



COURSE OUTLINE

The course description is online @ <http://camosun.ca/learn/calendar/current/web/biol.html>

1. Instructor Information

| | | | | |
|-----|---------------|-----------------------------------------------------------------|--------------------|-----|
| (a) | Instructor: | Rosemary Mason | | |
| (b) | Office Hours: | Mon., Wed., Fri. 10:30 – 11:20 | | |
| (c) | Location: | Fisher 314D | | |
| (d) | Phone: | 250-370-3318 | Alternative Phone: | n/a |
| (e) | Email: | masonr@camosun.bc.ca | | |
| (f) | Website: | http://online.camosun.ca | | |

2. Intended Learning Outcomes

Upon completion of this course the student will be able to:

1. Classify and describe the unique structure and function of the four groups of macromolecules and discuss how these relate to their properties within living cells.
2. Differentiate among the various transport mechanisms available to mobilize molecules across cell membranes.
3. Name and outline the pathways utilized by cellular respiration and photosynthesis and explain the importance of these processes to living organisms.
4. Describe the basic steps of DNA replication and indicate its role in cell division and inheritance.
5. Demonstrate knowledge of the basic steps of protein synthesis, identifying the roles of DNA, mRNA, tRNA, amino acids and proteins in the processes of transcription and translation.
6. Identify and explain the principles and consequences of the cell cycle, including both mitosis and meiosis.
7. Examine the basic principles of Mendelian genetics and describe how these relate to other topics encompassed in this course.
8. Describe and explain the role of growth regulators in the control of plant growth, development and physiology.
9. Describe and explain the diversity of control mechanisms in animal systems, including the role of the endocrine and nervous systems.
10. Conduct experiment tests and use analytical techniques in the laboratory to demonstrate a few biological properties of macromolecules, cellular respiration, photosynthesis, DNA technology and plant and animal control systems.

3. Required Materials

- 1) Textbook: Campbell, N. A. & J. B. Reece. 2011. Biology, 9th ed., Pearson Education, Inc., San Francisco, CA.
- 2) Camosun College Biology Faculty. Winter, 2013. Biology 126 Lab Manual, Camosun College, Victoria, B.C.

4. Course Content and Schedule

Lecture

| | | |
|-----------|---------------|------|
| Mon. | 11:30 – 12:20 | Y201 |
| Wed., Fri | 11:30 – 12:20 | Y310 |

Lab

| | | |
|--------------|--------------------|------|
| Section 002A | Tues. 9:30 – 12:20 | F224 |
| Section 002B | Tues. 1:30 – 4:20 | F224 |

The schedule, which follows, is an attempt to outline the weekly activities of the class. It is subject to change or modification as the need arises.

| Date | Lecture Topic | Ch. | Laboratory Exercise |
|----------------------------------------------------------|-------------------------------------------------------|----------|-----------------------------------------------------|
| Jan 6 - 10 | Introduction & Characteristics of Life | 1,4,5 | No lab scheduled |
| Jan 13 - 17 | Metabolism - Introductory | 8 | Tools for Scientific Discovery |
| Jan 20 - 24 | Glycolysis & Respiration | 9 | Enzyme Activity |
| Jan 27 – 31 | Respiration completed Photosynthesis | 9 10 | Respiration |
| Feb 3 - 7 | Photosynthesis | 10 | Fermentation & Cellular Respiration |
| Feb 10 - 14 | The Cell Membrane Feb. 12 Lecture Exam 1 | 7 | Lab cancelled for reading break |
| February 11 Family Day College closed | | | |
| February 13 & 14 Reading Break College Closed | | | |
| Feb 17 - 21 | The Cell Membrane | 7 | Photosynthesis |
| Feb 24 - 28 | Intracellular Communication Mitosis & Cell Cycle | 11 12 | Midterm Lab Exam |
| Mar 3 - 7 | Mitosis Meiosis | 12 13 | Movement of Molecules |
| Mar 10 - 14 | Sources of Variation Mar. 12 Lecture Exam 2 | 14 - 16 | Mitosis & Meiosis |
| Mar 17 - 21 | Inheritance DNA Replication | 15, 16 | Fruit Fly Eye Pigments (Part 1) |
| Mar 24 - 28 | DNA Replication | 16 | Fruit Fly eye Pigments (Part 2) DNA Lab (Part 1) |
| Mar. 31 – Apr. 4 | Protein Synthesis | 17 | DNA Lab (Part 2) |
| Apr 7 - 11 | Protein Synthesis Regulation of Gene Expression | 17 18 | Lab Final |

5. Basis of Student Assessment (Weighting)

| | | |
|--------------------------|---------|-------|
| Lab Exam I | Feb. 26 | 12.5% |
| Lab Exam II | Apr. 9 | 12.5% |
| Midterm I | Feb. 13 | 12.5% |
| Midterm II | Mar. 12 | 12.5% |
| Final Lecture Exam | | 30% |
| Assignments/labs/quizzes | | 20% |

*** Lab exams will be unit exams. Lecture exams will be cumulative.

6. Grading System

Standard Grading System (GPA)

| Percentage | Grade | Description | Grade Point Equivalency |
|------------|-------|-----------------------------------------------------------------------------------------------------------------------|-------------------------|
| 90-100 | A+ | | 9 |
| 85-89 | A | | 8 |
| 80-84 | A- | | 7 |
| 77-79 | B+ | | 6 |
| 73-76 | B | | 5 |
| 70-72 | B- | | 4 |
| 65-69 | C+ | | 3 |
| 60-64 | C | | 2 |
| 50-59 | D | Minimum level of achievement for which credit is granted; a course with a "D" grade cannot be used as a prerequisite. | 1 |
| 0-49 | F | Minimum level has not been achieved. | 0 |

Temporary Grades

Temporary grades are assigned for specific circumstances and will convert to a final grade according to the grading scheme being used in the course. See Grading Policy E-1.5 at camosun.ca for information on conversion to final grades, and for additional information on student record and transcript notations.

| Temporary Grade | Description |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| I | <i>Incomplete:</i> A temporary grade assigned when the requirements of a course have not yet been completed due to hardship or extenuating circumstances, such as illness or death in the family. |
| IP | <i>In progress:</i> A temporary grade assigned for courses that, due to design may require a further enrollment in the same course. No more than two IP grades will be assigned for the same course. (For these courses a final grade will be assigned to either the 3 rd course attempt or at the point of course completion.) |
| CW | <i>Compulsory Withdrawal:</i> A temporary grade assigned by a Dean when an instructor, after documenting the prescriptive strategies applied and consulting with peers, deems that a student is unsafe to self or others and must be removed from the lab, practicum, worksite, or field placement. |

7. Recommended Materials or Services to Assist Students to Succeed Throughout the Course

LEARNING SUPPORT AND SERVICES FOR STUDENTS

There are a variety of services available for students to assist you throughout your learning. This information is available in the College calendar, at Student Services, or the College web site at camosun.ca.

STUDENT CONDUCT POLICY

There is a Student Conduct Policy **which includes plagiarism**. It is the student's responsibility to become familiar with the content of this policy. The policy is available in each School Administration Office, at Student Services, and the College web site in the Policy Section.

ADDITIONAL INFORMATION

No programmable devices are allowed in exams.

Assignments are due at the **beginning** of the class period on the due date. Assignments not handed in at the beginning of class will be considered late, for which there is a 10% penalty/day.

Note: There is the option of 1 free late assignment. There will be no penalty provided the assignment is received **prior** to it being marked and returned to the class. Any assignment received after its return to the rest of the class will be marked but will not receive credit.

You must contact the instructor **prior** to missing a lab or lecture exam. Makeup exams will only be given for documented valid absences.

What this Course Promises You

What does it mean to be alive? How do single cells like bacteria or complex multicellular organisms like us cope with the constraints of life? In this course you will have the opportunity to explore these questions from a biological perspective. Even if you don't become a biologist you will gain a broadened understanding of questions that may affect your life like: What is cancer? Why is crucial that women have children younger in life and less so for men? Why do we age? What should you take for diarrhea – a sugary drink or plain water? What does cloning imply?

If you embrace and apply the ideas of this course you will begin to understand how all living cells manage energy, interact and communicate with other cells, and then reproduce or die. Moreover you will begin to understand what controls these processes and how their repetition determines the fate of each organism.

How You Will Fulfill These Promises?

To realize these promises you must take responsibility for your own learning and participate as an active learner. Can you be committed to this class? You must make this choice. This is not the type of class you can drop into occasionally; you have to be really involved.

To take charge of your education, you must be willing to read and write. If you do not learn to communicate in words, you cannot formulate fully developed thoughts. To accomplish these goals, you will be given assignments that you will read, analyze, and think about between each class. You must also be willing to summarize and analyze data. To this end you will generate and analyze laboratory data and write lab reports. These assignments will help refine your thinking and understanding so that it becomes clearer, more precise, logical, and well-grounded in fact.

Ways to Understand the Nature and Progress of your Learning.

To evaluate your progress in reaching these goals (and to provide you with feedback on your learning) we will use the following items:

1. Lecture and lab exams designed to assess your recall and understanding of the biological concepts relating to metabolism, cells and inheritance. The lecture exams will be cumulative. The goal here is to encourage you to continue to learn and receive feedback on the critical concepts of the course.
2. Lab reports that will clarify the concepts of the lecture component of the course and enhance your numeracy and literacy.
3. Ongoing group quizzes and assignments designed to solidify and clarify concepts from the course. These will be group projects and will be jointly graded.