COLLEGE OF THE ROCKIES

Cell Biology – BIOL 201

University Studies Program

Course Outline

COURSE IMPLEMENTATION DATE: **Pre 1998**
OUTLINE EFFECTIVE DATE: **September 2023**
COURSE OUTLINE REVIEW DATE: **March 2028**

GENERAL COURSE DESCRIPTION:

This course studies the relationship between cell structure and cell function. The structure/function of the cell membrane and most organelles are covered in detail. Topics also include macromolecules, cell movements, cell-cell adhesion, cell reproduction, and cell signaling. The material in Biology 201 is an integral part of an undergraduate biological sciences program and is especially appropriate for students interested in health-related sciences, microbiology, genetics, developmental biology, biochemistry, botany, zoology, and general biology.

Program Information: This course can be used as either a required course or an elective in several University Studies Programs. Refer to the College Program Guide for additional information.

Delivery: This course is delivered face to face.

COTR Credits: 3

Hours for this course: 90 hours

Typical Structure of Instructional Hours:

Instructional Breakdown	Duration
Lecture Hours	45
Seminars / Tutorials	
Laboratory / Studio Hours	45
Practicum / Field Experience Hours	
Other Contact Hours	
Total	90

Practicum Hours (if applicable):

Type of Practicum	Duration
On-the-job Experience	N/A
Formal Work Experience	N/A
Other	N/A
Total	

Course Outline Author or Contact:
Lynnette Kuervers, BSc, PhD

Signature

APPROVAL SIGNATURES:

Department Head
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Department Head Signature

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Dean Signature

EDCO

Valid from: September 2023 – March 2028

Education Council Approval Date

COURSE PREREQUISITES AND TRANSFER CREDIT:

Prerequisites: BIOL 101, BIOL 102, CHEM 101 and CHEM 102

Corequisites: None

Flexible Assessment (FA):

Credit can be awarded for this course through FA ☑ Yes ☐ No

Learners may request formal recognition for flexible assessment at the College of the Rockies through one or more of the following processes: External Evaluation, Worksite Assessment, Demonstration, Standardized Test, Self-assessment, Interview, Products/Portfolio, Challenge Exam. Contact an Education Advisor for more information.

Transfer Credit: For transfer information within British Columbia, Alberta and other institutions, please visit http://www.cotr.bc.ca/Transfer.

Students should also contact an academic advisor at the institution where they want transfer credit.

Prior Course Number: N/A

Textbooks and Required Resources:

Textbook selection varies by instructor and may change from year to year. At the Course Outline Effective Date the following textbooks were in use:

J. Hardin, G. Bertoni and L.J. Kleinsmith. *Becker's World of the Cell 10th ed.,*Pearson, 2022.

Please see the instructor's syllabus or check COTR's online text calculator https://textbook.cotr.bc.ca/ for a complete list of the currently required textbooks.

LECTURE LEARNING OUTCOMES:

Upon the successful completion of this course, students will be able to

- compare and contrast structures of prokaryotic and eukaryotic cells and understand the significance of these differences in patterns of evolution and treatment of disease;
- investigate the ethical issues surrounding scientific achievements that have occurred at the expense of marginalized individuals or that have resulted in rigorous moral debate;
- relate the general structure and chemical characteristics of the five major groups of molecules important to life (water, carbohydrates, lipids, proteins, nucleic acids) to their function in cellular processes and cellular structure;
- relate the function of cells to the structure of the cell and the quantity, location, and function of organelles within them;
- identify the components of the cell cycle or the process of programmed cell death that are malfunctioning in some cancer cells; and
- discuss the specific roles each organelle and system play in maintaining homeostasis at the cellular level and relate the malfunction of these organelles to disease.

LAB LEARNING OUTCOMES:

- use the scientific method to analyze and write up the results of an experiment;
- use common glassware and instruments such as micropipettes, volumetric pipettes, and graduated pipettes and determine what type of glassware is most appropriate for an experiment;
- differentiate between different microscopy techniques such as fluorescence microscopy, brightfield and dark field microscopy, and phase contrast microscopy;
- separate cellular components via cellular fractionation;
- practice aseptic technique; and
- culture eukaryotic cells and determine cell viability under varying conditions.

COURSE TOPICS:

- Structural Organization of Cells
- Biological Molecules
- From Molecules to Cells
- Membrane Structure and Function
- The Endomembrane System
- Cell Movements
- Photosynthesis
- The Cell Cycle
- Signal Transduction
- Cancer

See instructor Syllabus for the detailed outline of weekly readings, activities and assignments.

EVALUATION AND ASSESSMENT:

Assignments	% Of Total Grade
Lecture – Midterm Tests	30%
– Final Exam	35%
Lab – - Laboratory Exam	10%
- Assignments, Reports and Laboratory book	25%
Total	100%

Please see the instructor Syllabus for specific classroom policies related to this course, such as breakdown of evaluation, penalties for late assignments and the use of electronic aids.

EXAM POLICY:

Students must attend all required scheduled exams that make up a final grade at the appointed time and place.

Individual instructors may accommodate for illness or personal crisis. Additional accommodation will not be made unless a written request is sent to and approved by the appropriate Department Head prior to the scheduled exam.

Any student who misses a scheduled exam without approval will be given a grade of "0" for the exam.

COURSE GRADE:

Course grades are assigned as follows:

Grade	A+	A	A-	B+	B	B-	C+	C	C-	D	F
Mark (Percent)	> 90	89-85	84-80	79-76	75-72	71-68	67-64	63-60	59-55	54-50	≤ 50

A grade of "D" grants credit, but may not be sufficient as a prerequisite for sequential courses.

ACADEMIC POLICIES:

See www.cotr.bc.ca/policies for general college policies related to course activities, including grade appeals, cheating and plagiarism.

COURSE CHANGES:

Information contained in course outlines is correct at the time of publication. Content of the courses is revised on an ongoing basis to ensure relevance to changing educational, employment and marketing needs. The instructor will endeavour to provide notice of changes to students as soon as possible. The instructor reserves the right to add or delete material from courses.