



**BIO 231 Introduction to Cellular and Molecular Biology (3)
Winter 2014**

Course Description

This course examines the principles of cellular structure and function, as well as the interaction of cells with their environment.

Further Course Information:

A cell is the smallest unit of life. It is highly complex and organized so that cellular activities are precise and efficient. This course introduces students to the basic cell structures and their functions. Cellular processes including energy production, gene expression, reproduction and communication will be discussed.

Class Schedules

Lectures: L2082. Wednesdays and Fridays, 11:15 am – noon

Tutorials: A2145. Mondays, 03:00 pm – 04:15 pm.

Instructor Information

Instructor: Dr. Jessmi Ling

Office: A2158

Telephone: 1-403-410-2000 ext. 2919

Email: jling@ambrose.edu

Course prerequisite: Biology 131 and 133

Course objectives:

1. Students will be able to identify basic cellular structures and explain their functions.
2. Students will be able to describe details of essential cellular activities.
3. Students will be able to corroborate etiology of some diseases to aberrant cellular component.

Required Textbook:

Gerald Karp. *Cell and Molecular Biology: Concepts and Experiments*. 6th or 7th Editions. John Wiley & Sons, Inc.

Attendance:

There are no penalties for non-attendance of lectures or tutorials, except for tests and exams.

Tentative course outline:

Date	Topic	Chapter
Jan 8	Introduction to the course.	1
Jan 10	Chemistry and biomolecules	2
Jan 13	No class	
Jan 15	Metabolism basics	3
Jan 17	Tutorial 1: A touch of biochemistry.	
Jan 20	Aerobic respiration and the mitochondrion	5
Jan 22	Photosynthesis and the chloroplast	6
Jan 24	Tutorial 2: The electron transport chain.	
Jan 27	Test 1 (Ch 1, 2, 3, 5 and 6)	
Jan 29	Plasma membrane: the components	4.1 – 4.6
Jan 31	Plasma membrane: structure and function	4.7 – 4.8
Feb 3	Tutorial 2: Plasma membrane.	
Feb 5	Cytoplasmic membrane systems: the components	8
Feb 7	Cytoplasmic membrane systems: traffic	8
Feb 10	The cytoskeleton	9
Feb 12	Cell motility	9
Feb 14	Tutorial 3: Cytoplasmic membrane and the cytoskeleton.	
Feb 17	Family Day (No classes)	
Feb 18-21	Mid-semester break	
Feb 24	No class.	
Feb 26	Genes and the genome.	10
Feb 28	Gene expression	11
Mar 3	Control of gene expression	12

Mar 5	Tutorial 5: Gene expression	
Mar 7	Test 2 (Ch 4, 8, 9, 10, 11 and 12)	
Mar 10	DNA replication and repair	13
Mar 12	Cellular reproduction: Cell cycle	14
Mar 14	Cellular reproduction: Mitosis and meiosis	14
Mar 17	Tutorial 6: DNA and cellular reproduction	
Mar 19	Interactions between cells and their environment	7
Mar 21	Communication between cells I	15.1 – 15.3
Mar 24	Communication between cells II	15.4 – 15.8
Mar 26	Tutorial 7: Interactions and communications	
Mar 28	Cancer	16
Mar 31	The immune response I	17.1 – 17.3
Apr 2	The immune response II	17.4
Apr 4	Tutorial 8: Cancer and the immune response	
Apr 7	Test 3 (Ch 7, 13, 14, 15, 16 and 17)	
Apr 9	Course review	
Apr 12	Final Exam. 9:00 pm at A2210.	

Mark Distribution:

Tests (3 × 15%)	45%
Tutorial assignments (8 × 2%)	16%
Final exam	39%

Tests will consist of short answer questions based on topics covered during lectures. The tests are not cumulative. Each test carries 15% of the total course marks.

There are 8 tutorial assignments; each carrying 2% of the total course marks. This is a completion mark, therefore incomplete questions are penalized between 0.25 – 2% each. Please note submission deadlines for each tutorial assignment in Moodle. Electronic submissions (via email) are preferred, including any hand-drawn figures (scanned and inserted into assignment document file). Late submissions are not accepted unless sufficient reason is provided as a

written request for extension to the instructor prior to the due date. Note that any request for extension is not automatically granted. Each request is assessed individually and the length of extension, if any, may vary. The instructor's decision on the extension is final.

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).

Grading Scheme:

A+	93.0 – 100%	C+	66.0 – 69.9%
A	86.0 – 92.9%	C	62.0 – 65.9%
A–	82.0 – 85.9%	C–	58.0 – 61.9%
B+	78.0 – 81.9%	D+	54.0 – 57.9%
B	74.0 – 77.9%	D	50.0 – 53.9%
B–	70.0 – 73.9%	F	Below 49.9%

Important dates:

Fees due: Wednesday, January 8.

Convocation Chapel: Thursday, January 9.

Last day to enter course without permission; last day to withdraw from a course, change to audit, and receive tuition refund: Sunday, January 19.

Returning Scholarship application available: Wednesday, January 29.

Returning Scholarship application deadline: Tuesday, February 25.

Community Day (Program Day): Thursday, January 30.

Last day to request revised time for a final exam: Monday, March 3.

Global Impact Community Day: Tuesday, March 4 – Thursday, March 6.

Legacy Youth Conference: Friday, March 14 – Sunday, March 16.

Last day to withdraw from courses without academic penalty: Friday, March 21.

Ambrose Research Conference: Monday, March 31.

Last day to apply for time extension for coursework: Monday, March 31.

Registration opens for next year: Tuesday, April 1.

Last day of classes: Thursday, April 10.

Gap day: Friday, April 11.

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.

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.