



BIOC 301: Biochemistry I

3 Credits

Spring 2020 (Online)

Syllabus

Instructor:

Inderroop Singh Ph.D (he, him, his)

Post-Doctoral Fellow

Contact Information:

E-mail: singhfaes@gmail.com

Office Hours:

Dr. Singh: Thursday 3-4 PM Lobby of Building 10 (In front of Starbucks)

Course Information:

Prerequisites: Organic Chemistry or consent of instructor

Course Description:

This course is a comprehensive survey of biochemistry. BIOC301 will cover structure, function, regulation and synthesis of biological macromolecules, as well as an introduction to metabolic pathways such as glycolysis and gluconeogenesis.

Course Website (Canvas):

Learning Materials:

Required Texts: Lehninger Principles of Biochemistry, 7th edition

Course Goals

When you complete the course successfully, you will be able to:

Understand protein structure and thermodynamics

Describe protein-protein interaction and structure-function relationships

Name structure and function of carbohydrates and lipids

Identify nucleic acid biochemistry

Relate materials covered in class to diseases humans suffer from on daily basis

Structure of the Course

The course is designed for the student to have a strong understanding of the various biochemical topics that will be covered in class. Most in-person classes would test your knowledge through exams and quizzes, but this course will utilize various online platforms to help you create a strong foundation in biochemistry. Each lecture is comprised of 3 videos of an hour each that can be accessed at anytime. We will test your knowledge with various in-lecture quizzes that allows you to check how well you grasp the material. The two group projects of this course will come at Week 7 and Week 14 and will require that your group upload a video where you teach various topics covered in the lectures to the rest of the class.

The Learning Process

You will be given multiple ways to understand the material. From the lecture videos, online quizzes, discussion topics, required readings as well as the group projects. These outlets will allow you to absorb the material in various ways. Although this course is not a traditional brick and mortar course, where a student sits in class for 3 straight hours, the amount of work required to understand the material at a high level will still be the same for any 3 credit course. Putting in 3 hours a week of listening to the lecture material and 6 hours of study time a week is a recipe for success! We encourage you to reach out to the lecturer who will be available via email and virtual office hours if a topic needs clarification.

Communication:

Please email any questions and assignments you have to singhfaes@gmail.com, and you will receive a response within 24 hours Monday through Thursday, and If an email is sent after 5 pm on Friday, you will receive a response on the following Monday.

Academic Policies

This course adheres to all FAES policies described in the academic catalog and student handbook, including the Academic Integrity policy listed on page 11 of the academic catalog and student handbook. Be certain that you are knowledgeable about all of the policies listed in this syllabus, in the academic catalog and student handbook, and on the FAES website. As a student in this program, you are bound by those policies.

Copyright

All course materials are the property of FAES and are to be used for the student's individual academic purpose only. Any dissemination, copying, reproducing, modification, displaying, or transmitting of any course material for any other purpose is prohibited, will be considered misconduct, and may be cause for disciplinary action. In addition, encouraging academic dishonesty by distributing information about course materials or assignments which would give an unfair advantage to others may violate the FAES Academic Integrity policy. Course materials may not be exchanged or distributed for commercial purposes, for compensation, or for any purpose other than use by students enrolled in the course. Distributions of course materials may be subject to disciplinary action.

Guidelines for Disability Accommodations

FAES is committed to providing reasonable and appropriate accommodations to students with disabilities. Students with documented disabilities should contact Dr. Mindy Maris, Assistant Dean of Academic Programs.

Dropping the Course

Students are responsible for understanding FAES policies, procedures, and deadlines regarding dropping or withdrawing from the course or switching to audit status.

Harassment

FAES adheres to the NIH's harassment policies, which can be found at the following link:

<https://hr.nih.gov/working-nih/civil/statement-workplace-harassment>

Faculty and students in FAES courses are responsible for being familiar with the NIH's harassment policies and adhering to them.

In order to succeed in this class, it is imperative that you do the readings, listen to lecture and test yourself with the online quizzes to truly see if you understand the material on a weekly basis. There will be a discussion topic presented, and you will either write a paragraph on that topic or give a 5-10 minute presentation on the topic.

Guidelines for Submitting Assignments:

Below is a schedule for when assignments are due. You will email the assignments by midnight on Sunday (exact dates are posted below). Each email should have in its subject headline the topic and your name, for example [Discussion Topic 1: Inderroop Singh]. The instructor will then read the assignments and ask for revisions when necessary by Tuesday, where you will have by midnight of Wednesday to resubmit the assignment. Once again please email them with the subject headline stating it's a revision, i.e. [Revised Discussion Topic 1: Inderroop Singh]. If it has passed the revision, you will then post your assignment to the Canvas discussion board by 5 pm Friday. Your grade will be based on correctly answering the discussion prompt within the chances given as well as posting the assignment to the discussion board in a timely manner. There will be no late assignments accepted.

Major Assignments:

A student's grade will be determined in the following way:

Quizzes	10%
Projects (2)	30% each
Participation	30%

Grading Scale:

85-100	A
70-84	B
55-69	C
40-54	D
<39	F

Weekly Schedule:

Week	Readings	Learning Activities and Assignments
1	Chapter 1-3 Water, Amino Acid Peptides and Proteins	
2	Chapter 4 Protein Structure	Discussion Topic 1 Due: 2/16/2020 at 11:59 PM EDT
3	Chapter 5 Protein Function	Submit Revisions 1 Due: 2/19/2020 11:59 PM EDT Post: 2/21/2020 5:00 PM EDT Discussion Topic 2 Due: 2/23/2020 11:59 PM EDT
4	Chapter 6 Enzymes	Submit Revisions 2 Due: 2/26/2020 11:59 PM EDT Post: 2/28/2020 5:00 PM EDT Discussion Topics 3 Due: 3/1/2020 11:59 PM EDT
5	Chapter 7 Carbohydrates and Glycobiology	Submit Revisions 3 Due: 3/4/2020 11:59 PM EDT Post: 3/6/2020 5:00 PM EDT Discussion Topic 4 Due: 3/8/2020 11:59 PM EDT
6	Chapter 8 Nucleotides	Submit Revisions 4 Due: 3/11/2020 11:59 PM EDT Post: 3/13/2020 5:00 PM EDT Project I Topics
7	Project I	Upload Video Due: 3/22/2020 11:59 PM EDT
8	Chapter 9 DNA Based Information Technology	Discussion Topic 5 Due: 3/29/2020 11:59 PM EDT
9	Chapter 9 Lipids	Submit Revisions Topic 5 Due: 4/1/2020 11:59 PM EDT Post: 4/3/2020 5:00 PM EDT Discussion Topic 6 Due: 4/5/2020 11:59 PM EDT
10	Chapter 11 Biological Membranes and Transport	Submit Revisions Topic 6 Due: 4/8/2020 11:59 PM EDT Post: 4/10/2020 5:00 PM EDT

Week	Readings	Learning Activities and Assignments
		Discussion Topic 7 Due: 4/12/2020 11:59 PM EDT
11	Chapter 12 Biosignaling	Submit Revisions Topic 7 Due:4/15/2020 11:59 PM EDT Post: 4/17/2020 5:00 PM EDT Discussion Topic 8 Due: 4/19/2020 11:59 PM EDT
12	Chapter 14 Glycolysis and Diabetes	Submit Revisions Topic 8 Due:4/22/2020 11:59 PM EDT Post: 4/24/2020 5:00 PM EDT Discussion Topic 9 Due: 4/26/2020 11:59 PM EDT
13	Chapter 14-15 Gluconeogenesis and Glycogenolysis	Submit Revisions Topic 9 Due: 4/29/2020 11:59 PM EDT Post: 5/1/2020 5:00 PM EDT Project II Topic
14	Project II	Upload Video Due: 5/8/2020 11:59 PM EDT