BC 298 – Medical Biochemistry        Syllabus – Spring 2006

Instructor: Kevin Rice, Visiting Assistant Professor of Chemistry
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            Office Hours: M-W-F 10:30 – 11:30 (and by appointment)

Course Goals: This will be an intensive course, covering many aspects of biochemistry, including: biomolecules, enzymology, pharmacology, metabolism, and signal transduction. This is a course 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 will often approach material from a medical perspective, without ceding the chemical nature of the discipline. Biochemistry is essential to the study and practice of medicine. But don’t take my word for it . . .

“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. Biochemistry truly appears everywhere in medicine. From ordering lab tests to understanding patient’s physical symptoms, biochemistry constantly comes up in medicine, and the foundation that I received in this area at Colby has really helped me to excel in medical school.”

-Gregory Sawyer (’03), 3rd year, Dartmouth Medical School

“The art and practice of medicine is now more than ever part of a constantly changing landscape. The fast pace of research continually alters our understanding of pathology and disease, allowing for novel pharmacologic approaches that are revolutionizing treatment. The proper administration and adoption of these innovative approaches require a thorough and extensive foundation in biochemistry in order to comprehend and critically evaluate the data presented. This persistent adaptation illustrates the dynamic nature of medical knowledge and emphasizes the absolute importance of establishing a biochemical background with which to analytically assess information.”

-Andrew Brown (’96), M.D., Senior Resident, New York Eye and Ear Infirmary

“Medicine IS biochemistry, only from a broader perspective”        -Kevin Rice (’96)

Text: “Principles of Biochemistry – With a Human Focus”
      Reginald Garrett and Charles Grisham (1997), Brooks/Cole

There will also be supplemental reading materials given in class periodically.

Discussion sections (Fri, 12:00 - 12:50, Olin 234): During discussion sections we will discuss current topics in medical biochemistry, clinical case studies, and practical applications of lecture material. We will occasionally share these discussions with local health professionals. You are required to attend and participate in every discussion.
Lecture Topics (Tue/Thu, 9:30 - 10:45, Keyes 105):

Chemistry & biomolecules
Amino acids, peptides, & proteins
Enzymes: catalysis and kinetics
Enzymes: regulation and inhibition
Pharmacological enzyme inhibition

The biochemistry of blood
Metabolism: organization & glycolysis
Metabolism: TCA cycle & Ox. Phos.
Nutrition & disease
Signal Transduction

Reading assignments will be given weekly during class.

Grading / Exams / Quizzes:

• **Quizzes** will be given at the beginning (promptly!) of every discussion section 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. There will be no quiz during the first week’s discussion section and no quizzes during exam weeks. 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 17th**, during discussion section and (2) **Friday, April 21st**, during discussion section. The exams will consist of a combination of multiple-choice and short-answer questions. Exam questions will come from all reading assignments, lecture material, and discussion section topics. There will be no make-up exams. In the event of an excused absence (same as above – PRIOR NOTIFICATION REQUIRED), 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 required for this class. Class absences and tardiness will have consequences on 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](http://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.