspective”

-Kevin Rice ('96)

Lecture Topics (Tue/Thu, 9:30 - 10:45, Keyes 105):

- Chemical equilibria and thermodynamics
- Biomolecules
 - * Amino acids, peptides, and proteins
 - Protein dynamics
 - Enzymes: catalysis, kinetics, regulation, and inhibition
 - * Lipids
 - Biological membranes and transport
- * Sugars
 - nomenclature and chemistry
- Metabolism
 - * Glycolysis, TCA cycle, and oxidative phosphorylation
 - * Lipid and protein metabolism
 - * Regulation

Discussion sessions (Fri, 12:00 - 12:50, Lovejoy 100): During discussion sessions we will delve a bit deeper into medical biochemistry topics. We might discuss clinical case studies, current relevant biomedical issues, or practical applications of lecture material. We will occasionally share these discussions with local health professionals. There will usually be reading assignments or other preparation assigned specifically for discussion sessions. You are required to attend and participate in all discussion sessions.

Grading / Exams / Quizzes:

- Quizzes will be given promptly at the beginning of every Tuesday lecture, covering the *previous week's* reading and lecture material. These will be multiple-choice and/or (very) short-answer quizzes designed to be about 10 minutes in duration. ***The quizzes are intended only to encourage 'keeping up,' not to be representative of the difficulty of the exams.*** There will be no make-up quizzes. In the event of an excused absence (such as an illness confirmed by the Health Center *prior to class time*), you will not be penalized for the missed quiz. **(15% of final grade)**
- There will be two mid-term exams: (1) **Friday, March 14th** and (2) **Friday, April 25th**. Towards the goal of health professional school preparation (incl. entrance exams), the exams will be largely multiple-choice with some short-answer questions. Exam questions will come from all reading assignments and lecture material, but not from material discussed only during discussion sessions. ***The exams will be more difficult than the quizzes!*** There will be no make-up exams. In the event of an excused absence, you will be given a grade coordinate with your performance relative to the class on the subsequent exam. **(each exam – 20% of final grade)**
- The final exam will be given at a time and place to be assigned by the registrar. The final exam will be *comprehensive*. **(30% of final grade)**
- Attendance and class participation will be part of your grade in the course. During class time you will be expected to have completed the assigned reading and be otherwise prepared to participate in class discussions. This portion of your grade will be assigned at the Professor's discretion. **(15% of final grade)**

Academic dishonesty will not be tolerated. Please refer to the Student Handbook as well as the Chemistry Department policy (www.colby.edu/chemistry/Attend_Exam.html).

For students who have approval from the Dean of Students Office for time extensions on exams, it is departmental policy that these students must establish with the Dean of Students and the Chair of Chemistry an appropriate time extension. This must be accomplished at least two days before the first exam.