

Chemistry 3339 – Biochemistry II
(Previously named Metabolism)
Sam Houston State University
Spring 2018
Dr. Donovan C. Haines

Course Information

Section 01: TuTh 11:00 am - 12:20 pm
Meet in CFS 103

Instructor Information

Instructor: Dr. Donovan C. Haines (Haines@shsu.edu)

Office: CFS 317F Phone: 936-294-1530 Email: haines@shsu.edu

Office hours (tentative – listen in class for any changes):

TuTh 10:00am-11:00am; Other hours by appt.

Required Materials

Text: Berg, Tymoczko, Stryer: Biochemistry, 7th Edition; Freeman. ISBN 9781429229364.

SHSU Catalog Descriptions and Prerequisites

CHEM 3339 Biochemistry II. This course is a study of the bioenergetics associated with the metabolic pathways and processes. The metabolism of carbohydrates, lipids, proteins, and nucleic acids; the interrelationship of the metabolic pathways; and the regulation of metabolism are emphasized. Prerequisites: A minimum grade of C in CHEM 1311/1111, 1312/1112, 2323/2123, 2325/2125, and 348.

Grading

| | |
|---|-----|
| Exams (4) | 60% |
| Writing assignments, quizzes, etc. (lowest 1/5 th will drop) | 10% |
| Project | 10% |
| Final Exam | 20% |

Grading Scale:

Your total points for the semester will be rounded to the nearest whole point and your grade will be determined as follows:

| | |
|--------------|---|
| 90 and above | A |
| 80 to 89 | B |
| 70 to 79 | C |
| 60 to 69 | D |
| Below 60 | F |

Exams. Exams will be taken during normal class time. All exams are inherently comprehensive, but focus on the material covered since the previous exam. If you miss an exam for any reason your final exam score will be counted in place of the missing exam score.

Writing Assignments. Various writing assignments on topics related to class will be assigned throughout the semester. Some may require you to post to the Blackboard discussion groups, some will be uploaded to Assignments in Blackboard.

Quizzes and Misc. Assignments. Other quizzes and misc. assignments may be assigned during the course of the semester. Be sure to attend class to get these assignments in a timely fashion. Some may require use of computers and/or the internet to explore protein structure. You are expected to work the textbook's problems at the end of each chapter to help you learn the material. They are not collected and graded, but occasionally show up on the exam.

Project. The major project will allow you to pick from a variety of project types, including a traditional term paper. Full details will be given in class the second week of the course.

Final Exam. The final exam is comprehensive and takes place in our lecture room at the date and time listed under 'Schedule'.

Schedule

| | | <u>Chapter</u> | <u>Topic</u> |
|--------------|---------------|----------------|---|
| Thurs | 18-Jan | - | Introduction |
| Tues | 23-Jan | 2,11 | Review of Amino Acids and Protein, Start Carbohydrates |
| Thurs | 25-Jan | 11 | Carbohydrates |
| Tues | 30-Jan | 11,12 | Carbohydrates, Lipids |
| Thurs | 1-Feb | 12 | Lipids |
| Tues | 6-Feb | 12,15 | Lipids, Intro to Metabolism |
| Thurs | 8-Feb | 15 | Intro to Metabolism |
| Tues | 13-Feb | 16 | Exam 1 - Molecules (Chp 2, 11,12) |
| Thurs | 15-Feb | 16 | Glycolysis and Gluconeogenesis |
| Tues | 20-Feb | 17 | The TCA Cycle |
| Thurs | 22-Feb | 17 | The TCA Cycle |
| Tues | 27-Feb | 18 | Oxidative Phosphorylation |
| Thurs | 1-Mar | 18 | Oxidative Phosphorylation |
| Tues | 6-Mar | | Exam 2 - Glucose -> ATP (15,16,17,18) |
| <i>Thurs</i> | <i>8-Mar</i> | | (Video Lecture – we do not meet) |
| <i>Tues</i> | <i>13-Mar</i> | | <i>SPRING BREAK</i> |
| <i>Thurs</i> | <i>15-Mar</i> | | <i>SPRING BREAK</i> |
| Tues | 20-Mar | 19 | Light Reactions of Photosynthesis |
| Thurs | 22-Mar | 20 | The Calvin Cycle and Pentose Phosphate Pathway |
| Tues | 27-Mar | 21 | Glycogen Metabolism |
| Thurs | 29-Mar | 22 | Fatty Acid Metabolism |
| Tues | 3-Apr | 22 | Fatty Acid Metabolism |
| Thurs | 5-Apr | 22 | Fatty Acid Metabolism |
| Tues | 10-Apr | | Exam 3 - More carbs and Fatty Acid Metabolism (Chp 19,20,21,22) |
| Thurs | 12-Apr | 23 | Protein Turnover and Amino Acid Catabolism |
| Tues | 17-Apr | 24 | Amino Acid Biosynthesis |
| Thurs | 19-Apr | 25 | Nucleotide Biosynthesis |
| Tues | 24-Apr | 26 | Synthesis of Membrane Lipids and Steroids |
| Thurs | 26-Apr | 27 & Sp. Top. | Integration of Metabolism & Back to Warburg |
| Tues | 1-May | | Exam 4 - Metabolism of Amines and Integration (Chp 23,24,25,26,27) |
| Thurs | 3-May | Sp. Top. | Adv Topic - Drug Metabolism and Humanization of Other Organisms |

Thurs, May 10th 12:00-2:00pm Final Exam (Comprehensive)

Lecture Capture:

Dr. Haines will be using lecture recording tools to record lectures and to make videos for some assignments outside of lecture. The videos will be available in Blackboard. The lecture capture software will record everything on the screen and the audio on a microphone that Dr. Haines uses in class. Typically lectures are available (from within Blackboard) within 24 hours after the lecture. Students have found this extremely useful and I will require you to check it out early in the semester. Like any technology, however, from time to time there is a malfunction so ***it is possible that not all lectures may be available***. You will only be required to access videos a few times this semester, if you have problems accessing it from off campus you can always use the on campus computer labs (in LSC for example). As Dr. Haines tests related tools, he may post additional audiovisual learning aids as well.

Blackboard:

We will use Blackboard heavily for this course. You will find PowerPoint files and printable lecture note handouts there, check grades, and take some quizzes in Blackboard. In addition, some writing assignments will be uploaded or pasted directly into Blackboard. You must check both Blackboard and your email periodically (at least once or twice per week) for announcements.

Academic Dishonesty (Course Specific):

All students are expected to engage in all academic pursuits in a manner that is above reproach. Cheating can result in an F and a score of zero on an individual assignment or an F in the course, depending on the severity as determined by Dr. Haines. Cheating includes using materials on an exam that Dr. Haines did not authorize, passing copies of exams and quizzes to classmates without Dr. Haines' permission, plagiarism, obtaining test databanks for the textbook that are not authorized by the authors to be publically available, talking to other students during a quiz or exam or otherwise signally answers to an exam, and using electronic devices of any kind during an exam without prior approval by Dr. Haines. If you have any questions, please ask Dr. Haines first.

University Wide Policies

Additional details can be found at <http://www.shsu.edu/syllabus/>.

ACADEMIC DISHONESTY:

All students are expected to engage in all academic pursuits in a manner that is above reproach. Students are expected to maintain honesty and integrity in the academic experiences both in and out of the classroom. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. The University and its official representatives may initiate disciplinary proceedings against a student accused of any form of academic dishonesty including but not limited to, cheating on an examination or other academic work which is to be submitted, plagiarism, collusion and the abuse of resource materials. For a complete listing of the university policy, see:

[Dean of Student's Office](#)

STUDENT ABSENCES ON RELIGIOUS HOLY DAYS POLICY:

Section 51.911(b) of the Texas Education Code requires that an institution of higher education excuse a student from attending classes or other required activities, including examinations, for the observance of a religious holy day, including travel for that purpose. Section 51.911 (a) (2) defines a religious holy day as: "a holy day observed by a religion whose places of worship are exempt from property taxation under Section 11.20...." A student whose absence is excused under this subsection may not be penalized for that absence and shall be allowed to take an examination or complete an assignment from which the student is excused within a reasonable time after the absence.

University policy 861001 provides the procedures to be followed by the student and instructor. A student desiring to absent himself/herself from a scheduled class in order to observe (a) religious holy day(s) shall present to each instructor involved a written statement concerning the religious holy day(s). The instructor will complete a form notifying the student of a reasonable timeframe in which the missed assignments and/or examinations are to be completed. For a complete listing of the university policy, see:

[/dept/academic-affairs/documents/aps/students/861001.pdf](#)

STUDENTS WITH DISABILITIES POLICY:

It is the policy of Sam Houston State University that individuals otherwise qualified shall not be excluded, solely by reason of their disability, from participation in any academic program of the university. Further, they shall not be denied the benefits of these programs nor shall they be subjected to discrimination. Students with disabilities that might affect their academic performance should register with the Office of Services for Students with Disabilities located in the Lee Drain Annex (telephone 936-294-3512, TDD 936-294-3786, and e-mail disability@shsu.edu). They should then make arrangements with their individual instructors so that appropriate strategies can be considered and helpful procedures can be developed to ensure that participation and achievement opportunities are not impaired.

SHSU adheres to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations for students with disabilities. If you have a disability that may affect adversely your work in this class, then I encourage you to register with the SHSU Services for Students with Disabilities and to talk with me about how I can best help you. All disclosures of disabilities will be kept strictly confidential. NOTE: No accommodation can be made until you register with the Services for Students with Disabilities. For a complete listing of the university policy, see:

<http://www.shsu.edu/dotAsset/7ff819c3-39f3-491d-b688-db5a330ced92.pdf>

VISITORS IN THE CLASSROOM:

Only registered students may attend class. Exceptions can be made on a case-by-case basis by the professor. In all cases, visitors must not present a disruption to the class by their attendance. Students wishing to audit a class must apply to do so through the Registrar's Office.