

Biochemistry

BIOSC 1000



instructor

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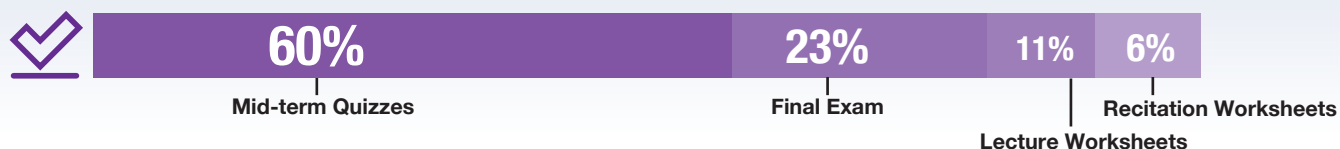
Tue & Thr @ 1pm
324 Cathedral of learning



Class TopHat · search for:
Biochemistry (Fall 21)

Frequently Asked Questions

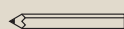
How is my grade determined?



When are the exams?

Quiz 1: Thursday, 16th Sept.
Quiz 2: Tuesday, 5th Oct.
Quiz 3: Tuesday, 26th Oct.
Quiz 4: Tuesday, 16th Nov.

Quiz 5 & Final exam:
During finals week



Where do I find information on.....

Grade Break-down &
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What will I learn in this Course?

Biochemistry is the interface between the disciplines of biology and chemistry. We will begin this course by reviewing the basic chemical elements of life (chemical bonding and functional groups), then move onto biomolecules (Amino Acids, Nucleotides, Sugars and Fatty Acids) and macromolecules (proteins and Nucleic Acids). We will investigate the role of these biomolecules and macromolecules in the various metabolic processes. Lastly will investigate the integration and regulation of these metabolic processes.

When are office hours?



The Schedule is linked on
Canvas

How do I succeed in this class?



- **Complete all assignments on time.** Assignments and deadlines are announced on Canvas.
- **Come to class prepared.** Have a copy of the lecture material (paper or electronic), and the pre-lecture/homework assignment completed.
- **Study effectively.** Focus on how the class material/recitation and homework assignments relate to the topic's outlined objectives. Study consistently throughout the semester: *do not wait until just before the exam!*

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Grade Breakdown



Grade Component:	Points (200 total):	% of Final Grade:
<u>Quizzes</u> 5 Quizzes worth 40 points each. Drop 2 lowest.	120	60
<u>Recitation</u> 14 recitations worth 1 point each. Drop 2 lowest.	12	6
<u>Lecture</u> 27 Lectures worth 1 point each. Drop 5 lowest.	22	11
<u>Final Exam</u>	46	23

Required Materials



Required Materials:

1. A wifi enabled device (smartphone, tablet or laptop) to be brought to each class and recitation. The Hillman library can lend you a device if you do not have a personal one.
2. Access to Canvas (Canvas.pitt.edu).
3. Access to TopHat (TopHat.com; login information is detailed on Canvas).
4. Access to Text book via the Link in Canvas.

Prerequisites:

Prior to taking Biosc 1000, students must have completed the following courses:

- Biosc 0160 (Foundations of Biology 2)
- Chem 0310 (Organic Chemistry 1)

Ideally, students should have achieved a grade of C or better in both of these courses.

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Recitation



Recitation Times and Locations:

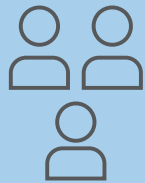
You must be enrolled in one of the following recitations (all Friday):

Recitation 1: 10:00 am - 10:50 am	169 Crawford Hall
Recitation 2: 11:00 am - 11:50 am	169 Crawford Hall
Recitation 3: 2:00 pm - 2:50 pm	A224 Langley Hall
Recitation 4: 3:00 pm - 4:00 pm	A224 Langley Hall

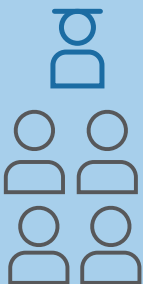
The recitation for this class is required. Please only attend the recitation for which you are enrolled.

Recitation Worksheets:

Each recitation session will consist of an active-learning activity that students will work on in a group; synchronous attendance is highly recommended for maximal learning benefit. Each group will consist of 4-5 students and will remain the same throughout the semester. Although you will work in groups on the assignments, each individual is responsible for entering their own answers into the online recitation assignment worksheet through Top Hat, so consensus does not need to be reached. Questions are for completeness not correctness, and attempts are unlimited before the deadline. The recitation worksheet will be opened each Friday @8:30 am and remain opened until Saturday @ 10am, so can be completed asynchronously if needed. Each student's lowest two recitation worksheet scores for the semester will be dropped, all drops must be utilized before a make-up will be assigned. Technical issues or missed recitations are accommodated with the drops.



Lecture



Lecture Worksheets:

This class relies heavily on active learning. You will be completing problems, analyzing data, using scientific literature, etc. each day in lecture. These activities are designed to supplement the pre-recorded lecture and will be completed through Top Hat using a laptop, tablet, or smartphone. For maximal learning benefit it is recommended that the asynchronous lecture be taken prior to the aligned synchronous lecture content. Questions are for completeness not correctness, and attempts are unlimited before the deadline. Students should bring a laptop, tablet, or smart phone to lecture for TopHat and Zoom access. Worksheets are open Saturday @10 am until Saturday @ 10am, there are no extensions. Each student's lowest five lecture worksheet scores for the semester will be dropped, all drops must be utilized before a make-up will be assigned. Technical issues or missed lectures are accommodated with the drops.

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Quizzes & Exams



Quizzes

Quizzes 1-4 given synchronously during class time (days and times are noted on page 1 and in the course schedule on page 9) and quiz 5 given during the final exam period. Although the quizzes are not cumulative, later material does tend to build on concepts taught earlier in the semester. Quizzes will be delivered via TopHat. It is your responsibility to ensure you have access to a fully-charged wifi enabled device (laptop or tablet) during the quiz. Access to a back-up smartphone device is also highly recommended. If you do not have a personal device you may borrow one from the Hillman Library. Three of the five quiz scores count towards your final grade. Missing a quiz for any reason (technical issue; illness; family issues) is accommodated with the two dropped exam scores. When Quizzes 1-4 are returned for review the answer key and grading rubric will be made available for discussion, please hold all queries until then. The review period will be noted at the week-at-a-glance link on Canvas.

Final exam

A final cumulative exam covering material from quiz 1-4 will also be given during the final exam period. There will be no make-up exam for the final. The final exam cannot be dropped from your final grade. No early finals will be given for any reason. If you have three or more finals scheduled for the same day and wish to reschedule one or more of the exams you **MUST** follow the university procedure:

Students having more than two finals in a calendar day who wish to request an accommodation for a make-up exam must obtain a Final Examination Conflict Accommodation Request form from the Registrar's Office. The Registrar's Office will document on this form that the student has multiple final exams in a single calendar day. Students must approach each instructor noted on the form and request a change in their final exam time. The instructor must sign indicating whether or not they are able to accommodate the student and provide an alternative time to take the final exam. If none of the professors is able to schedule an alternative exam time, the instructor of the course in the middle time slot of the conflict must schedule an alternative exam time unless the course requires a departmental exam in which case the instructor whose course has the lowest enrollment will schedule the alternative exam time.

http://www.registrar.pitt.edu/final_examination_schedules.html

The deadline to submit your exam conflict form is **Friday 29th October**. Requests submitted after this deadline will not be considered. The registrar's office will determine which of your final exams will be rescheduled.

Students are not permitted to record/image/transcribe the quiz exam content (prohibited from taking photos or screenshots etc.) at any point (during the exam or in the review period for Quizzes 1-4), or to share/distribute/upload the exam content elsewhere. Students are further prohibited from contact with any person/ external website during the exam. Academic integrity policies are outlined in the next section. TopHat proctoring and quiz/exam requirements are explained here:

<https://success.tophat.com/s/article/Student-Starting-a-Test>

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Academic Integrity



Cheating/plagiarism will not be tolerated. Students in this course are expected to comply with the University of Pittsburgh's Policy on Academic Integrity: (<http://www.as.pitt.edu/faculty/policy/integrity.html>). Student obligations are listed below:

A student has an obligation to exhibit honesty and to respect the ethical standards of the academy in carrying out his or her academic assignments. Without limiting the application of this principle, a student may be found to have violated this obligation if they:

1. Refers during an academic evaluation to materials or sources, or employs devices, not authorized by the instructor.
2. Provides assistance during an academic evaluation to another person in a manner not authorized by the instructor.
3. Receives assistance during an academic evaluation from another person in a manner not authorized by the instructor.
4. Engages in unauthorized possession, buying, selling, obtaining, or using of any materials intended to be used as an instrument of academic evaluation in advance of its administration.
5. Acts as a substitute for another person in any academic evaluation process.
6. Utilizes a substitute in any academic evaluation procedure.
7. Practices any form of deceit in an academic evaluation proceeding.
8. Depends on the aid of others in a manner expressly prohibited by the instructor, in the research, preparation, creation, writing, performing, or publication of work to be submitted for academic credit or evaluation.
9. Provides aid to another person, knowing such aid is expressly prohibited by the instructor, in the research, preparation, creation, writing, performing, or publication of work to be submitted for academic credit or evaluation.
10. Presents as one's own, for academic evaluation, the ideas, representations, or words of another person or persons without customary and proper acknowledgment of sources.
11. Submits the work of another person in a manner that represents the work to be one's own.
12. Knowingly permits one's work to be submitted by another person without the instructor's authorization.
13. Attempts to influence or change one's academic evaluation or record for reasons other than achievement or merit.
14. Indulges, during a class, examination session, or any other academic setting, in conduct that is so disruptive or disrespectful as to infringe upon the rights of the instructor or fellow students.
15. Fails to cooperate, if called upon, in the investigation or disposition of any allegation of dishonesty pertaining to another student, or any other breach of a student's obligation to exhibit honesty.

Students suspected of violating the University of Pittsburgh Policy on Academic Integrity 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 assignment will be imposed, and cannot be dropped from the final grade.

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Grading



The following is a minimum grading scale. The instructor will round to the nearest whole number. The instructor reserves the right to curve the scale upward (so that the average class grade is C) but will not curve down if the average class grade is above a C.

Typically, a curve is not applied. The grade brackets are listed in the table below.

Final %	Grade	Final %	Grade	Final %	Grade	Final %	Grade
99-100	A+	88-89	B+	78-79	C+	68-69	D+
92-98	A	82-87	B	72-77	C	62-67	D
90-91	A-	80-81	B-	70-71	C-	60-61	D-
						0-59	F

All students have the right to advocate for themselves and have one week after the posting of a lecture or recitation score to discuss any issues with the instructor. For quizzes, please wait until the quiz is in review and the answer key available to ask for clarification. While students are encouraged to advocate for themselves, please note the instructor will not participate in practices amounting to grade inflation, such as the discussion of previously graded materials past the 1-week deadline, or requests for a grade bump or additional extra credit assignments at the time of final grade posting. If you wish to discuss your class standing please schedule a time before the last day of classes. Remember the earlier in the semester you reach out for help the more effective that help will be in improving your grades.

Class Procedures



Attendance

Class attendance is extremely important, as large amounts of material will be presented during each class. Synchronous lecture time will consist of active learning activities to supplement the pre-recorded lecture material. Recitations will expand further on lecture material. The course outline lists the background reading that pertain to each class. It is expected that students come to lecture prepared, having already watched the recorded material, annotated their lecture slides, and answered the pre-lecture questions. Synchronous attendance is recommended. You will have the opportunity to work with your peers, and have your questions answered in real-time. Students who miss synchronous lecture or recitation assignments may still complete the worksheets for credit before the noted deadline, and post questions to the discussion board. Synchronous instructor content will be recorded and uploaded to the lecture worksheet after the class. Students are expected to use all their drops before make-ups will be assigned.

Lecture Handouts

Handouts containing outlines of the lecture (synchronous and recorded material) and any supplemental information will be posted on Canvas. These handouts are not complete, it is recommended that you annotate the handouts with your own notes as you take the lecture. Practice problems are built into the TopHat lecture and recitation worksheets.



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Canvas

Canvas will contain the slides from class, announcements, calendar, and useful links (Textbook and TopHat). It is your responsibility to keep up-to-date with the posted Canvas content, and check announcements every day during the school week. A discussion board will be available in Canvas for you to post content questions. It is expected that all posts be respectful in tone and manner. You are encouraged to reply to other posts. To streamline the discussion please check that your question has not been previously addressed on the board before posting.

Class Decorum

Each class period will begin promptly on time. Out of respect for the instructor and your peers please zoom in on time so that disruptions are kept to a minimum. Remember to mute your microphone when not speaking, and try find quiet distraction-free area to work in. To facilitate better class discussion please turn on your video in the break-out rooms. It is expected that all students conduct themselves in a respectful manner in all peer/instructor and TA interactions. The recording of fellow students (audio or zoom images) without their express consent is a violation of their privacy and strictly prohibited.

Recording Lectures

The pre-recorded lecture material will be made available via links in your TopHat lecture worksheets. These recordings are provided for your individual use only for this semester, and may not be otherwise shared or distributed. To promote the free and open exchange of ideas the synchronous student discussion component will not be recorded.

Students with Disabilities

If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact both your instructor 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.

For more information, visit www.studentaffairs.pitt.edu/drsabout.

Students are reminded that they must schedule testing center services 72 business hours prior to the exam. Students who miss the deadline will not receive any additional time accommodations.

Religious Observances

Unfortunately, it is impossible for the University to design a calendar that respects all calendars of all faiths. However, the instructor is willing to work with you on an individual basis if a significant course event (such as an exam) presents a conflict for you. Please contact me privately at least two weeks ahead of the date, and we will work something out.

Withdrawal from Class

Students are expected to do all assigned work and stay current in their studies. If circumstances arise that prevent a student from staying current with the material, the student should consider withdrawing from the course. Please note the following dates:

Friday, 10th September – Add/Drop period ends

Friday, 29th October – Deadline to submit Monitored Withdrawal forms



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Health and Wellness

Diminished mental health, including significant stress, mood changes, excessive worry, or problems with eating and/or sleeping can interfere with optimal academic performance. The source of symptoms might be strictly related to your course work; if so, please speak with me. However, problems with relationships, family worries, loss, or a personal struggle or crisis can also contribute to decreased academic performance. The University of Pittsburgh provides mental health services to support the academic success of students. The university counseling center (<https://www.studentaffairs.pitt.edu/cc/>) offers free, confidential services to help you manage personal challenges. In the event I suspect you need additional support, I will express my concerns, and remind you of campus resources that might be helpful to you. It is not my intention to invade your privacy, but simply to let you know I am concerned and that help, if needed, is available. Getting help is a smart and courageous thing to do, for yourself and for those who care about you.



Email Procedures

When emailing the instructor or TA, students should send email from pitt.edu accounts. Email addressed from other sources (for example: hotmail, gmail, or yahoo accounts) may not make it through junk mail filters. When emailing the instructor, be sure to sign the email and put the course name or number in the subject line. The instructor will answer all emails within 24 hours during the week. Emails received after 4 PM on Friday will not be answered until Monday morning. It is expected that all e-mail communication should be respectful in tone and wording.

The Pitt E-mail Communications Policy states:

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 (eg. gmail). 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. For the full E-mail Communication Policy, go to www.bc.pitt.edu/policies/policv109/09-i 0-01.html.

Study Groups

Students are encouraged to form study groups to help each other learn the material and work through problems. To be effective, study groups should have 3-5 students and meet weekly and have an agenda (e.g. tackle the asynchronous practice problems, take turns presenting lecture topics to each other. The more you talk about the material the quicker you identify your knowledge gaps.



Assistance

Feel free to ask questions during lecture. Ask questions of your TA during recitation. Meet with your TA to review problems. Take advantage your TA and instructor's office hours. There is open time built into each lecture so scheduling conflicts should not be an issue. The Discussion board is always available



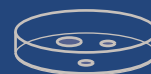
The Academic Resource Center, G-1 Gardner Steel Conference (412-648-7920) can help you improve your basic study and test-taking skills. This service is free for University students, faculty & staff. They also staff biochemistry tutors from time to time, depending on the semester. Call them for more information.

BIOSC 1000 Schedule



Week*	Date	Topic	Reading from Biochemistry free from all (v 1.3)
	Pre-recitation (27 th Aug)	Meet your teams and semester goals	None
1	Lecture-1 (31 st Aug)	Biology & chemistry review Thermodynamics	Pages 25-30
	Lecture-2 (2 nd Sept)	Water chemistry	Pages 34-49
	Recitation 1 (3 rd Sept)	Taking the hassle out of Hasselbalch	
2	Lecture-3 (7 th Sept)	Amino Acids	Pages 55-70
	Lecture-4 (9 th Sept)	Protein structure and folding	Pages 74-106
	Recitation 2 (10 th Sept)	Protein Chemistry	
	Add/drop period ends	Friday 10 th Sept	
3	Lecture-5 (14 th Sept)	Protein structure and non-enzymatic function	Pages 110 -128 Channels page 290
	Lecture-6 (16 th Sept) & Quiz 1 (L1-5; R 1&2)	Non-enzymatic functions - Hemoglobin and cooperativity	Pages 128 - 141
	Recitation 3 (17 th Sept)	Membrane transport	
4	Lecture-7 (21 st Sept)	Biosignaling	Pages 828 - 855

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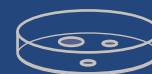
	Lecture-8 (23 rd Sept)	Biosignaling	
	Recitation 4 (24 th Sept)	Receptor-ligand binding	
5	Lecture-9 (28 th Sept)	Enzyme kinetics	Pages 337 - 360
	Lecture-10 (30 th Sept)	Enzyme regulation	Page 381
	Recitation 5 (1 st Oct)	Enzyme Kinetics	
6	No asynchronous lecture Quiz 2 (5th Oct) (L 6-10; R 3 - 5)		
	Lecture-11 (7 th Oct)	Carbohydrates Energy metabolism Glycolysis	Page 190 Page 411
	Recitation 6 (8 th Oct)	Glycolysis	
7	Lecture-12 (12 th Oct)	Glycolysis Pyruvate oxidation	Page 485
	Lecture-13 (14 th Oct)	CAC Glyconeogenesis & PPP	Page 542
	Fall Break (15th Oct)	No recitation	
8	Lecture-14 (19 th Oct)	Glycogen metabolism	Page 509

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	Lecture-15 (21 st Oct)	Glycogen metabolism	
	Recitation 7 (22 nd Oct)	Glycolysis and the PPP, inborn errors and cancer	
9	Lecture-16 (26 th Oct) & Quiz 3 (L11-15; R 6&7)	Oxidative phos	Page 430
	Lecture-17 (28 th Oct)	Ox phos	
	Recitation 8 (29 th Oct) Monitored withdrawal and final exam conflict deadline	Antioxidants and mitochondrial disease	
10	Lecture-18 (2 nd Nov)	Phosphorylation	Page 472
	Lecture-19 (4 th Nov)	Calvin cycle	
	Recitation 9 (5 th Nov)	The integration and regulation of photosynthesis	
11	Lecture-20 (9 th Nov)	Lipids structure and function	Pages 221 - 263
	Lecture-21 (11 th Nov)	Lipid metabolism	Page 565

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	Recitation 10 (12 th Nov)	Cholesterol, trans fats and cardiovascular disease	
12	Lecture-22 (16 th Nov) & Quiz 4 (L16-21; R 8-10)	Metabolic regulation	Page 363
	Lecture-23 (18 th Nov)	Metabolic integration of regulation	
	Recitation 11 (19 th Nov)	Obesity Diet and Genetics	
	Thanksgiving break	22nd-26th Nov	
13	Lecture-24 (30 th Nov)	Nitrogen metabolism	Page 618
	Lecture-25 (2 nd Dec)	Urea cycle metabolism	
	Recitation 12 (3 rd Dec)	Urea cycle disorders	
14	Lecture-26 (7 th Dec)	Nucleic Acids structure and function	Pages 167 - 185
	Lecture-27 (9 th Dec)	DNA & RNA synthesis	
	Recitation 13 (10 th Dec)	Final review	
Final		Part 1: Quiz 5 (L22-27; R 11-12) @ (16 questions; 40 min)	Part 2: Cumulative (quiz 1 – 4 material) @ (20 questions; 50 min)

*The schedule is subject to change at the instructor's discretion