

BIOSC 0155: UHC FOUNDATIONS OF BIOLOGY I
Department of Biological Sciences
University of Pittsburgh

Faculty:

- **Zuzana Swigonova Ph.D.**
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- Phone: 412-624-3288 (please do not leave a message, send me an email if I am not in my office)

Office Hours:

- Tuesdays: 2:00 AM - 3:00 PM
- Thursdays: 3:00 - 4:00 PM
- All office hours will be conducted online via Zoom. You are welcome and encouraged to attend office hours if you need help with the course material or have general course related issues.
- You can also arrange for an *office hour by appointment* if your questions have not been addressed during regular office hours or in class by sending me an email with 3 time slots to meet - this time is reserved to discuss course related issues of private nature that require confidentiality. This time is not for discussions of general class issues, ways how to study, or negotiate grades. To estimate your current class performance, see the grade policy below.
- Depending on general needs, the time of office hours may change during the semester to accommodate most students. You are expected to be prepared for the office hours with questions written down or marked in your notebook.

Lecture & Recitation:

This is 100% in-person instruction course. Attendance is mandatory – the class is run in a hybrid mode consisting of lectures and active learning exercises. You will be required to work independently as well as collaborate with your peers on problem solving activities. **There are no make-up opportunities for missed points from in-class work due to unexcused absence!**

Course objectives:

This is the first part of a two-semester introductory course in biology. In this course we will study the fundamental principles of life. We examine the structure and function of a cell and expand our investigations to the organismal level. The running theme throughout the course is biological synthesis: what are the mechanisms used to accomplish the basic biological functions and how are cellular and organismal processes related and regulated. The major goal of this course is to develop critical thinking and problem-solving abilities. That, however, can be accomplished only via an active learning. Thus, do not just sit and listen, BUT listen, think, question, review, and synthesize!

The main topics covered in this course are:

- Basic chemistry of life at the molecular and cellular level
- Cells: Structural and functional units of life
- Utilization of energy and life
- Introduction to genetics and genomics
- Applications of basic principles to understand physiology of plants and animals

Textbook:

- [Life, The Science of Biology](#), Author: Sadava, Hillis, Heller, and Hacker. Publisher: Sinauer & Macmillan, Edition: 11th, Year Published: 2016
 - Textbook is required, (you do not need Launchpad, it is optional, you may use it for an extra practice)
 - Hardcover: ISBN: 978-1319010164
 - Loose-leaf: ISBN: 978-1319125172 (may not sell back)
 - eBook: ISBN: 978-1319010164
- [TopHat](#) – required; this is an online resource we will use for review assessments; you will receive an email invite to sign into the course shell

Note: You will be responsible to read chapters and specific parts from the textbook that may or may not be covered in lecture.

Canvas:

Course material, Zoom link to office hours, assessment results will be accessible from Canvas. Main communication with the class will be during scheduled class times, Zoom office hours and via Canvas announcements.

Assignments:

Weekly assignments include reading of background chapters as indicated in the course schedule. You are required to read the assigned chapter prior to lecture. There will be additional readings based on the topics covered (such as peer reviewed journal articles), which will be announced in class and posted on Canvas. You must check Canvas regularly before each class for new postings. Be proactive, this is a dynamic class and active participation is essential for success in this course.

Class:

This course runs in a semi-flipped instructional mode. Classes will consist of lectures and active-learning exercises during which you will be expected to work individually as well collaborate on problem solutions with your peers. You are expected to read the assigned chapters before each period (see course schedule), review covered material as needed, and take notes during class. Be prepared to answer questions anytime during class! There will be plenty of opportunities for discussions. Be prepared and keep up with your studying. Active participation and constructive comments are expected from you during class at any time.

Class Etiquette:

Class time is reserved for learning. Late arrival or early dismissal is disruptive and disrespectful of your classmates and the instructor. If there are extenuating circumstances that necessitated a late arrival, you should quietly enter the classroom and select a seat closest to the entry to minimize disruption. Furthermore, there should be no talking outside of designated discussion periods. Cell phones should be turned off during class time (unless instructed for TopHat use). You may use tablet or a computer notebook in class to make notes. Absolutely no texting, picture taking, or emailing during class lecture or work. Inappropriate behavior and usage of technology will be dealt according to the University Guidelines on Academic Integrity (see below).

Computers & Tablets:

It is your responsibility to have an appropriate electronic device that allows you to connect to TopHat and Zoom and access course material via Canvas. You may request to borrow a device by contacting the [Information Technology](#) support office.

Grading:

All exams will be administered in-class as a hard-copy exam. All other assignments are accessible from Canvas and all submissions also occur via Canvas within designated links. Please follow the course schedule that lists all the assignment due dates. There are no participation points, all points are from completed work!

All grades are assigned based on the points earned on the exams and other assessments (see below). ***There is no curve in this class. THERE ARE NO BONUS POINTS OR EXTRA CREDIT POINTS AVAILABLE!***

Final grades will be determined based on the percentage of points collected from assigned work as follows:

Assessment	Allocation
3 Midterm Exams	50%
Groups Assignments ⁽ⁱ⁾	10%
TopHat Reviews ⁽ⁱ⁾	7%
Research Paper ⁽ⁱⁱ⁾	8%
Final Exam ⁽ⁱⁱⁱ⁾	25%

⁽ⁱ⁾ There are no extra opportunities for missed assignments! There is a 10% buffer that will account for missed class due to excused absence (see above), tardiness, missing a device, problems with technology, etc. You are expected to have a TopHat compatible charged and functional electronic device for each lecture and recitation. It is your responsibility to follow up on technical issues and have access to class e-material.

⁽ⁱⁱ⁾ As part of your basic training as a biologist, you will read and discuss primary literature associated with material covered in class. To demonstrate your skills of proper usage of scientific literature and critical evaluation of presented data and conclusions, you will write a report on a selected topic. Evaluation of this project will be based on the quality of the report and summary of supporting evidence from primary literature. Detailed guidelines will be posted on Canvas.

(iii) The final exam is cumulative. If you do better on the final exam than on one of the midterms, your (lowest) midterm score will be replaced by a score based on the final exam (not applicable to replace zero score for a missed unexcused midterm). You are not permitted to skip the final exam, even if you have an A+ in the course. If you miss the final and you do not provide a valid excuse, zero will be assigned and final grade will be determined using the zero score.

Final grade will be determined according to the grading scale as follows:

Final %	Grade	Final %	Grade
98-100	A+	72	C
92	A	70	C-
90	A-	67	D+
87	B+	62	D
82	B	60	D-
80	B-	≤59.9	F
77	C+		

Missed Exams:

There are no make-up exams, assignments, or extra credit opportunities in this course. If you can anticipate beforehand that you may not be able to meet a specific deadline, contact Dr. Swigonova immediately! Some cases may require individual attention, depending on the severity of the case. In general, if you missed a midterm and you do not have adequate excuse (see below), you will obtain 0 points for the exam. Missing a final will result in score 0 for the final. If you miss one of the midterm examinations due to an excused emergency absence, your midterm score will be calculated from your score obtained from the final examination. If you miss an examination due to an emergency (illness, serious injury or a death in your immediate family), you must submit, in writing, your request for an excused absence. Just informing the lecturer is not sufficient! Please use the following guidelines when preparing your request:

1. Your written request for an excused absence must indicate your name, the nature of the emergency and the date of the examination that you missed.
2. If you miss an exam due to a medical condition, you must include documentation (a signed letter from your physician)
3. If you miss an exam due to a death in your immediate family, your excuse must include a copy of the obituary and a signed letter from a family member who can verify your relationship with the deceased.
4. All supportive evidence MUST include a phone number for verification and must also reach Dr. Swigonova NO LATER THAN THREE BUSINESS DAYS after the exam.

No one will be excused from more than one examination!

Failure to comply with these guidelines will result in zero points recorded for the missed exam. If you miss more than one examination, you should discuss possible options available to you with your advisor or the CAS Dean's Office. Students who miss the final exam due to an emergency should pursue the G grade option as detailed below.

Regrade Request:

You may request a regrade of any portion of an exam by submitting your request in writing and explaining why you think the grading was in error (providing specific references to textbook or primary literature). This request must be submitted to the instructor within one week of the posted results. Please consult the answer key and your textbook prior to submitting your request.

G grade:

If you wish to petition for a G grade, you must submit a request for this change in writing and you must document your reason(s). You will be required to make arrangements for the specific tasks you must complete in order to remove the G grade. You will be expected to sign documentation describing the work that has to be completed and the due date. All required work must be completed by the specified date otherwise a zero will be assigned for the work and final grade will be determined using this score. Remember that G grades, according to CAS guidelines, are to be given only when students who have been attending a course and have been making regular progress are prevented by circumstances beyond their control from completing the course after it is too late to withdraw. If you miss the final exam, you may receive a G grade if the above conditions are met.

Academic Integrity:

Cheating/plagiarism will not be tolerated. Students suspected of violating the University of Pittsburgh Policy on Academic Integrity, from the February 1974 Senate Committee on Tenure and Academic Freedom reported to the Senate Council, will be required to participate in the outlined procedural process as initiated by the instructor. A minimum sanction of a zero score for the quiz or exam will be imposed. View the complete policy at: www.cfo.pitt.edu/policies/policy/02/02-03-02.html.

Special Accommodations:

If you have a disability for which you are, or may be, requesting an accommodation, you are encouraged to contact both the instructor for this course and the Office of Disability Resources and Services, 140 William Pitt Union, 412-648-7890/412-624-3346 (Fax), as early as possible in the term. Disability Resources and Services will verify your disability and determine reasonable accommodations for this course.

Copyright notice:

Many of the course materials I provide is my intellectual property and others are protected by copyright. You are welcome to use all the given class material for your private use. Posting my lectures, notes, exams, review packets, answers, keys, etc. or other course material on ANY website without my express written permission is a violation of the academic integrity code. Any student violating the copyright and intellectual property will be charged with a breach of academic integrity. United States copyright law, 17 USC section 101, et seq., in addition to University policy and procedures, prohibit unauthorized duplication or retransmission of course materials. See [Library of Congress Copyright Office](#) and the [University Copyright Policy](#).

Statement on classroom recording:

To ensure free and open discussion of ideas, students may not record classroom lectures, discussions and/or activities without the advance written permission of the instructor, and any such recording properly approved in advance can be used solely for the student's own private use.

E-mail Communication Policy:

Each student is issued a University e-mail address (username@pitt.edu) upon admittance. This e-mail address may be used by the University for official communication with students. Students are expected to read e-mail sent to this account on a regular basis. Failure to read and react to University communications in a timely manner does not absolve the student from knowing and complying with the content of the communications. The University provides an e-mail forwarding service that allows students to read their e-mail via other service providers (e.g., Hotmail, AOL, Yahoo). Students that choose to forward their e-mail from their pitt.edu address to another address do so at their own risk. If e-mail is lost as a result of forwarding, it does not absolve the student from responding to official communications sent to their University e-mail address. To forward e-mail sent to your University account, go to <http://accounts.pitt.edu>, log into your account, click on Edit Forwarding Addresses, and follow the instructions on the page.

Be sure to log out of your account when you have finished. For the full E-mail Communication Policy, go to www.bc.pitt.edu/policies/policy/09/09-10-01.html.

Take Care of Yourself:

Do your best to maintain a healthy lifestyle this semester by eating well, exercising, avoiding drugs and alcohol, getting enough sleep, and taking time to relax. Despite what you might hear, using your time to take care of yourself will actually help you achieve your academic goals more than spending too much time studying. All of us benefit from support and guidance during times of struggle. There are many helpful resources available at Pitt. An important part of the college experience is learning how to ask for help. Take the time to learn about all that's available and take advantage of it. Ask for support sooner rather than later –this always helps. If you or anyone you know experiences any academic stress, difficult life events, or difficult feelings like anxiety or depression, we strongly encourage you to seek support. Consider reaching out to a friend, faculty or family member you trust for assistance connecting to the support that can help.

The University Counseling Center is here for you: call 412-648-7930 and visit their [website](#). If you or someone you know is feeling suicidal, call someone immediately, day or night: University Counseling Center (UCC): 412 648-7930, University Counseling Center Mental Health Crisis Response: 412-648-7930 x1, Resolve Crisis Network: 888-796-8226 (888-7-YOU-CAN). If the situation is life threatening, call the Police: On-campus: Pitt Police: 412-268-2121, Off-campus: 911.

CLASS SCHEDULE:

Please note the dates and times of the exams to avoid any scheduling conflicts!

Lecture topics are subjects to revision as the term progresses, you will be notified of changes during class and communications via Canvas announcements. Please read the associated chapter before lecture to be prepared for class discussion. **Exams** are scheduled as indicated and their dates will NOT change. All exams are conducted in person as hard copy exams. **Group Assignments (GA)** will be completed by all members of a collaborative group (see Canvas) and submitted by the leader. The group leader is responsible for making sure all members of the group reviewed the assignment before submission.

Week	Date	Topic	Assigned reading	
MOLECULES OF LIFE	1	8/31 Welcome & administration. Characteristics and Origin of life The scientific methods & intro to statistical analysis • <i>Worksheet: Prime of statistical methods in biology – due 9/1 by 11:59pm</i>	Ch. 1	
		9/02 Small molecules and chemistry of life • <i>Worksheet: Chemistry of biological systems</i>	Ch. 2.1, 2.2, 2.3	
	2	9/07 Water is critical for life • <i>Worksheet: Simulating water</i>	Ch. 2.4	
		9/09 Protein structure and function • <i>Worksheet: Proteins and their structure</i>	Ch. 3.1, 3.2	
	<i>9/10 - Fall term add/drop period ends</i>			
	3	9/14 Carbohydrates and lipids • <i>Worksheet: Lipids and carbs</i>	Ch. 3.3, 3.4	
		9/16 • <i>3D visualization: Protein structure (gramicidin & insulin)</i> • <i>WORKSHOP: Meet Dr. Jacob Durrant*</i>	Handout	
	4	9/21 Nucleic acids and the Central Dogma • <i>3D visualization: Structure of DNA</i>	Ch. 4.1 & 14.2, 14.3 Handout	
		9/23 Origins of life • <i>WORKSHOP: Meet Dr. VanDemark *</i>	Ch. 4.2, 4.3, 4.4 Handout	
	CELL STRUCTURE AND FUNCTION	5	9/28 MIDTERM 1 – covers material & associated reviews of W1-W4	Good Luck!
9/30 The cell structure and function • <i>Worksheet: Prokaryotic and eukaryotic cell</i>			Ch. 5	
6		10/05 Structure of biological membranes • <i>Worksheet: Function of biological membranes</i>	Ch. 6.1, 6.2	
		10/07 Transport across membrane • <i>Worksheet: Membrane transport</i>	Ch. 6.3, 6.4, 6.5	
7		10/12 Cell communication • <i>Worksheet: Principles of cell communication</i>	Ch. 7	
		10/14 Receptors and signaling • <i>WORKSHOP: Meet Dr. Brodsky; CFTR structure & function*</i>	Handout	
8		10/19 Energy transformations and ATP • <i>Worksheet:</i>	Ch. 8.1, 8.2	
		10/21 Enzymes and metabolism • <i>Worksheet: Enzymes</i>	Ch. 8.3, 8.4, 8.5	
9		10/26 Cellular energy harvest • <i>Worksheet: Cell and energy</i>	Ch. 9.1, 9.2	
		10/28 Metabolic pathways • <i>Worksheet: Microbial metabolic pathways</i>	Ch. 9.3, 9.4, 9.5	

CELL CYCLE & GENETICS	10	11/02	MIDTERM 2 – covers material & associated reviews of W5-9	<i>Good Luck!</i>
		11/04	Photosynthesis: energy from sunlight • <i>Worksheet: Photosynthesis</i>	Ch.10
	11	11/09	The cell cycle – mitosis • <i>Worksheet: Cell cycle and cell division</i>	Ch. 11.1, 11.2, 11.3
		11/11	Meiosis • <i>Worksheet: Meiosis and reproduction</i>	Ch. 11.4 – 11.7
	12	11/16	Inheritance and Mendelian Laws • <i>Worksheet: Mendelian genetics – problem solving sets</i>	Ch. 12.1, 12.2
		11/18	Non-Mendelian Genetics • <i>Worksheet: Non-mendelian genetics</i>	Ch. 12.2-12.6
	13	11/23 11/25	<i>Happy Thanksgiving!</i>	<i>Reenergize!</i>
APPLICATIONS	14	11/30	MIDTERM 3 – covers material & associated reviews of W10-W13	<i>Good Luck!</i>
		12/02	Research paper due at the start of class (hard copy only!) <i>Application: Chemoreceptors, mechanoreceptors, photoreceptors</i> • <i>Worksheet: Sensory receptors</i>	44 (selected)
	15	12/07	<i>Application: Immune system</i>	Ch. 40
		12/09	• <i>Worksheet: Functions of the immune system</i> Review for final	<i>Handout</i>
	16		CUMMULATIVE FINAL – TBA	<i>Good Luck!</i>

This is an unprecedented time, challenging for all of us, testing our stamina and resilience. I would like you to know that I am here to help you to learn and do well. On the other hand, I expect you to complete all work on time with sufficient effort and detail. Clear communication is essential for a success. Do not hesitate to contact me any time by email to request a zoom meeting. I am here to assist you to be successful, but it is your responsibility to communicate clearly if you need help.

I am looking forward to a successful and productive term,

Dr. Swigonova