

Course Syllabus, Vernal Term 2017 C.E. (Last Updated 13 December 2016 C.E.)

BIO353: Cell Biology
Section Number 13300
09 January - 28 April 2017 C.E.
Lecture: MWF 08:35 - 09:25 CLCC299

Course Description

This course surveys major topics in cell biology, including structural, biochemical, and molecular aspects of cell function. Pre-requisites: BIO 181 (or BIO 188 or MBB 247) and BIO 182 (or BIO 187 or MBB 245 or both PLB 200 & PLB 201) with C or better; CHM 113 and CHM 116 (or CHM 117 and CHM 118) with C or better.

Instructor Information

Ty C.M. Hoffman, Ph.D.
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6025432901
Office Hours: CLCC217B, W 09:55 - 10:55; F 10:30 - 11:30; and by appointment via email

Course Objectives

To review fundamental topics of biology at the cellular level and that were introduced in BIO181
To gain a better understanding of how various organelles function individually and cooperatively
To become acquainted with some major biochemical pathways
To appreciate the flow of information that occurs within and between cells

Student Learning Outcomes

The successful student will gain understanding of the following topics.

- Chemical and biological properties of biological macromolecules
- Synthesis, structure, and function of proteins
- Storage, replication, and transcription of genetic information
- Function and molecular organization of cell membranes
- Intracellular compartmentalization and transport of cellular contents
- Signal transduction and intercellular communication
- Structure and function of the cytoskeleton
- Events within, functions of, and control of the cell cycle

Course Website

As stated on Blackboard, you will be using my own (non-Blackboard) website, which you can always access via Blackboard. The URL for the general site is:

<http://www.public.asu.edu/~thoffman>

From that site, you can find the link to your specific section. Be sure to bookmark the site, so you can access it even if Blackboard is down. **You are REQUIRED to check the website daily**, even if nothing changes. The website includes (or will include) various resources to help you succeed. It is also where official announcements will be posted (whether I make those announcements in class or not). Failure to notice an announcement posted on the website will not be a valid excuse, so check the website frequently. You must still visit Blackboard to access individualized or private information, including your assignments and your scores.

Rules Consent Form

You will not receive any credit for this course unless you electronically submit the Rules Consent Form found on the website. I cannot overstate how important it is to fully read and understand that form. You can easily receive a zero if you take this lightly. Believe me; it happens every term.

Required Resource

You must purchase access to MasteringBiology and enroll in my Modified MasteringBiology course. **This MUST be done directly through Blackboard**, using instructions and links found on the Homework page of Blackboard.

Supporting Text (See note about textbooks on the course website)

Becker's World of the Cell 9th ed. by Hardin, et al. (ISBN 978-0321934925)

(8th Edition is ISBN 978-0321716026)

(7th Edition is ISBN 0805393935)

(5th Edition is ASIN B002NNWXWU)

Attendance and Punctuality

I expect you to attend every lecture. Doing so is important to earning a satisfactory grade. You will lose points for not attending. I also expect you to appear in the classroom early enough so that you are completely ready to begin the activity at the scheduled beginning of class. If you walk through the door at the time the class is scheduled to begin, then you are late. Tardiness is rude and disruptive, and it will result in the same loss of points as for the case of absence. If something about your schedule makes you unable to make it to class on time, then you have enrolled in the wrong section.

Electronic Devices

During the lecture portion of any class period (i.e., whenever I am talking), I will not tolerate any student using a cell phone, electronic tablet, or any other such device, unless it is for a purpose related to the course. If I see you doing so, you will lose all points for the day, which will be the same as not attending. Therefore, if you want to send messages to friends during class time, you might as well skip class and receive your zero from the comfort of home.

My Absolutely Rigid Policy on Missing Lecture Examinations

It's important for everyone to be aware of the policy regarding make-up lecture examinations. If you fail to complete a scheduled lecture examination by the deadline for that examination, there will be no official penalty for missing the examination. However, it is my strict policy that multiple-choice lecture examinations may be taken only when they are scheduled to be taken (i.e., per the most recently updated syllabus). This means that all make-up lecture examinations will consist of short-answer or essay type questions. **NO MAKE-UP LECTURE EXAMINATION WILL EVER BE A MULTIPLE- CHOICE TEST.** To ensure that you fully understand my policy, please re-read the previous sentence. The material treated on a make-up examination will be the same material treated on the corresponding multiple-choice version. In that sense, one can say that the make-up examinations are therefore no more difficult. But for many students in my experience, scores on short-answer tests are significantly lower than those on multiple-choice tests. This is because doing well on a short-answer test requires that you truly know what you're talking about. Guessing is much less likely to net you a correct answer. I'm telling you this, on the one hand, to make the official policy known. But even more importantly, I'm telling you this to strenuously dissuade you from missing a lecture examination for

any but the most unavoidable of reasons. Doing well in this class **REQUIRES** that you make the class a priority. Therefore, if you'd like to receive a good grade, you would do well to save excuses for the other things that might coincide with the test dates, not vice-versa.

Point Distribution

	<u>With Attendance</u>	<u>Without Attendance</u>
Lecture examinations	5 at 13.2% each; 66% total	5 at 14.7% each; 73.5% total
Assignments	25 at 0.88% each; 22% total	25 at 0.98% each; 24.5% total
Attendance	45 at ca. 0.22% each; 10% total	Does not apply
Participation	indeterminate; 2% total	indeterminate; 2% total

Grades

The minimum final scores for the respective letter grades are given below.

97% A+
93% A
90% A-
87% B+
83% B

80% B-
77% C+
70% C
60% D

Schedule of Topics to be Treated (This could change before or after the semester starts.)

Date	Chapter and Topic	Notes
M 09 Jan	Ch. 01: A Preview of Cell Biology	
W 11 Jan	Ch. 02: The Chemistry of the Cell	
F 13 Jan	Ch. 02: The Chemistry of the Cell	
M 16 Jan	Observance of TRDMLKJD (No Meeting)	
W 18 Jan	Ch. 03: The Macromolecules of the Cell	
F 20 Jan	Ch. 03: The Macromolecules of the Cell	
M 23 Jan	Ch. 04: Cells and Organelles	
W 25 Jan	Ch. 04: Cells and Organelles	
F 27 Jan	Examination 1	
M 30 Jan	Ch. 05: Bioenergetics: The Flow of Energy in the Cell	Homework due at 23:59 (Chs. 01 - 04)
W 01 Feb	Ch. 06: Enzymes: The Catalysts of Life	
F 03 Feb	Ch. 06: Enzymes: The Catalysts of Life Ch. 07: Membranes: Their Structure, Function, and Chemistry	
M 06 Feb	Ch. 07: Membranes: Their Structure, Function, and Chemistry	
W 08 Feb	Ch. 08: Transport Across Membranes: Overcoming the Permeability Barrier	
F 10 Feb	Ch. 08: Transport Across Membranes: Overcoming the Permeability Barrier	
M 13 Feb	Ch. 09: Chemotrophic Energy Metabolism: Glycolysis and Fermentation	
W 15 Feb	Ch. 09: Chemotrophic Energy Metabolism: Glycolysis and Fermentation	
F 17 Feb	Examination 2	
M 20 Feb	Ch. 10: Chemotrophic Energy Metabolism: Aerobic Respiration	Homework due at 23:59 (Chs. 05 - 09)
W 22 Feb	Ch. 10: Chemotrophic Energy Metabolism: Aerobic Respiration Ch. 11: Phototrophic Energy Metabolism: Photosynthesis	
F 24 Feb	Ch. 11: Phototrophic Energy Metabolism: Photosynthesis	
M 27 Feb	Ch. 11: Phototrophic Energy Metabolism: Photosynthesis	
W 01 Mar	Ch. 12: The Endomembrane System	
F 03 Mar	Ch. 13: Cytoskeletal Systems	
M 06 Mar	Vernal Hiatus (No Meeting)	
W 08 Mar		
F 10 Mar		
M 13 Mar		Ch. 13: Cytoskeletal Systems Ch. 14: Cellular Movement: Motility and Contractility
W 15 Mar	Ch. 14: Cellular Movement: Motility and Contractility	
F 17 Mar	Examination 3	Homework due at 23:59 (Chs. 10 - 14)
M 20 Mar	Ch. 15: Beyond the Cell: Cell Adhesions, Cell Junctions, and Extracellular Structures	
W 22 Mar	Ch. 16: The Structural Basis of Cellular Information: DNA, Chromosomes, and the Nucleus	
F 24 Mar	Ch. 16: The Structural Basis of Cellular Information: DNA, Chromosomes, and the Nucleus Ch. 17DNA Replication, Repair, and Recombination	
M 27 Mar	Ch. 17DNA Replication, Repair, and Recombination	
W 29 Mar	Ch. 18: Gene Expression: I. The Genetic Code and Transcription	
F 31 Mar	Ch. 18: Gene Expression: I. The Genetic Code and Transcription	
M 03 Apr	Ch. 19: Gene Expression: II. Protein Synthesis and Sorting	
W 05 Apr	Ch. 19: Gene Expression: II. Protein Synthesis and Sorting	
F 07 Apr	Examination 4	
M 10 Apr	Ch. 20: The Regulation of Gene Expression	Homework due at 23:59 (Chs. 15 - 19)
W 12 Apr	Ch. 20: The Regulation of Gene Expression Ch. 22: Signal Transduction Mechanisms: I. Electrical and Synaptic Signaling in Neurons	
F 14 Apr	Ch. 22: Signal Transduction Mechanisms: I. Electrical and Synaptic Signaling in Neurons	
M 17 Apr	Ch. 23: Signal Transduction Mechanisms: II. Messengers and Receptors	
W 19 Apr	Ch. 23: Signal Transduction Mechanisms: II. Messengers and Receptors Ch. 24: The Cell Cycle and Mitosis	
F 21 Apr	Ch. 24: The Cell Cycle and Mitosis	
M 24 Apr	Ch. 25: Sexual Reproduction, Meiosis, and Genetic Recombination	
W 26 Apr	Ch. 25: Sexual Reproduction, Meiosis, and Genetic Recombination	
F 28 Apr	Ch. 26: Cancer Cells	
W 03 May	Examination 5 (07:30 NOT 08:35)	
F 05 May	No Meeting	Homework due at 23:59 (Chs. 20, 22 - 26)

Disclaimer

Course content and point allocation may vary from this outline to meet the needs of this particular group.

Course/Instructor Evaluation

The course/instructor evaluation for this course will be conducted online 7-10 days before the last official day of classes of each semester or summer session. Your response(s) to the course/instructor are anonymous and will not be returned to your instructor until after grades have been submitted. The use of a course/instructor evaluation is an important process that allows our college to (1) help faculty improve their instruction, (2) help administrators evaluate instructional quality, (3) ensure high standards of teaching, and (4) ultimately improve instruction and student learning over time. Completion of the evaluation is not required for you to pass this class and will not affect your grade, but your cooperation and participation in this process is critical. About two weeks before the class finishes, watch for an e-mail with "**NCIAS Course/Instructor Evaluation**" in the subject heading. The email will be sent to your official ASU e-mail address.

Withdrawals: The instructor will **NOT** withdraw students for any reason. Specifically, students should be aware that non-attendance will **NOT** automatically result in their being dropped from the course. Therefore, if a student does not attend class during the first week or for any extended period of time during the semester, they should not presume that they are no longer registered. **It is the student's responsibility to be aware of their registration status.**

Please note the following dates:

Session Date & Deadlines	Session A 01/09/2017 – 02/28/2017	Session B 03/13/2017 – 04/28/2017 (ASU Online & iCourses may end on 05/02/2017)	Session C 01/09/2017 – 04/28/2017 (Final Exams May 1-6, 2017)
Classes Begin	January 9, 2017	March 13, 2017	January 9, 2017
Drop/Add Deadline (w/out College approval)	January 10, 2017	March 14, 2017	January 15, 2017
Tuition & Fees 100% Refund Deadline	January 15, 2017	March 19, 2017	January 22, 2017
Martin Luther King Jr. Holiday Observed – University Closed	January 16, 2017	January 16, 2017	January 16, 2017
University 21 st Day	January 30, 2017	April 3, 2017	January 30, 2017
Academic Status Report #1	January 21-25, 2017	March 22-26, 2017	February 13-20, 2017
Deadline to Apply for Graduation	February 15, 2017	February 15, 2017	February 15, 2017
University 45 th Day	February 22, 2017	February 22, 2017	February 22, 2017
Tuition Fee Payment Deadline (registration from 1/19-2/18/2017)	February 25, 2017	February 25, 2017	February 25, 2017
Course Withdrawal Deadline	January 27, 2017	March 31, 2017	April 2, 2017
Complete Session Withdrawal Deadline	February 28, 2017	April 28, 2017	April 28, 2017
Spring Break - Classes Excused	March 5-12, 2017	March 5-12, 2017	March 5-12, 2017
Academic Status Report #2	NA	N/A	March 23 -30, 2017
Tuition Fee Payment Deadline (registration from 2/19-3/18/2017)	March 25, 2017	March 25, 2017	March 25, 2017
Classes End/Last Day to Process transactions	February 28, 2017	April 28, 2017	April 28, 2017
Final Exams	Last day of classes	Last day of classes	May 1-6, 2017
Final Grades Due	March 3, 2017	May 1-8, 2017	May 1-8, 2017
Commencement	May 8, 2017	May 8, 2017	May 8, 2017
Degree Conferral Date	May 8, 2017	May 8, 2017	May 8, 2017
Grade Replacement/Academic Standing Processing	May 9-10, 2017	May 9-10, 2017	May 9-10, 2017

Any withdrawal transaction must be completed by the deadline date in accordance to the appropriate session at the registrar's office. If not, you will still be officially enrolled and you will receive a grade based on your work completed.

*As part of a complete session withdrawal a student must withdraw from all classes in a session. Beginning the first day of classes, undergraduate students are required to work with a Student Retention Coordinator to facilitate the withdrawal process. Please refer to <http://students.asu.edu/StudentRetention>

For additional information about ASU's withdrawal policy and the possible consequences of withdrawing from a class, contact Registration Services or your academic counselor.

Students are responsible for their registration status!

The Grade of Incomplete: A grade of incomplete will be awarded only in the event that a documented emergency or illness prevents a student who is doing acceptable work from completing a small percentage of the course requirements at the end of the semester. The guidelines in the current general ASU catalog regarding a grade of incomplete will be strictly followed. **A grade of incomplete will NOT be awarded unless there is documented evidence of extreme personal or immediate family hardship.** Changes in work hours, child-care emergencies, or other similar personal problems will not be approved as reasons for awarding incompletes. The Director of the School of Mathematical and Natural Sciences must approve all incomplete grade requests.

Reasonable Accommodations for Students with Disabilities: The Disability Resource Center (DRC) provides information and services to students with any documented disability who are attending ASU West. Individualized program strategies and recommendations are available for each student as well as current information regarding community resources. Students also may have access to specialized equipment and supportive services and should contact the instructor for accommodations that are necessary for course completion.

Academic Integrity and Code of Conduct:

As defined in the *ASU Student Academic Integrity Policy*: <http://provost.asu.edu/academicintegrity>.

Each student has an obligation to act with honesty and integrity, and to respect the rights of others in carrying out all academic assignments. A student may be found to have violated this obligation and to have engaged in academic dishonesty if during or in connection with any academic evaluation, he or she:

- Engages in any form of academic deceit;
- Refers to materials or sources or employs devices (e.g., audio recorders, crib sheets, calculators, solution manuals, or commercial research services) not authorized by the instructor for use during the academic evaluation;
- Possesses, buys, sells, obtains, or uses, without appropriate authorization, a copy of any materials intended to be used for academic evaluation in advance of its administration;
- Acts as a substitute for another person in any academic evaluation;
- Uses a substitute in any academic evaluation;
- Depends on the aid of others to the extent that the work is not representative of the student's abilities, knowing or having good reason to believe that this aid is not authorized by the instructor;
- Provides inappropriate aid to another person, knowing or having good reason to believe the aid is not authorized by the instructor;
- Engages in plagiarism;
- Permits his or her work to be submitted by another person without the instructor's authorization; or
- Attempts to influence or change any academic evaluation or record for reasons having no relevance to class achievement.

BIO353 follows the ASU Academic Integrity Policy in the administration of all course examinations and assignments. Violations of the University Academic Integrity policy will not be ignored. Penalties include reduced or no credit for submitted work, a failing grade in the class, a note on your official transcript that shows you were punished for cheating, suspension, expulsion and revocation of already awarded degrees. The university requires that the

implementation of any of these penalties for violations of the academic integrity policy be reported to the Dean's office. The Integrity Policy defines the process to be used if the student wishes to appeal this action.

In BIO353 you are expected to follow the *ASU Student Code of Conduct* (<http://students.asu.edu/srr/code>) especially when communicating with your peers, instructors, and teaching assistants. Violations of the student code of conduct may result in withdrawal from the class.

Missed Work/Exam Make-up Policy: Due dates for assignments and exam dates are not flexible. Late work will not be accepted, and missed exams cannot be made up, without prior approval of the instructor and without appropriate documentation of a medical or other emergency. The instructor has the right to deduct 10% of the value of the assignment, per day, for any late work or exams that are accepted. The instructor also may add additional provisions to this policy as dictated by course requirements.

Final Exam Make-up Policy: The final exam schedule listed in the Schedule of Classes will be strictly followed. Exceptions to the schedule and requests for make-up examinations can be granted only by the director of the School of Mathematical and Natural Sciences for one of the following reasons:

- 1) religious observances
- 2) the student has more than three exams scheduled on the same day
- 3) two finals are scheduled to occur at the same time

Make-up exams will **NOT** be given for reasons of non refundable airline tickets, vacation plans, work schedules, weddings, family reunions, or other such activities. Students should consult the final exam schedule before making end-of-semester travel plans.

If there is a last-minute personal or medical emergency, the student may receive a grade of Incomplete and makeup the final within one calendar month. The student must provide written documentation and be passing the class at the time to receive an Incomplete. A signed "Request for Grade of Incomplete" must be submitted by the student and approved by the student's instructor and the Director of the School of Mathematical and Natural Sciences.

The instructor reserves the right to make changes to this syllabus as needed.

If you find it necessary to leave a note for this instructor, please contact the administrative reception desk of the School of Mathematical and Natural Sciences located at CLCC II 265

Title IX:

Title IX is a federal law that provides that no person be excluded on the basis of sex from participation in, be denied benefits of, or be subjected to discrimination under any education program or activity. Both Title IX and university policy make clear that sexual violence and harassment based on sex is prohibited. An individual who believes they have been subjected to sexual violence or harassed on the basis of sex can seek support, including counseling and academic support, from the university. If you or someone you know has been harassed on the basis of sex or sexually assaulted, you can find information and resources at <https://sexualviolenceprevention.asu.edu/faqs>

Policy against Threatening Behavior:

In the classroom and out students are required to conduct themselves in a manner that promotes an environment that is safe and conducive to learning and conducting other university-related business. All incidents and allegations of violent or threatening conduct by an ASU student will be reported to the ASU Police Department (ASU PD) and the Office of the Dean of Students. Such incidents will be dealt with in accordance with the policies and procedures described in Section 104-02 of the Student Services Manual (<http://www.asu.edu/aad/manuals/ssm/ssm104-02.html>).

Potentially Offensive Content:

A notification such as the following should be included in the syllabus if appropriate for the class in question.

If you find any of the content of his class offensive, please bring your concerns to the instructor immediately.

Power Outage:

In the event of a campus power outage or other event affecting the ability of the University to deliver classes, any decision to cancel classes will be announced using the ASU emergency notification system. For this reason, it is imperative that students register with the ASU emergency notification system at: <https://cfo.asu.edu/emergency-alert>. In cases in which

a limited number of buildings are affected, students should check the university website and/or call the School office at (602) 543-6050.

Emergency Evacuation Plan:

Students should be aware of the evacuation route posted on the exit door of each classroom. Students who cannot walk down stairs should notify the instructor as early in the course as possible so the instructor can provide information regarding the location of the designated meeting area on each upper floor of the building (marked with a blue sign that states Emergency Evacuation Response Area).