CHEM 570/BIOS 570X **General Biological Chemistry; 3 credit hrs** **Fall 2015**
(course #: 5921/5876)

Lectures: M W 6:00 – 7:15 p.m., La Tourette Hall 200

Instructor: Dr. Oliver Hofstetter, Associate Professor
Office: La Tourette Hall 428 Phone: 753-6898 e-mail: ohofst@niu.edu
Office hours: T/W 11:00 – 11:50 a.m., or by appointment
Course webpage: http://webcourses.niu.edu/

Required text: Lehninger "Principles of Biochemistry", 6th ed., Freeman (2013).
Recommended Study Guide: "The Absolute, Ultimate Guide to Lehninger Principles of Biochemistry, Study Guide and Solutions Manual."

Tentative Lecture Schedule:

Week Beginning	Chapter	Lecture Topic
August 24	1	Introduction to Biochemistry, Cells
August 31	1, 2	Cells (contd.), Water
September 7	2, 3	Water (contd.), Amino Acids
EXAM 1, Monday, September 14, 6:00 – 7:15 p.m.		
September 14	3	Amino Acids (contd.)
September 21	3, 4, 5	Peptides, Proteins, Protein Function
September 28	4, 5	Protein Function (contd.)
EXAM 2, Monday, October 5, 6:00 – 7:15 p.m.		
October 5	6	Enzymes
October 12	6	Enzymes (contd.)
October 19	6, 7	Enzymes (contd.), Carbohydrates and Glycobiology
EXAM 3, Monday, October 26, 6:00 – 7:15 p.m.		
October 26	7, 8	Carbohydrates and Glycobiology (contd.), Nucleotides and Nucleic Acids
November 2	8	Nucleotides and Nucleic Acids (contd.)
November 9	10	Lipids
EXAM 4, Monday, November 16, 6:00 – 7:15 p.m.		
November 16	13, 14	Principles of Bioenergetics, Glycolysis and Catabolism of Hexoses
November 23	14, 16	Catabolism of Hexoses (contd.), Citric Acid Cycle
November 30	16, 19	Citric Acid Cycle, Oxidative Phosphorylation
EXAM 5, Monday, December 7, 6:00 – 7:50 p.m.		

"No Class" Days: September 7 and November 25.

Exams: Each exam will be worth 100 points. Exam 5 will occur during the final exam period.
Make-up exams: No individual make-up exams will be offered.
Grades: Note that graduate students are required to demonstrate advanced knowledge, skills, and abilities, especially when compared to the requirements established for undergraduate students. In this class, graduate students are expected to demonstrate that they master all material covered in this class; therefore, graduate students **cannot drop any exam results**, and their final letter grade will be based on the total **points** obtained on all five exams using the following cut-offs:
A: 500 – 466 pts. (≥ 93.2%); A-: 450 – 465 pts. (90 – 93%), B+: 436 – 449 pts. (87.2 – 89.8%); B: 416 – 435 pts. (83.2 – 87%); B-: 400 – 415 pts. (80 – 83%); C+: 386 – 399 pts. (77.2 – 79.8%); C: 366 – 385 pts. (73.2 – 77%); C-: 350 – 365 pts. (70 – 73%); D: 300 – 349 pts. (60 – 69.8%); F: < 300 pts. (< 60%). The scale will not be raised, but it may be lowered.

Additional Information:

Intended Learning Outcomes: This course aims to provide an overall view of biochemistry including structure, properties, function, and metabolism of biologically important compounds.

In particular, students taking this course should

- Appreciate the breadth of biochemistry and gain an understanding of its basic principles
- Understand the role of cells as the structural and functional units of all living organisms
- Recognize and utilize chemical structures for describing biomolecules and biochemical processes
- Understand the properties of water and its role as solvent and reactant
- Learn the principles of ionization, acid-base properties, and buffers
- Develop a solid knowledge of the structure, properties, and function of the building blocks of biological macromolecules and their polymerization/association/conjugation products
- Understand the principles of enzyme kinetics, mechanisms, and regulation
- Comprehend the basics of thermodynamics and bioenergetics, and recognize how they apply to metabolic processes
- Develop a solid knowledge of Glycolysis, the Citric Acid Cycle, and Oxidative Phosphorylation and understand the underlying structural, regulatory, and energetic principles for the production of ATP and equivalents.

Accommodations for Students with Disabilities: If you need an accommodation for this class, please contact the Disability Resource Center (DRC) as soon as possible. The DRC coordinates accommodations for students with disabilities. It is located on the 4th floor of the Health Services Building, and can be reached at 815-753-1303 (V) or drc@niu.edu. Students are encouraged to inform the instructor privately of their requests for accommodations as early as possible in the semester. Please note that requests must be made in a timely enough manner for accommodations to be appropriately considered and reviewed (i.e., at least one week before an exam).

Academic Integrity: Good academic work must be based on honesty. The attempt of any student to present as his or her own work that which he or she has not produced is regarded by the faculty and administration as a serious offense. Students are considered to have cheated if they copy the work of another during an examination or turn in a paper or an assignment written, in whole or in part, by someone else. Students are responsible for plagiarism, intentional or not, if they copy material from books, magazines, or other sources without identifying and acknowledging those sources or if they paraphrase ideas from such sources without acknowledging them. Students responsible for, or assisting others in, either cheating or plagiarism on an assignment, quiz, or examination may receive a grade of F for the course involved and may be suspended or dismissed from the university.

A faculty member has original jurisdiction over any instances of academic misconduct that occur in a course which the faculty member is teaching. The student shall be given the opportunity to resolve the matter in meetings with the faculty member and the department chair. If the facts of the incident are not disputed by the student, the faculty member may elect to resolve the matter at that level by levying a sanction no greater than an F for that course. The faculty member shall notify the student in writing whenever such action is taken, and the Office of Community Standards and Student Conduct shall receive a copy of the Academic Misconduct Incident Report indicating final disposition of the case, which will be placed in the student's judicial file. In all matters where the charge of academic misconduct is disputed by the student or if the faculty member feels a sanction greater than an F in the course is appropriate (such as repeated offenses or flagrant violations), the faculty member shall refer the matter to the Office of Community Standards and Student Conduct making use of the Academic Misconduct Incident Report. Additional sanctions greater than an F in a course can be levied only through the University Judicial System. With regards to finding the student either responsible or not responsible for his or her action, the ruling of the Judicial Hearing Board shall be binding. In cases where there is either a finding of responsibility or an admission of responsibility by the student, any recommendations by the hearing board regarding the course grade are non-binding on the instructor, who remains solely responsible for assigning a course grade, consistent with the policies set forth in the course syllabus.

Attendance: The University does not use a "cut" system. Each instructor decides whether to excuse class absences and determines how to permit make-up work. If a student will be absent from classes for a week or more because of an accident, illness, or other emergency, instructors will be notified of the absence only if students or their parents request it through the Division of Student Affairs. Health Services will not release information about students unless they provide a written request.

Leaves of absence will be granted for volunteer services related to disaster relief in accordance with applicable Illinois statutes or executive orders issued by the State of Illinois in response to emergency situations. To initiate a leave of absence, students should contact their College Dean's office, or the vice provost (or the vice provost's delegate) for any student who has no college affiliation. Following the period of volunteer service, Registration and Records will facilitate reenrollment of the student.

Students are expected to comply with each individual instructor's established attendance policy. It is recommended that students avoid registering for classes in which they would amass significant absences. In the case of an absence due to required attendance at a university-sponsored event such as a department trip, performing arts activity, ROTC function, or athletic competition, reasonable attempts shall be made by faculty members to allow the student to make up missed work.

Students are responsible for completing the work assigned and/or due on the days they are absent for university-sponsored events. Both the sponsoring unit and the student should inform the faculty member as soon as possible in the semester in order for arrangements to be made for completing missed assignments, examinations or other required course work. The student is required to provide each instructor with an official notification in advance of the absence (e.g., a letter from the chair of the sponsoring department, the head of the sponsoring unit, or the coach).

Final Exam Policy governing students scheduled for three finals in the same day: Students whose class schedule commits them to take three final examinations in one day may elect to have the examination in the highest-numbered course of the three rescheduled. However, if the occurrence of three finals in one day is the result of the examination in a particular class having been rescheduled (with appropriate approval), the examination that does not conform to the announced schedule is the one the student may elect to have rescheduled.

In order to reschedule an examination, the student should contact the course instructor at least one week prior to the first day of final examination week.

More Information on Final Exam Policies: http://www.niu.edu/regrec/dates/policy.shtml