



COURSE INFORMATION SHEET

BCH 297 Introductory Biochemistry Winter 2010

Instructor: Dr. Jessmi Ling
Office: A2158
Email: jling@ambrose.edu
Telephone: 1-403-410-2000 ext. 2919

Lecture venue and time: A2145. Wednesdays and Fridays, 9:45 – 11:00 am

Course prerequisites: Biology 131 and 133, Chemistry 251

Course description

Biochemistry explores the chemical makeup and reactions that are essential for life processes. The course will introduce the students to the composition of carbohydrate, protein, lipid and nucleic acids as well as the metabolism of these compounds. The course laboratory component will introduce students to some fundamental biochemistry experiments that will aid in the comprehension of the concepts covered during lectures. Students taking this course are required to enroll in Bch 297L, which encompass the laboratory accompaniment for this course.

Course objectives:

It is the aim of the course that students acquire the following skills:

1. Understand the chemistry of important biological macromolecules.
2. Understand the principles of enzymatic activities and analysis.
3. Comprehend various metabolic pathways and appreciate its complexity, network and proper regulation.

Required textbook:

McKee T and McKee JR. Biochemistry: the molecular basis of life. 4th Edition. 2009. Oxford University Press. New York.

Tentative schedule:

Date	Topic	Chapter
Jan 6	Course introduction	1
Jan 8	The importance of water	3

Jan 13	Energy	4
Jan 15	Amino acids and peptides	5.1 - 5.2
Jan 20	Proteins	5.3
Jan 22	Enzymes I	6.1 - 6.3
Jan 27	Enzymes II	6.4 - 6.5
Jan 29	Carbohydrate I	7.1 - 7.3
Feb 3	Carbohydrate II	7.4 - 7.5
Feb 5	Carbohydrate metabolism I	8.1 - 8.2
Feb 10	Carbohydrate metabolism II	8.3 - 8.5
Feb 12	Aerobic metabolism I	9
Feb 24	Aerobic metabolism II	10
Feb 26	Lipids	11
Mar 3	Lipids and membranes	11
Mar 5	Lipid metabolism I	12.1
Mar 10	Lipid metabolism II	12.2 - 12.3
Mar 12	Photosynthesis I	13.1 - 13.3
Mar 17	Photosynthesis II	13.4 - 13.5
Mar 19	Nitrogen metabolism I	14
Mar 24	Nitrogen metabolism II	15
Mar 26	Integration of metabolism	16
Mar 31	Nucleic acids	17
Apr 2	Good Friday (no lectures)	
Apr 7	Final exam for Bch 297L	
Apr 9	No class	

The course laboratory component will consist of wet lab experiments as well as tutorials. Lab reports are due at 4 pm on Jan 20 for Lab 1, Feb 3 for Lab 2, Feb 24 for Lab 3, Mar 3 for Lab 4 and Mar 24 for Lab 5. Tutorial assignments are due at 4 pm on Jan 27 for Tutorial 1, Mar 17 for Tutorial 2 and Mar 31 for Tutorial 3.

Tentative schedule for the laboratory component (Bch 211L):

Date	Topic
Jan 13	Lab 1: Protein purification
Jan 20	Tutorial 1: Proteins and enzymes
Jan 27	Lab 2: Protein concentration
Feb 3	Test 1 (Jan 6 – 27)
Feb 10	Lab 3: Enzyme activity
Feb 24	Lab 4: Metabolism
Mar 3	Test 2 (Jan 29 – Feb 24)
Mar 10	Tutorial 2: Carbohydrate and lipids
Mar 17	Lab 5: DNA plasmid analysis
Mar 24	Tutorial 3: Photosynthesis and nitrogen metabolism
Mar 31	Test 3 (Feb 26 – Mar 26)
Apr 7	Course Review

Mark distribution:

Bch 297	Tests (2 x 20%)	40%
	Final exam	35%
	25% of Bch 297L	25%
Bch 297L	5 laboratory reports	50%
	3 tutorial assignments	15%
	Final exam	35%

Two hours are allocated for each test. Three hours are allocated for the final exam, while the final exam for Bch 297L is 1.5 hours. Tests will consist of short answer questions

based on topics covered during lectures. The tests are not cumulative. Each test carries 20% of the total course marks. The higher scores in two of the three tests will be used to calculate the final course marks and grade. The final exams will consist of multiple-choice questions, short and long answer questions. Questions will be based on topics covered during lectures, corresponding chapters from the required textbook as well as any additional reading material provided over the duration of the course. The final exam will cover topics from the whole course (cumulative). Study guides for tests or exams will not be provided in this course. Students are encouraged to make their own lecture notes to summarize the course material. Students are also encouraged to keep up with the readings, preferably reading the corresponding chapter before each lecture.

Grading scheme:

A+	93 – 100%	C+	66 – 69%
A	86 – 92%	C	62 – 65%
A–	82 – 85%	C–	58 – 61%
B+	78 – 81%	D+	54 – 57%
B	74 – 77%	D	50 – 53%
B–	70 – 73%	F	Below 50%