

BMI 811 Biology for Brain-Mind Research

Introduction

This course is the first course in the BMI 6-Discipline Certificate (6CD) program. This course is designed to provide participants with the background required for more advanced exploration of the biological basis of brain function. Participants are introduced to fundamental principles of biochemistry, genetics, molecular biology, and cell biology. Topics covered include the structure and function of biological macromolecules, the organization of these molecules into cells, energy generation and utilization by these cells, regulation of genes and synthesis of protein in these cells, and how these cells are integrated into multicellular systems and organisms.

Lectures

Face-to-Face lectures are held in room 281 Chemistry on the following days and times:

June 25-29 from 9:00 to 10:30 and from 10:45 to 12:15.

July 2 and 3 from 1:30 to 3:00 and from 3:15 to 4:45.

July 4 - NO CLASS - Independence Day

July 5 from 1:30 to 3:00 and from 3:15 to 4:45.

July 6 from 9:00 to 10:30 and from 10:45 to 12:15.

July 9-13 from 1:30 to 3:00 and from 3:15 to 4:45.

Recordings of lectures will be posted on the LON-CAPA web site within three hours of lecture completion (barring technical difficulties).

Instructor

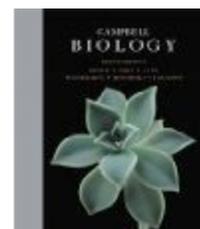
Jon R. Stoltzfus

Office hours can be arranged either face-to-face or via e-mail (stoltzfu@msu.edu). Skype arrangements are possible for distance learning participants.

Textbook

Biology by Campbell, Reece, Pearson, 9th edition, Benjamin Cummings Publishers

There isn't much difference between the 8th 2009 and 9th edition so you can easily get by with the 8th. You need to get the text by yourself. One option is to purchase an electronic version of the text through the Mastering Biology site (see below). However, you will only have access to the electronic text for one year.



Course Web Sites

LON-CAPA General Course Web Site

<http://s10.lite.msu.edu>

This site provides access to PDF files of presentation slides, recordings of the lectures, and online quizzes for distance learning participants during the first two weeks. You should log on to this account using instructions sent to you by e-mail. PDF files of presentation slides will be posted prior to each lecture. Lecture recordings will be posted within 3 hours of lecture completion, barring technical difficulties. Online quizzes for distance learning participants will be due approximately 24 hours after the lecture recordings are posted.

Mastering Biology Homework Web Site

<http://www.masteringbio.com/>

This site hosts the online homework for the class. You need to create an account as described at https://www.msu.edu/user/stoltzfu/Mastering_Biology_Registration.pdf. Assignments designated as "Homework" count as part of your composite course grade. Assignments designated as "Practice" contain all the publisher's resources from the relevant chapters and are available for you as a resource. Resources from this web site should be available for approximately 11 months after the course.

Assessments

Homework

Assignments on this site designated as "Homework" on the Mastering Biology website are worth 50% of the course grade. These assignments contain selected problems that align with material covered in lecture. Based on publisher estimates, these assignments should take between 45 and 90 minutes to complete (after you have read the relevant chapter(s) in the text). These assignments are due approximately 45 hours after the completion of each live lecture (not counting weekends). Ideally, participants will complete them prior to the next lecture, but I have extended the due date to add flexibility and accommodate distance learning participants.

Quizzes

Clicker quizzes will be given at the beginning of most lectures. During the first two weeks of the course, distance learning participants will take LON-CAPA online quizzes instead of clicker quizzes and are expected to take the quizzes without the aid of any study material (textbook, notes, internet resources, etc). Face-to-face participants and distance learning participants (during the last week of the course) are expected to attend class and take clicker quizzes. All quizzes are timed with several minutes per question. Clickers for the clicker quizzes will be provided in class.

Final Exam

The final exam will be a paper based multiple-choice style exam administered during the last meeting of the course on 7/13/12.

Grading

Composite score: 50% based on the total points earned from the homework questions; 10% based on clicker quizzes (face-to-face participants) or online quizzes (for distance learning participants during the first two weeks only); 40% based on the final exam. Assessment results are private and confidential.

Pass: the composite score is 60% or above. Those who successfully pass will receive a BMI 811 Certificate.

Lecture Schedule - Summer 2012

Date	Topic Assigned	Chapters
6/25	Course Mechanics & Overview, Chemistry, and Functional Groups	1 through 4
6/26	Macromolecules	5
6/27	Cell Organization and Activities	6
6/28	Membrane Structure and Function	7
6/29	Introduction to Metabolism and Glycolysis	8 and 9
7/02	Krebs Cycle and Electron Transport Chain	9
7/03	Cell Cycle, Mitosis, Meiosis, Inheritance, and Genetic Variation	12 and 13
7/04	Independence Day Holiday - NO CLASS	
7/05	Chromosomal and Molecular Basis of Inheritance	15 and 16
7/06	Transcription, RNA Processing, Translation, and Mutations	17
7/09	Regulation of Gene Expression and Cellular Differentiation	18
7/10	Cell Communication and Apoptosis	11
7/11	Hormones and the Endocrine System	45
7/12	Animal Development	47
7/13	Synopsis, Review, and Final Exam	