

Lectures: Tu Th 9:30 – 10:45 a.m., FW 201

Instructor: Dr. Oliver Hofstetter, Associate Professor

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Office hours: Tu/Th 10:50 – 11:50 a.m., or by appointment

Course webpage: <http://webcourses.niu.edu/>

Required text: Lehninger “Principles of Biochemistry;” any of the following editions may be used: 4th ed., Freeman (2004/2005); 5th ed., Freeman (2008); or **6th ed., Freeman (2013)**.

Recommended Study Guide: “The Absolute, Ultimate Guide to Lehninger Principles of Biochemistry, Study Guide and Solutions Manual.”

Tentative Lecture Schedule:

<u>Week Beginning</u>	<u>Chapter</u>	<u>Lecture Topic</u>
January 13	13	Introduction, Principles of Bioenergetics
January 20	14,15	Glycolysis and the Catabolism of Hexoses
January 27	16	The Citric Acid Cycle
February 3	17	Oxidation of Fatty Acids
February 10	18	Amino Acid Oxidation and the Production of Urea
	EXAM 1, February 13, 9:30 a.m.-10:45 a.m.	
February 17	19	Oxidative Phosphorylation
February 24	14,15	Carbohydrate Biosynthesis
March 3	21	Lipid Biosynthesis
March 10	Spring Break	
March 17	22	Biosynthesis of Amino Acids, Nucleotides, and Related Molecules
March 24	23	Integration and Hormonal Regulation of Mammalian Metabolism
	EXAM 2, March 27, 9:30 a.m.-10:45 a.m.	
March 31	24	Genes and Chromosomes
April 7	25	DNA Metabolism
April 14	26	RNA Metabolism
April 21	27	Protein Metabolism
April 28	28	Regulation of Gene Expression
	EXAM 3, May 8, 10:00 a.m.-11:50 a.m.	

Exams: Each exam will be worth 100 points. Exam 3 will occur during the final exam period. Graduate students are required to give a presentation on a selected topic. This presentation is also worth 100 points. Extra credit may be earned through extraordinary participation in class.

Make-up exams: No individual make-up exams will be offered.

Late Policy: Lecture attendance is not mandatory, but highly recommended. In order to provide an undistracted learning environment for students, latecomers will not be allowed to attend class if they are more than 5 minutes late.

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 **are required to give a presentation and cannot drop any exam results**; their final letter grade will be based on the total **points** obtained on three exams and their presentation using the following cut-offs:

A: 400 – 373 pts. ($\geq 93.25\%$); A-: 360 – 372 pts. (90 – 93%); B+: 349 – 359 pts. (87.25 – 89.75%); B: 333 – 348 pts. (83.25 – 87%); B-: 320 – 332 pts. (80 – 83%); C+: 309 – 319 pts. (77.25 – 79.75%); C: 293 – 308 pts. (73.25 – 77%); C-: 280 – 292 pts. (70 – 73%); D: 240 – 279 pts. (60 – 69.75%); F: < 240 pts. (< 60%). The scale will not be raised, but it may be lowered.

Additional Information:

Intended Learning Outcomes: This course aims to provide a detailed view of the metabolism of carbohydrates, lipids, and nitrogenous compounds, including proteins and nucleic acids. The principles of metabolic regulation and biological information flow from genes to proteins are also discussed.

In particular, students taking this course should

- Appreciate the breadth of biochemistry and gain an understanding of its basic principles
- Recognize and utilize chemical structures for describing biomolecules and biochemical processes
- Comprehend the basics of thermodynamics and bioenergetics, and recognize how they apply to metabolic processes
- Develop a solid knowledge of the major catabolic and anabolic pathways; and, thus, of regulatory, and energetic principles for the production and consumption, respectively, of ATP and equivalents
- Understand the principles of biological information flow and comprehend the structural and functional relationship between DNA, RNA, and gene products
- Learn, how to prepare and give a scientific presentation

Accommodations for Students with Disabilities: Northern Illinois University is committed to providing an accessible educational environment in collaboration with the Disability Resource Center (DRC). A student who believes that reasonable accommodations with respect to course work or other academic requirements may be appropriate in consideration of a disability must (1) provide the required verification of the disability to the DRC, (2) meet with the DRC to determine appropriate accommodations, and (3) inform the faculty in charge of the academic activity of the need for accommodation. **Students are encouraged to inform the faculty of their requests for accommodations as early as possible in the semester, but must make the requests in a timely enough manner for accommodations to be appropriately considered and reviewed (i.e., at least one week before an exam!).** If contacted by the faculty member, the staff of the DRC will provide advice about accommodations that may be indicated in the particular case. Students who make requests for reasonable accommodations are expected to follow the policies and procedures of the DRC in this process. A wide range of services can be obtained by students with disabilities, including housing, transportation, adaptation of printed materials, and advocacy with faculty and staff. Students with disabilities who need such services or want more information should contact the DRC, which is located on the 4th floor of the Health Services Building, and can be reached at 815-753-1303 (V) or drc@niu.edu.

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. **As stated above, in this course lecture attendance is not mandatory, but highly recommended. In order to provide an undistracted learning environment for students, latecomers will not be allowed to attend class if they are more than 5 minutes late. Furthermore, no individual make-up exams will be offered.**

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 must 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>