

CAPILANO UNIVERSITY COURSE OUTLINE	
Term: SPRING 2017	Course No. BIOL 214
Course: CELL BIOLOGY	Credits: 4.0 Section:
INSTRUCTOR Office: Tel: email:	

COURSE FORMAT: Three hours of class time, three lab hours plus an additional hour of supplemental activity delivered through on-line or other activities for a 15 week semester, which includes two weeks for final exams.

PRE-REQUISITES: BIOL 111 *or* BIOL 113, with a minimum "C-" grade;
CHEM 200 as pre- or co-requisite.

Note: This is an approved Quantitative/Analytical course for baccalaureate degrees.

COURSE OBJECTIVES:

General:

- To provide a foundation in modern cell biology
- To introduce the integration of the structure of cells and their organelles with their molecular function.
- To gain knowledge and practice with modern techniques in cell and molecular biology.
- To study the evolutionary origin of cells and compare specialized cell structure and function.
- To develop basic skills in handling reagents, acquire proper laboratory techniques, and to perform experiments with and interpret the results of analytical instrumentation.
- To measure, analyse, interpret and generate a proper lab report.

**Student Learning
Outcomes:**

Upon successfully completing the course, the student should be able to:

- demonstrate knowledge of microscopic structure and function of cells;
- perform techniques introduced in the laboratory;
- explain the evolutionary origin of eukaryotic cells; and
- explain the molecular bases of the functions of specialized cells
- calculate solution concentrations and Nernst potentials
- calibrate and quantify subcellular parameters using an ocular micrometer

- operate analytical laboratory equipment such as microscopes, spectrophotometers and scales
- Demonstrate understanding and proficiency as to preparing a standard curve and interpreting it
- Demonstrate proficiency in preparing serial dilutions

REQUIRED COURSE MATERIALS:

Textbook: Hardin, Bertoni and Kleinsmith. Becker's World of the Cell. 9th ed. Pearson Benjamin Cummings, 2015.

Lab Manual: Biology 214 Laboratory Manual, Capilano University. Custom manuals will be uploaded onto Moodle.

COURSE CONTENT: Students are responsible for material and concepts in **all** assigned readings, labs, notes posted on Moodle, problem sets, and lecture notes.

Weeks	Topics	Chapters
1-2	Introduction <ul style="list-style-type: none"> ▪ Overview of cells: prokaryotic and eukaryotic cells ▪ Cell Chemistry: molecular components of cells ▪ Macromolecules of the cell ▪ Cell organelles (review) 	1-4
3-4	The Cell Membrane <ul style="list-style-type: none"> ▪ Membrane structure and function; the plasma membrane; transport systems 	7,8
5-7	Cell Organelles and Endomembrane Networks <ul style="list-style-type: none"> ▪ Intracellular membrane systems: nucleus; endoplasmic reticulum; Golgi complex; secretion; intracellular vesicular transport and mechanisms; lysosomes and associated structures 	4,12
8-9	Cell Signaling <ul style="list-style-type: none"> ▪ Cell communication: signalling systems and signal transduction 	13,14
10	Cell Motility and Junctions <ul style="list-style-type: none"> ▪ The cytoskeleton: microtubules, intermediate filaments and microfilaments. Cell mobility and cell junctions 	15,16, 17 (parts)
11-13	<ul style="list-style-type: none"> ▪ DNA replication and gene expression ▪ Cell cycle 	18, 19 21,22, 23 (parts)
14-15	Final exam period	

EVALUATION PROFILE:

Final grades for the course will be computed based on the following schedule:

Midterm Exam 1	20%
Midterm Exam 2	20%
Final Exam (comprehensive)	30%
Lab Exam 1	10%
Lab Exam 2	10%
Lab Report Write Up	5%
Pre/Post Pop Quizzes/Participation	5%
TOTAL	100%

In order to pass the course, students must receive at least 50% on both the lecture and laboratory portions of the course.

SUPPLEMENTAL 4TH HOUR ACTIVITY:

Supplemental activity might be a scheduled tutorial, an on-line activity, a group meeting, or some other activity as indicated by your instructor. Students are required to login to and visit Moodle frequently in order to obtain these materials. Said 4th hour activities are testable.

GRADING PROFILE:

Letter grades will be assigned according to the following guidelines:

A+ 90 - 100%	B+ 77 - 79%	C+ 67 - 69%	D 50 - 59%
A 85 - 89%	B 73 - 76%	C 63 - 66%	F 0 - 49%
A- 80 - 84%	B- 70 - 72%	C- 60 - 62%	

Students should refer to the University Calendar for the effect of the above grades on grade point average.

For success in this course, students are expected to attend almost all lectures and laboratory sessions; come prepared to address topics presented; pre-read laboratory exercises; and complete assigned text book readings. For every one hour of lecture material presented, students should expect to spend two hours reviewing material, completing online quizzes and study guide assignments.

OPERATIONAL DETAILS:**University Policies:**

Capilano University has policies on Academic Appeals (including appeal of final grade), Student Conduct, Cheating and Plagiarism, Academic Probation and other education

issues. These and other policies are available on the University website.

Attendance:

The student is responsible for all information given in the lectures and laboratories, including times of examinations and assignment deadlines.

Missed Exams and Labs:

Normally, a score of zero will be given for a missed exam, test, quiz, lab, etc. In some **exceptional** situations, the student will be permitted to write a make-up test, defer the lab to a later date or to replace the score by other marks (see below). The date and timing of any make-up option is at the discretion of the instructor.

Options will only be offered to students if:

1. Circumstances are beyond the control of the student which resulted in the exam, test, quiz, lab, etc. to be missed. Such circumstances include serious illness or injury, or death of close family member. A departmental "medical form" to be completed by both the student and his/her physician may be requested. A copy of the death certificate of a close family member may also be required.

Reasons do **NOT** include forgetting about the test, lack of preparation for the test, work-related or social obligations.

2. The student has notified the instructor (or the Pure and Applied Science office staff, if the instructor is not available) about the missed exam, test, quiz, lab, etc. Such notification **MUST** occur in advance, if possible, or at the latest, on the day of the exam, test, quiz, lab, etc.
3. Late lab reports are deducted 20% for the first 24h period and are not accepted or graded after that time frame.
4. Proof of the circumstances must be provided. Proper documentation of illness or injury requires a completed medical form (supplied by the department) by both the student and the physician. All documentation **must be submitted within 5 days** of the missed exam. Such documentation will be validated by the department.
5. The student has been fully participating in the course up until the circumstances that prevented the writing of the exam, test, quiz, lab, etc. **Fully participating means attending almost all classes/labs and the timely turning in all assignments in the course.**

Final Exam Period:

Students should note that the final exam period is from **December 5 to December 13** (*includes Saturday, December 10*), and that they can expect to write exams at any time during this period. Individual exam times will not normally be rescheduled because of holidays, work, or other

commitments. While efforts are made to spread exams throughout the exam period, an individual's particular course combination may result in exams being scheduled close together, or spread widely through the entire exam period.

Cheating/Plagiarism: Students caught cheating on a test will normally receive a grade of "F" on the course and may be expelled from the University. Plagiarism (including the copying of any part of assignments, laboratory reports, and essays) is a serious offence and is a form of cheating.

Incomplete Grades: Incomplete grades ("I") are given only when special arrangements have been agreed upon with the instructor prior to the end of the semester. Since "I" grades are granted only in exceptional circumstances (usually health problems), their occurrence is rare.

Professionalism: Students should be able to demonstrate a professional attitude and behaviour: reliability, respect for and cooperation with colleagues, willingness to work calmly and courteously, respect for equipment and systems, and constructive response to criticism. The use of cellphones during lecture and lab sessions is prohibited. This policy is strictly enforced and students will be docked marks for not complying. Furthermore, students using cell phones could be asked to leave the lecture hall or laboratory room by the instructor.

Correspondence with instructors can be in the form of visits during scheduled office hours, scheduled appointments or emails. For office hour visits, students should come prepared with specific questions pertaining to the class curriculum. Emails will be responded to within one full business day or during the next scheduled office hours. Students requesting office visits during non-scheduled office hours should propose in their emails 3 possible meeting times for the instructor to choose from if possible.

The instructor will summarize exam formats, course content, dates, 4th hour activities, and administrative policy the first day of class. Such information will also be posted on the course's Moodle website. Students will be penalized for asking questions with answers to said questions that are posted on the course's Moodle webpage.

Participation: Student's participation grade will be based on their attendance, engagement in in class and lab, and professionalism.

***Lab Exemption Policy
For Students Repeating Course:***

If students received 65% or better for the laboratory component of this course within the past three terms, they may apply for exemption from the lab. Students must obtain an exemption form from the Biology Laboratory Convener or from the Coordinator of Biology. The exemption form should be

completed, with appropriate signatures, and be returned to the Biology Laboratory Convener within the first week of classes. If students are exempted, their previous lab mark will be carried over in calculating their final mark in the course this term.

English Usage:

Students are expected to use correct Standard English in their written and oral assignments, exams, presentations and discussions. Failure to do so may result in reduced grades in any part of the Evaluation Profile. Please refer to the guidelines provided in the Capilano Guide to Writing Assignments (available from the University bookstore).

Emergency Procedures:

Please read the emergency procedures posted on the wall of the classroom.