

Biol 335-01 Foundations of Biochemistry
Spring, 2010
Tues., Thurs: 10:00 – 11:15, ISC 136

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Office hours: Wednesday, 3:30-5:30 pm and Friday, 9:00 – 11:00 am and by appointment.

Course Description and Objectives:

The course format will be primarily lecture with some class discussions/group work. Evaluations will be based on three semester exams, a final exam, class participation, and both in and out of class assignments.

Remember, as in every course we rely on concrete examples to illustrate concepts. You should strive to recognize these general concepts as they emerge from specific examples in the textbook and class. You should also recognize that any biologically based course is not merely a collection of terms and facts, but also, and more importantly, includes the process (the scientific method with its observations, hypotheses, and experiments) by which we study the living world.

This course has three main objectives. The first is to learn and understand the concepts of biological metabolism. The second objective is to examine how these concepts have evolved and the third is to apply these concepts to physiological disease. We will mainly be dealing with proteins, enzymes and metabolism. There will be some memorization but the focus will be on application of the key pathways as related to disease.

Required Textbook: Biochemistry, Eighth Edition by Berg, Tymoczko and Stryer.

ISBN – 13: 978-1464126109

ISBN - 10: 1464126100

You can use the 7th edition but there are many changes including corrections made in the 8th Edition of which you will be responsible for keeping track. I will not note these changes for you.

A primary journal article will accompany each set of chapters. There will be homework that accompanies this article. Both the primary journal article and the questions can be downloaded off of canvas and it is each person's responsibility to do so. While collaboration among your group members and between groups is encouraged, it is important that each individual understands the questions and answers asked of the paper and the text.

Lecture notes

Lecture notes will be placed on Canvas 1 day prior to class (in most cases). You are welcome and even encouraged to download these and bring them to class.

Assignments:

Topics will be covered as listed in the course outline. The reading assignments should be started before the topic is covered in lecture. Before coming to class you should have skimmed through the chapter and become familiar with the major themes and vocabulary. Careful examination of the figures will also make the lecture material more meaningful for you. After class the sections should be carefully re-read. Material from both the lectures and readings will be tested on the exams. This year I am also giving credit to students for submitting the “**Questions to answer...**” for each chapter”. **I will be randomly grading these. Please note that to be eligible for credit you must submit them by the deadline listed.** If you do not submit them for that date then you will not be able to receive credit no matter how good your answers are. I will follow this guideline strictly as the value of these questions is doing them as you read these chapters and not right before the exam. I will also not be posting answer sheets for these questions but simply checking if you had the correct answer. It will be up to you to make sure you understand the questions should you not receive the full grade.

Question of the day:

Sometime during almost every class period you will be given a question to do as a group. This question will be collected and

count towards your test grades. If you have been there for (every QD -1) during that testing period you will receive 2 extra credit points on your exam. Everyone from your group who participates must sign the answer sheet in order to receive credit for the question. Any group who submits a group-member's name that is not present at the time the question was done will lose all credit for that question.

Grading:

Grades will be based on four exams scheduled as indicated in the course outline. All 3 exams will not be comprehensive but cover only the material between each exam as outlined below. Please note that although the material is not comprehensive, material in biochemistry tends to build on previous chapters and therefore it is best to review all that you have learned until that point in the course before each exam. Journal articles will count for 60 points of your grade and will be comprised of the questions related to the three primary journal articles. Due dates will be assigned to these at the time they are given out. "Questions to answer" will be worth 5 points total so it is minimal to your grade if you choose not to do them but can be a grade booster if you do choose to do them. Again, due dates are listed in the gradebook for each set of these questions. **To receive credit you must submit them when they are due.** "Questions to answer..." are **individual** assignments while the journal articles are group assignments.

Grades will follow the following point distribution:

| | | | | |
|--------------|--------------|--------------|-------------|--------------|
| >93%, A | 90-92.9%, A- | 87-89.9%, B+ | 83-86.9%, B | 80-82.9%, B- |
| 77-79.9%, C+ | 73-76.9%, C | 70-72.9%, C- | 60-69.9%, D | <60%, E |

Under most circumstances, there will be no adjustment to your grades. There is no quota for particular letter grades.

Grade Appeals on Exams:

Requests for recalculation of exam scores or reevaluation of a question or your exam grade must be made in writing and accompanied by the exam item in question. Recalculation of a grade is simple – show me my math error and it will be corrected immediately. To request a re-evaluation of my scoring on a question, submit a typed explanation of how your original submission fully and cogently addresses the question asked. All grade appeals must be submitted to me in person no later than 1 week after the exam has been returned.

Class etiquette and excuse policies:

You get out of a course what you put into it and attending class can only add to that fact. You must also be present to get credit for the question of the day. It is required that you come to class for each of the scheduled exams. There will be few exceptions to this requirement. If you find that you cannot make the scheduled exam date you must contact me prior to the exam date. If this is not possible (as in the case of severe illness or unexpected family affairs) proper documentation must be provided. This should be done as soon as is possible.

Cell phones must be turned off (not on vibrate but truly off) before coming to class. If it does ring during class you will lose the question of the day credit for that period and you will be asked to leave for the rest of the period. If there is a reason you need it to be turned on to ring (awaiting an emergency call from parents or child) please come see me before class begins and there will be no problems with letting your cell phone ring during class. I appreciate your cooperation in this matter as cell phone usage during class has become an increasing disturbance in recent years.

I also expect that if you bring your computer to class you will be using it for the purpose of following along in class and/or taking notes. Many students use their computers for checking email/playing games and/or surfing the web during class. This can be very distracting to the individual and to the people around that individual. I expect the courtesy of not performing such tasks during the 75 minutes that class is in session. If you wish to do any of these things (checking email/playing games and/or surfing the web) during the time class is scheduled please do not come to class. I reserve the right to dismiss individuals who I find using their computers during class for unrelated class activities.

Accommodations:

SUNY Geneseo will make reasonable accommodations for persons with documented physical, emotional, or cognitive disabilities. Accommodations will be made for medical conditions related to pregnancy or parenting. Requests for accommodations including letters or review of existing accommodations should be directed to Ms. Heather Packer in the Office of Disability Services in Erwin Hall 22 or disabilityservices@geneseo.edu or 585-245-5112. Students with letters of accommodations should submit a letter to each faculty member at the beginning of the semester and discuss specific arrangements. Additional information on the Office of Disability Services is available at www.geneseo.edu/dean_office/disability_services.

Safeguarding your mental health:

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.

SUNY Geneseo provides mental health services to support the academic success of students. Counseling Services, a part of the Lauderdale Center for Student Health & Counseling, offers free, confidential psychological services to help you manage personal challenges that may threaten your well-being.

In the event I suspect you need additional support, I will express my concerns and the reasons for them, and remind you of resources (e.g., Counseling Services, Career Services, Dean of Students, etc.) that might be helpful to you. It is not my intention to know the details of what might be bothering you, 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.

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Exams:

| | | |
|---------|--|--------|
| Test 1 | February 18 | 80 pts |
| Test 2 | April 02 | 80 pts |
| Test 3: | May 14, 12 – 2:30 (note day and time change) | 80 pts |

Journal articles:

| | | |
|--|------------|--------|
| Journal articles are a group assignment | 3 X 20 pts | 60 pts |
| <u>Questions to think about when reading each chapter:</u> | | 5 pts |
| Questions to think about are an individual assignment. | | |

Total points 305 pts

Important dates to keep in mind

| | |
|----------------------|---|
| February 29 11:59 pm | Paper #1 due -group assignment |
| March 10 | Midsemester |
| March 16 - 20 | Spring Break – no classes |
| April 07 | Last day to withdraw from full semester courses |
| April 12, 11:59 pm | Paper #2 due – group assignment |
| May 06 | Last day of regularly scheduled class |
| May 12, 11:59 pm | Paper #3 due -group assignment. |
| May 14 | Final Exam |

Course Outline

| DATE | | TOPIC |
|----------|----|--|
| January | 23 | Chapter 1 - Biochemistry: An evolving science., Chapter 2 - Protein Composition and Structure. |
| | 28 | Chapter 8 – Enzymes – Basic Concepts and Kinetics |
| | 30 | Chapter 8 continued. |
| February | 04 | Chapter 8 continued. Chapter 7 - Hemoglobin – Portrait of a protein in action. |
| | 06 | Chapter 7 - continued. |
| | 11 | Chapter 9 – Catalytic Strategies. |
| | 13 | Chapter 9 - continued. |
| | 18 | Test #1 - Chapters 1, 2, 7, 8, and 9 |
| | 20 | Chapter 10 – Regulatory Strategies. |
| | 25 | Chapter 10 - continued. |
| | 27 | (Do on your own) Chapter 11 – Carbohydrates); Chapter 14 – Signaling Transduction pathways. |
| March | 03 | Chapter 14 – Signaling Transduction pathways continued |
| | 05 | Chapter 15 – Metabolism – Basic concepts and design |
| | 10 | Chapter 15 – Metabolism Continued. |
| | 12 | Chapter 16 – Glycolysis and gluconeogenesis. |
| | 17 | Spring Break – No Class |
| | 19 | Spring Break – No Class |
| | 24 | Chapter 16 – Con't |
| | 26 | Chapter 16, finish and start Chapter 17 – The Citric Acid Cycle. |
| | 31 | Chapter 17 – The Citric Acid Cycle. |
| April | 02 | Test #2 Chapters 10, 11, 14, 15, and 16 |
| | 07 | Chapter 17 – Continued |
| | 09 | Chapter 18 – Oxidative Phosphorylation |
| | 14 | Chapter 18 – Oxidative Phosphorylation |
| | 16 | Chapter 18 – Oxidative Phosphorylation finish up and start Chapter 20 – Pentose Phosphate |
| | 21 | Chapter 20 – Pentose Phosphate – finish up |
| | 23 | Chapter 21 – Glycogen Metabolism |
| | 28 | Chapter 21 – Glycogen Metabolism. |
| | 30 | Chapter 21 – finish and start Chapter 22 – Fatty Acid Metabolism (Chapter 12 – Lipids and Cell Membranes – do on your own with review sheet and notes) |
| May | 05 | Chapter 22 - continued. |
| | 14 | 12 – 2:30 pm (note day and time change) Final Exam – Chap. 17, 18, 20, 21, 22. |