



## COURSE INFORMATION SHEET

### **BCH 297**

#### **Introductory Biochemistry**

(Tentative course outline and schedule for Winter 2012)

#### **Course description**

This course will study the structure and function of carbohydrates, amino acids, proteins, lipids, and enzymes, along with an introduction to metabolism and energy transduction.

#### **Further course information**

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.

**Class schedules:** Lectures: A2141. Wednesdays and Fridays, 2:30 – 3:45 pm  
Laboratory: A2145. Wednesdays, 4:00 – 6:30 pm

#### **Instructor Information**

Instructor: Jessmi Ling, PhD  
Office: A2158  
Telephone: 1-403-410-2000 ext. 2919  
Email: [jling@ambrose.edu](mailto:jling@ambrose.edu)

**Course prerequisites:** Biology 131 and 133, Chemistry 251

#### **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. 5<sup>th</sup> Edition. 2012. Oxford University Press. New York.

Note: the 4<sup>th</sup> edition of the same textbook is acceptable.

**Attendance**

There are no penalties for non-attendance for lectures or tutorials. Marks are awarded to tutorial assignments. However, attendance is compulsory for all laboratory, tests and exams. Allocated marks will not be awarded if student is absent from any laboratory, tests or exams without notice and sufficient reason.

**Tentative schedule:**

<b>Date</b>	<b>Topic</b>	<b>Chapter</b>
Jan 11	Course introduction	1
Jan 13	The importance of water	3
Jan 18	Energy	4
Jan 20	Amino acids and peptides	5.1 - 5.2
Jan 25	Proteins	5.3 – 5.4
Jan 27	Enzymes I	6.1 - 6.3
Feb 1	Enzymes II	6.4 - 6.5
Feb 3	Carbohydrate I	7.1 - 7.3
Feb 8	Carbohydrate II	7.4 - 7.5
Feb 10	Carbohydrate metabolism I	8.1 - 8.2
Feb 15	Carbohydrate metabolism II	8.3 - 8.5
Feb 17	Aerobic metabolism I	9
Feb 21-25	Mid-semester break	
Feb 29	Aerobic metabolism II	10
Mar 2	Lipids	11.1
Mar 7	Global impact day (no class or lab)	
Mar 9	Lipids and membranes	11.2
Mar 14	Lipid metabolism I	12.1 – 12.2
Mar 16	Lipid metabolism II	12.3 - 12.4
Mar 21	Photosynthesis	13
Mar 23	Nitrogen metabolism I	14

Mar 28	Nitrogen metabolism II	15
Mar 30	Integration of metabolism	16
Apr 4	Nucleic acids	17
Apr 6	Good Friday (No classes)	
Apr 11	Lab test for Bch 297L	
Apr 14	Final exam (Room 2210; 1 – 4 pm)	

**Tentative schedule for the laboratory component (Bch 297L):**

The laboratory component consists of wet lab experiments as well as tutorials. The tutorials are designed to supplement the lecture component and broaden the knowledge in laboratory applications. In addition, tutorials are exercises to help remember key pathways and macromolecules in preparation for tests and final exam. Tutorial 1 and Lab 1 report are due on Feb 8. All other tutorial assignments, lab reports and lab worksheets are due no later than April 14, prior to the start of the final exam. Electronic submissions for lab reports and lab worksheets (via email to [jling@ambrose.edu](mailto:jling@ambrose.edu)) are preferred. Late submissions are subject to deduction of 20% of its allocated marks per day.

Date	Topic
Jan 11	Lab 1: Protein concentration (Tutorial 1 handout)
Jan 18	Lab 2: Enzyme activity
Jan 25	Lab 3: Protein purification (rGFP) (Tutorial 2 handout)
Feb 1	Lab 4: Specific activity
Feb 8	Test 1 (Chapters 1, 3 – 6)
Feb 15	Lab 5: Carbohydrates
Mar 14	Test 2 (Chapters 7 – 11)
Apr 11	Test 3 (Chapters 12 – 17)

**Mark distribution:**

Bch 297	Tests (2 x 15%)	30%
	Test (1 x 10%)	10%
	Final exam	40%
	Bch 297L	20%
Bch 297L	5 laboratory reports	50%
	3 tutorial assignments	15%
	Lab test	35%

Two hours are allocated for each test, while 2.5 hours are allocated for the final exam. 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. The higher scores in two of the three tests will each carry 15% of the total course marks. The lowest test score will carry 10% of the total course marks. The final exam will consist of multiple-choice questions, short and long answer questions. Questions will be based on topics covered during lectures and corresponding chapters from the required textbook. 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%

**Important dates:**

Convocation Chapel – Thursday, January 12.

Last day to enter course without permission; last day to withdraw from a course, change to audit, and receive tuition refund – Sunday, January 22.

Returning Scholarship application available – Wednesday, February 1.

Returning Scholarship application deadline – Tuesday, February 28.

Last day to withdraw from courses or change to audit without academic penalty – Friday, March 23.

Registration period commences – Monday, April 2.

Last day to request revised time for a final exam – Monday, April 9.

Last day to apply for time extension for coursework – Monday, April 9.

### **From the registrar:**

#### **Electronic Etiquette**

Students are expected to treat their instructor, guest speakers, and fellow students with respect. It is disruptive to the learning goals of a course or seminar and disrespectful to fellow students and the instructor to engage in electronically-enabled activities unrelated to the class during a class session. Please turn off all cell phones and other electronic devices during class. Laptops should be used for class-related purposes only. Please do not use iPods, MP3 players, or headphones. Do not text, read or send personal emails, go on Facebook or other social networks, search the internet, or play computer games during class. The professor has the right to disallow the student to use a laptop in future lectures and/or to ask a student to withdraw from the session if s/he does not comply with this policy. Repeat offenders will be directed to the Dean. If you are expecting communication due to an emergency, please speak with the professor before the class begins.

#### **Academic Policies**

It is the responsibility of all students to become familiar with and adhere to academic policies as stated in the Student Handbook and Academic Calendar. Personal information, that is information about an individual that may be used to identify that individual, may be collected as a requirement as part of taking this class. Any information collected will only be used and disclosed for the purpose for which the collection was intended. For further information contact the Privacy Compliance Officer at [privacy@ambrose.edu](mailto:privacy@ambrose.edu).

#### **Extensions**

Although extensions to coursework in the semester are at the discretion of the instructor, students may not turn in coursework for evaluation after the last day of the scheduled final examination period unless they have received permission for a "Course Extension" from the Registrar's Office. Requests for course extensions or alternative examination time must be submitted to the Registrar's Office by the appropriate deadline (as listed in the Academic Calendar <http://www.ambrose.edu/publications/academiccalendar>). Course extensions are only granted for serious issues that arise "due to circumstances beyond the student's control."

#### **Academic Integrity**

We are committed to fostering personal integrity and will not overlook breaches of integrity such as plagiarism and cheating. Academic dishonesty is taken seriously at Ambrose University College as it undermines our academic standards and affects the integrity of each member of our learning community. Any attempt to obtain credit for academic work through fraudulent, deceptive, or dishonest means is academic dishonesty. Plagiarism involves presenting someone else's ideas, words, or work as one's own. Plagiarism is fraud and theft, but plagiarism can also occur by accident when a student fails or forgets to give credit to another person's ideas or words. Plagiarism and cheating can result in a failing grade for an assignment, for the course, or immediate dismissal from the university college. Students are expected to be familiar with the policies in the current Academic Calendar and the Student Handbook that deal with plagiarism, cheating, and the penalties and procedures for dealing with these matters. All cases of academic dishonesty are reported to the Academic Dean and become part of the student's permanent record.

Students are advised to retain this syllabus for their records.