

GENERAL BIOCHEMISTRY (BB_450_X400_F2020)

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GENERAL BIOCHEMISTRY (BB 450/550 Ecampus)

Syllabus

Instructor: [Dr. Kevin Ahern \(I prefer to be called Kevin\)](#)

<http://www.davincipress.com/professional.html>

Office – ALS 2145

Office Hours – The best way to reach me is by email.

Contact: ahernk@onid.orst.edu or phone 541-737-2305

Meeting Times

Academic year – all four terms 2020-21. Please note - in fall term, OSU starts with what we call "Week Zero." This occurs starting on Sept. 23 this year. You can do things in any order you wish, except exams, which must be taken in the time windows specified. Week 1 below starts on Sept. 28.

Examinations (must be taken in appropriate time windows announced on Schedule page)

- (I) Exam #1** – announced on Schedule page through the link on the Announcements page
- (II) Exam #2** – announced on Schedule page through the link on the Announcements page
- (III) Final Exam** – announced on Schedule page through the link on the Announcements page

All ecampus exams are administered by a proctor approved by ecampus. See

http://ecampus.oregonstate.edu/services/proctoring/finding_proctor.htm

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COURSE PREREQUISITES

CH 331 and CH 332 or CH 334, CH 335, and CH 336. Non-OSU organic chemistry credit is perfectly fine, though you may need the instructor's assistance to register.

LEARNING RESOURCES

Primary Textbook: *Biochemistry Free For All* - download [HERE](#)

[\(<http://www.davincipress.com/freeforall.html>\)](http://www.davincipress.com/freeforall.html) (Links to an external site.)

Alternative textbook: *Biochemistry Free and Easy* - download [HERE](#)

[\(<http://www.davincipress.com/freeforall.html>\)](http://www.davincipress.com/freeforall.html) (Links to an external site.)

Course materials available only through a link on Announcements page

Emailed questions to the instructor are welcomed.

WEB MATERIALS

The tentative lecture and assignment schedule is in the Announcements.

Topics Covered in *Biochemistry Free For All* (pages)

Introduction/Acids&Bases (6-48)

Protein Structure (52-105)

Hemoglobin (109-140)

Protein Characterization (854-894)

Enzymes (335-369)

Catalytic Strategies (380-391)

Regulation (370-379, 395-407)

Carbohydrates (189-216)

Cellular Signaling (826-850)

Metabolic Strategies (410-426)

Glycolysis & Gluconeogenesis (481-507)

Glycogen Metabolism (507-535)

GRADING

Course Points Distribution - Exam 1 (25%), Exam 2 (25%), Final Exam (45%), Turning in assigned problems on time (5%). Homework is not graded, since the solutions are shown in the online videos. Students get credit for turning in homework. There is no extra credit and I do not (and in fact cannot) take improvement during the term into consideration in assigning grades. No fixed grading scale will be used to assign letter grades and no fixed numbers of letter grades are set. Since there is no fixed grading scale (90/80/70/60, for example) grades are therefore "curved," since this is the definition of what "curved" means. Grades will be assigned on groupings as determined by the instructor at the conclusion of the course. In courses graded on a 90-80-70-60 basis, it is possible to calculate how many points you need to make on the final to make a desired

grade. It is not possible to do this for courses like this one where grades fluctuate as the average on the exam fluctuates. You are in MUCH better shape being graded the way I grade than you are in a 90-80-70-60 system. It is your responsibility to check the online grade distribution prior to asking any question about grades. Undergraduates will be evaluated and graded separately from graduate students.

Final grades at the end of the course will be posted to your OSU student account, NOT to Canvas. If you don't know how to access your OSU student account, please consult with ecampus.

COURSE POLICIES

I love teaching this course and enjoy discussion and meetings with you. I know that the subject of biochemistry strikes terror in the hearts of many, so I see my role partly as helping you to overcome that fear in order to do well. I will do everything I can to help you learn more of this exciting subject and help you overcome your fears of it. Some of the most rewarding experiences I have had in teaching this class are helping students in this very way. I expect you to be involved and responsible for your own education, as much as possible. Students who ask questions that are answered in the syllabus are not being responsible. The aim of this statement is not to discourage students from discussing their standing in the class, but rather to have students participate more fully in their own education. I will gladly discuss any student's grade as it stands at any time in the course, but students need to use resources available to them to their fullest. Similarly, students need to consult exam keys and relevant videos and transparencies before asking questions or requesting consideration for regrades.

Students taking midterm examinations are not allowed to use a calculator, books, or notes of any kind. Other than the computer they are taking it on, no other materials are allowed for student use on exams. The sole exception to this is that on the final exam ONLY, students are allowed to bring with them and use one note card with information on it handwritten by the student. The notecard must be no larger than 5x8 inches and printers may not be used to make it. All items on the card MUST be handwritten or hand-drawn and you do not have to get the card from me.

EXAM PROCTORING

This course will use an automated online proctoring system called Proctorio, where your exam session is recorded for instructor review. You will **not** need to schedule proctoring appointments, and there is **no cost to you** to use Proctorio. **Please note that a functioning webcam and microphone are required for using Proctorio.** If you do not have these, you will need to locate and submit an alternative proctor through the [exams and proctoring form](https://ecampus.oregonstate.edu/services/proctoring/) (<https://ecampus.oregonstate.edu/services/proctoring/>) and pay for any associated proctoring fees.

Your security and privacy are important. You can read more about Proctorio's [privacy](https://proctorio.com/about/Privacy) (<https://proctorio.com/about/Privacy>) and [data security](https://proctorio.com/about/data-security) (<https://proctorio.com/about/data-security>).

(<https://proctorio.com/about/privacy>), and [data security](https://proctorio.com/about/data-security) (<https://proctorio.com/about/data-security>), policies on their website, and more information about using this tool can be found in the course site.

Proctored exams(s) required. If you are not using Proctorio, this may involve an additional fee. This course requires that you take exams under the supervision of an approved proctor. Proctoring guidelines and registration for proctored exams are available online through the Ecampus [testing and proctoring website](http://ecampus.oregonstate.edu/services/proctoring/) (<http://ecampus.oregonstate.edu/services/proctoring/>). It is important to submit your proctoring request as early as possible to avoid delays. Please click [HERE](http://ecampus.oregonstate.edu/services/proctoring/finding_proctor.htm) (http://ecampus.oregonstate.edu/services/proctoring/finding_proctor.htm) or phone 800-667-1465 or 541-737-9204 for additional information. The proctor gives exams to you under the conditions I set. Please be aware that you need to have this set up well in advance of the exam and the proctor MUST be approved by ecampus. The exam MUST be taken in the time window described on the Schedule page. There are no exceptions to this window due to incorrect scheduling or student oversight. Students should be aware that proctors' "windows" for taking exams may close before the window I give. Please be sure you have taken this into consideration in scheduling. Please note also that I have no knowledge of how to get a proctor or how to get one approved. Ecampus has all of the answers to that. The only way I can get involved about proctoring is if there is some problem with the ecampus. You are responsible for having ALL proctor issues settled well in advance of taking exams. After the window for an exam closes, I will open the exam to allow you to compare your answers to the correct ones. I will also post a grade distribution in the Announcements section of Canvas.

When you use online proctoring services, you MUST follow ALL instructions of the online proctor, including LOGGING OUT PROPERLY at the conclusion of the session. Failure to follow instructions will reduce your grade by 10 points on mid-terms and 20 points on the final.

VERY IMPORTANT - Canvas operates differently from Blackbaord in how it manages exams. It will NOT warn you that you are running out of time on an exam. It is therefore essential that you monitor your time yourself, as you will be penalized one point for every minute you go over your allotted time. For mid-term exams, this is 50 minutes and for the final exam, this is 110 minutes. Please note if you have permission from DAS to have extra time allotted for your exam that this may not show up in Canvas, but will be allowed for AFTER the exam is done (by me). Everyone should note that if issues arise during the taking of an exam, ecampus MUST be notified before your time for taking an exam is over. No adjustments can be made after your time for taking an exam is over if this is not done.

EXAM POLICIES

There will be three exams given in this course (including the final). The final will be comprehensive. Material covered on each exam is stated explicitly on the Schedule and Highlights

pages. The only comprehensive exam is the final exam. The other two exams are not comprehensive. Students who ask what material is covered on an exam are not using resources made available to them and will be penalized 10 points. Exams will be taken under the guidance of a proctor approved by OSU's ecampus. There are options for proctoring all over the world. Reading and studying the assigned material before the lecture date is essential for success.

Excused absences will not be given for missing exams due to airline reservations, routine illness (colds, flu, stomach aches), or other common ailments. Excused absences will almost never be given after the absence has occurred. Students therefore must notify the instructor if they encounter difficulties BEFORE the exam occurs. If I decide your reason for missing an exam is valid, I might allow you to take a makeup exam. The following situations are NOT grounds for missing an exam:

- You misread the date of the exam on the syllabus.
- You went to the wrong room.

It is the responsibility of each student to check that their exam has been properly graded. If errors are made, or if the student feels that more points should have been awarded for a particular question, students must write a CLEAR explanation stating their case. Requests for regrading must be made in writing within 3 school days after the examination is made available to the class. Failure to follow these instructions will result in automatic denial of the request. Frivolous requests involving “fishing for points” (for example – asking me to regrade simply to award you more points without a valid reason) will result in loss of points.

One of the most common problems students have with deadlines for exams/problems arise from waiting to the last possible hour to take the exam within the exam window and then having a problem, such as a flat tire, catching a cold, or having a technical problem. I am generally not sympathetic to last minute problems. The best way to avoid such problems is to schedule exams earlier in the time window so that if something unexpected happens, you have plenty of time to request a fix. Further, telling me about a problem AFTER the window closes means I will be unable to do anything about it.

OLD EXAMS

I get a lot of requests for practice or old exams. In my experience, students use these exams for all the wrong reasons and in all the wrong ways. A practice/old exam is useful for illustrating the format of an exam and for that purpose only. In the lecture version of this course, the exam format is a little unusual, so I provide a practice exam to show the format. You can hear me saying that in the videos. The problems students run into with practice exams is that they use them as study tools. This is a very bad mistake because it leads students to study narrowly and study patterns of information instead of the content of the material itself. Questions change, but the content does not. Thus, when every wording changes from one exam to another and students have been

not. Thus, when exam wording changes from one exam to another and students have been learning patterns, they answer according to the pattern they learned on an old exam, not according to the information they are being asked about. Usually, when they answer according to patterns, they find they are wrong. It is one of the most common reasons students feel like professors are trying to "trick" them. While I won't say some professors don't have a bit of that in mind, I can say definitively that I do not. As noted on the class Schedule page, the format of exams in this ecampus course is multiple choice. This is a simple format and there is no need to illustrate it with a practice exam. Consequently, I do not provide practice exams and by doing this, I (hope) I am doing you a favor by getting you to focus on the actual information and not on the pattern of information. I hope this is helpful to you and I wish you the best on your exams.

HOW TO STUDY FOR THIS CLASS - This is a frequent question asked by students. The answer is that there are no secrets or "tricks". Everyone has their own way of studying and they tell me they have their own way of learning. Consequently, I have no "tips" for you. Everyone has their own approach and any approach I recommend may likely be different from what will work for you. This class isn't really any different from any other you may take. What works for you for other classes is what I recommend using here. That said, as it says in the lectures, exams are based on what I say in class. Focus your attention on what I talk about. Learn the principles of what I talk about. Good luck in your studies :-).

LETTERS OF REFERENCE

I am frequently asked to write letters of reference for students from the class. Since I must know a student personally to write a letter of reference, it is almost never possible for me to do this in the ecampus, unless I know you through some other means.

REGISTRATION DEADLINES

I expect students will meet all deadlines as appropriate for withdrawing from the class, should that be necessary. I do not routinely approve petitions to make changes after deadlines have passed, except in extraordinary circumstances. The deadline for dropping classes (no grade) during the academic year (fall, winter, spring terms) is the second week of class. The deadline for withdrawing from a class (grade of W) is the seventh week during the academic year. If you do not withdraw by Friday of the seventh week of the term, you will receive a grade in the course. Summer deadlines are different and students are responsible for confirming such deadlines with the OSU Registrar.

POLICY ON INCOMPLETES

A grade of I is appropriate when 1) a course requirement has not been completed due to circumstances beyond the control of the student and 2) at least half of the work for the course has been completed at a level of C- or better. For medical problems that prohibited the student from

fulfilling a requirement of the course, a note from a doctor is required. The request may be supplied without the note, and the request (if acceptable) will typically be granted, conditional on the note being provided later. For other circumstances, supporting evidence, such as a note from an advisor, will be helpful to the petitioner's case.

The following is a list of reasons that are **not** acceptable:

- The course proved to be more time-consuming or difficult than expected.
- Work in other courses ended up taking too much time.
- Work or travel associated with a job ended up interfering with course work.
- Time conflicts prohibited contact with the instructor or TAs during office hours,
- The student misunderstood the requirements or grading schemes of the course.
- The student wishes to avoid a low grade.
- The student wishes to retake the course at a later date

LEARNER OUTCOMES

The intention of the course is for students to:

- Acquire the technical language used to communicate biochemistry information and use that language to describe proteins, molecules, signaling pathways, catalysis, and metabolism accurately
- Recall key elements of basic biochemistry principles, including metabolic pathways, molecule names, molecular structures (as noted), enzyme/cellular control mechanisms, catalysis, and signaling pathways
- Perform analyses relevant to the material presented
- Communicate (through writing and speaking) key concepts relevant to biochemistry
- Understand and apply general concepts of biochemistry to relevant, specific problems.
- Predict the directions of metabolic pathways from an understanding of the control mechanisms and energy considerations of biochemical reactions.

LEARNER EXPECTATIONS

- Advance preparation
- No last minute studying
- Questions to answer concepts/processes that the student does not understand BEFORE it is too late.
- Recognition that an understanding of a complex topic like biochemistry requires considerable background prior to the class, a considerable amount of information to be acquired in the class, and sufficient time and effort to put these together to master the material.

GENERAL OSU AND DEPARTMENTAL POLICIES

Please note: "Students with documented disabilities who may need accommodations, who have any emergency medical information the instructor should know, or who need special arrangements in the event of evacuation, should make an appointment with the instructor as early as possible, no later than the first week of the term. In order to arrange alternative testing, the student should make the request at least one week in advance of the test. Students seeking accommodations must be registered with the Office of Services for Students with Disabilities."

The Department of Biochemistry/Biophysics follows the university policies on student conduct. These can be found at

<http://studentlife.oregonstate.edu/studentconduct/offenses-0>

Cheating or plagiarism by students is subject to the disciplinary process outlined in the Student Conduct Regulations. Students are expected to be honest and ethical in their academic work. Academic dishonesty is defined as an intentional act of deception in one of the following areas:

- * cheating- use or attempted use of unauthorized materials, information or study aids
- * fabrication- falsification or invention of any information
- * assisting- helping another commit an act of academic dishonesty
- * tampering- altering or interfering with evaluation instruments and documents
- * plagiarism- representing the words or ideas of another person as one's own

Behaviors disruptive to the learning environment will not be tolerated and will be referred to the Office of Student Conduct for disciplinary action.

The goal of Oregon State University is to provide students with the knowledge, skill and wisdom they need to contribute to society. Our rules are formulated to guarantee each student's freedom to learn and to protect the fundamental rights of others. People must treat each other with dignity and respect in order for scholarship to thrive. Behaviors that are disruptive to teaching and learning will not be tolerated, and will be referred to the Student Conduct Program for disciplinary action. Behaviors that create a hostile, offensive or intimidating environment based on gender, race, ethnicity, color, religion, age, disability, marital status or sexual orientation will be referred to the Affirmative Action Office.









Statement Regarding Students with Disabilities: "Accommodations for students with disabilities are determined and approved by Disability Access Services (DAS). If you, as a student, believe you are eligible for accommodations but have not obtained approval please contact DAS immediately at 541-737-4098 or at <http://ds.oregonstate.edu> (<http://ds.oregonstate.edu/>). DAS notifies students and faculty members of approved academic accommodations and coordinates implementation of those accommodations. While not required, students and faculty members are

implementation of those accommodations. While not required, students and faculty members are encouraged to discuss details of the implementation of individual accommodations.”

Source - <http://ds.oregonstate.edu/facultyguidelines#before>
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Reach Out for Success: University students encounter setbacks from time to time. If you encounter difficulties and need assistance, it's important to reach out. Consider discussing the situation with an instructor or academic advisor. Learn about resources that assist with wellness and academic success at oregonstate.edu/ReachOut (<https://counseling.oregonstate.edu/reach-out-success>). If you are in immediate crisis, please contact the Crisis Text Line by texting OREGON to 741-741 or call the National Suicide Prevention Lifeline at 1-800-273-TALK (8255)

Course Summary:

Date	Details
Mon Oct 12, 2020	 Assignment #1 (https://oregonstate.instructure.com/courses/1781566/assignments/8046213) due by 11:59pm
Fri Oct 16, 2020	 Assignment 2 (https://oregonstate.instructure.com/courses/1781566/assignments/8046214) due by 11:59pm
Mon Oct 19, 2020	 Assignment #3 (https://oregonstate.instructure.com/courses/1781566/assignments/8046215) due by 11:59pm
Fri Oct 23, 2020	 Assignment #4 (https://oregonstate.instructure.com/courses/1781566/assignments/8046216) due by 11:59pm
Wed Oct 28, 2020	 Exam 1 (Remotely Proctored) (https://oregonstate.instructure.com/courses/1781566/assignments/8046210) due by 5pm
Fri Nov 13, 2020	 Assignment #5 (https://oregonstate.instructure.com/courses/1781566/assignments/8046217) due by 11:59pm
Fri Nov 20, 2020	 Exam 2 (Remotely Proctored) (https://oregonstate.instructure.com/courses/1781566/assignments/8046211) due by 5pm
Wed Dec 9, 2020	 Final Exam (Remotely Proctored) (https://oregonstate.instructure.com/courses/1781566/assignments/8046212) due by 5pm