



CAMOSUN COLLEGE
School of Arts & Science
Department of Biology

BIOL-126-003A/B
Physiological Basis of Life
Winter 2019

COURSE OUTLINE

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

Ω Please note: This outline will not be kept indefinitely. It is recommended students keep this outline for their records, especially to assist in transfer credit to post-secondary institutions.

1. Instructor Information

| | | |
|------------------|---|------------------------|
| (a) Instructor | Laura Biggs (Lecture, Lab Section A), Dominic Bergeron (Lab Section B) | |
| (b) Office hours | Laura – Tues 5:00-5:30pm, Thurs 2:00-3:00pm, Fri 8:30-9:00am, or by appointment* Dominic – Mondays 10:00 – 1:00, Tuesdays 9:30-11:30, or by appointment | |
| (c) Location | Laura – Fisher 352, Dominic – Fisher 248D | |
| (d) Phone | Laura – 250-370-3909 | Dominic – 250-370-3432 |
| (e) E-mail | Laura - BiggsL@camosun.bc.ca, Dominic – BergeronD@camosun.bc.ca | |
| (f) Website | http://online.camosun.ca (D2L) & http://www.youtube.com/user/MachineBiological | |

***NOTE:** If my office hours do not match up with your schedule, please arrange an appointment by email and I would be happy to meet with you at a mutually convenient time.

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

- (a) **Textbook:** Recommended but not required: Campbell Biology, Canadian Edition, 2nd Ed.* (2018). Pearson Education, Inc., San Francisco, CA.

*Note: Campbell Biology, Canadian Edition, 1st Ed. or Campbell Biology, US Edition, 8th, 9th, or 10th Ed. are also suitable textbooks. Another textbook option is Concepts of Biology (2017), Openstax by Rice University, available to download for free at openstax.org/details/concepts-biology .

- (b) **Lab Manual:** Biology 126 Lab Manual (Winter 2019) will be posted on D2L prior to each week's lab. Accompanying lab assignments will be posted on D2L. Also note that you will need a **lab coat** and **scientific calculator** for every lab (you will not be able to use your phone as a calculator!).
- (c) **Lecture Resources:** Lectures will be delivered in a PowerPoint format. The slides will be made available on the course D2L website, along with additional resources. Slides may be downloaded or printed at the student's discretion to help follow the lectures.

4. Course Content and Schedule*

| | | | |
|-----------------------|-----------|------------------|------------|
| Lectures: | Tuesdays | 3:30PM – 4:50PM | Young 201 |
| | Thursdays | 3:30PM – 4:50PM | Young 201 |
| Lab Section A: | Fridays | 9:30AM – 12:20PM | Fisher 224 |
| Lab Section B: | Thursdays | 9:30AM – 12:20PM | Fisher 224 |

*Please see attached lecture/lab schedule for more details.

5. Basis of Student Assessment (Weighting)

- (a) Assignments:

| | |
|-----------------|-----|
| Lab (x 9) | 15% |
| Lecture (x 4-5) | 10% |

- (b) Lecture Exams:

| | |
|----------------------------------|-------|
| Midterm 1 (Thursday, February 7) | 12.5% |
| Midterm 2 (Thursday, March 14) | 12.5% |
| Final Exam (April 15-26, TBA) | 25% |

- (c) Lab Exams:

| | |
|--------------------------------------|-------|
| Lab Exam 1 (in-lab, Feb 28 or Mar 1) | 12.5% |
| Lab Exam 2 (in-lab, April 11 or 12) | 12.5% |

Note: Midterms and Lab Exams are NOT cumulative, but the Final Exam will be cumulative. Please bring a calculator to all exams.

6. Grading System

Standard Grading System (GPA)

Competency Based Grading System

7. Recommended Materials 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 them throughout their learning. This information is available in the College calendar, at Student Services, or the College website 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.

Plagiarism

Plagiarizing is appropriating the work or parts or passages of another's writing (including the ideas or language) and passing them off as the product of one's own mind or manual skill (see <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.5.1.pdf>).

Plagiarism will not be tolerated. Plagiarism, **including the copying of any part of assignments or lab assignments**, is a serious offence and is considered to be academic misconduct. In some cases, the lab instructor may prefer a lab assignment to be written as a group. In such cases, handing in one assignment for the group will be acceptable. Otherwise, lecture and lab assignments handed in by individuals are expected to be individually prepared.

Cheating

A student caught cheating on an exam will forfeit all credit for that exam and perhaps for the course. Cheating is a serious offence and is considered to be academic misconduct. **Cheating includes, but is not limited to, using unauthorized materials in a quiz/exam and providing information to another person regarding exam content.**

The consequences for cheating and plagiarism are outlined by Camosun College policies (see <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.5.pdf>) and penalties may be severe.

Lab Safety

| | |
|------------------------------|---|
| Lab footwear | <ul style="list-style-type: none">For safety reasons WorkSafeBC mandates that students are required to wear closed shoes in all lab times. Flip flops, sandals or shoes with holes are not acceptable. |
| Lab coat | <ul style="list-style-type: none">A lab coat is required for this course, as there will be chemical use in the several of the labs. |
| Eating & drinking | <ul style="list-style-type: none">Under NO circumstances will students ingest food or drink in the lab. Taking oral medication or applying makeup or lip balm in the lab is also prohibited.You may leave the lab at a convenient time if you are thirsty, need a snack, or require medication. If something must be consumed, then it may be taken out of the lab. |
| Hair | <ul style="list-style-type: none">It is recommended that long hair be tied back during lab periods. |
| Handwashing | <ul style="list-style-type: none">Hands should be thoroughly washed BEFORE leaving the lab. |

Failure to adhere to the lab safety principles will result in the inability to enter the lab, or expulsion from the lab, resulting in **loss of credit** for that lab and any related assignments.

Laboratory Attendance

Attendance throughout each laboratory session is mandatory and will be recorded. **Please read through each exercise before coming to the lab.** Labs will start promptly - information necessary for performing the laboratory correctly and safely is given at the beginning of the lab. Lateness in arriving, failure to attend the lab, or leaving the lab early will result in forfeiting credit for that lab, including any written assignments. Lab assignments can only be handed in for labs actually attended. If a lab session is missed, another student's data **may not** be used to complete a lab assignment for credit. Exceptions can be made **at the instructor's discretion** in legitimate cases of emergency (e.g. significant illness); in such cases the instructor must receive **advance notification** and **documented evidence** of the situation (e.g. medical certificate) to grant approval for any accommodation. Otherwise, **a 1% final grade penalty applies to any unexcused absence from a lab.** Frequent lates may also count as an absence.

Missed Exams

Without exception, all lecture and lab exams must be written at the scheduled times. However, it is understood that emergency circumstances occur (e.g. illness or emergency in the immediate family); for such circumstances accommodation may be offered at the discretion of the instructor, provided the student: (a) notifies the instructor **in advance** of the exam (not after), and (b) provides documented evidence of the circumstance (i.e. medical documentation).

In the event of emergency circumstances, it is at the instructor's discretion whether to administer a make-up exam or adjust the weighting of the final exam to make up the missing marks. Note that holiday travel is NOT considered an emergency. Be sure not to make any travel plans for the end of the semester under the final exam schedules are finalized and posted.

Written Work

Lecture and lab assignments may be assigned at the instructor's discretion. It is the student's responsibility to be informed of any work expected and the dates the work is due. Assignments may be intended to be completed as individuals or as groups, as indicated by the instructor. Work intended to be submitted by an individual must be **completed independently**, keeping in mind student conduct requirements. Work intended for completion by a group must not be completed by an individual. Each person in a group will receive the same mark on any group work. Please submit written work in the format requested by the instructor. Incorrect formatting will result in late penalties and delayed grading.

Late Penalties

All assignments must be handed in at the **beginning** of the class period on the due date. Late assignments will be graded but marks equivalent to 10% of the total value of the assignment will be deducted for each day past the deadline (weekends only count as one day).

Study Habits

Good (and regular!!) study habits are required to do well in this course. You should plan on a minimum of 6 hours per week outside of scheduled class time for the completion of assignments and for general studying. Studying in groups can help make this more fun.

Lecture notes will be posted on D2L in point form. These should be used as a study guide, not as your sole source of information! You will need to write down additional notes for examples and explanations given during lecture. It is also recommended to transcribe these notes into a study-friendly format after each lecture, incorporating additional information from your textbook. Study these notes before the next class to prepare yourself for new material, which will often build on previously covered material.

Please contact your instructor if you need extra clarification and help, or would like to discuss a topic a little further.

8. College Supports, Services and Policies



Immediate, Urgent, or Emergency Support

If you or someone you know requires immediate, urgent, or emergency support (e.g. illness, injury, thoughts of suicide, sexual assault, etc.), **SEEK HELP**. Resource contacts @

<http://camosun.ca/about/mental-health/emergency.html> or <http://camosun.ca/services/sexual-violence/get-support.html#urgent>

College Services

Camosun offers a variety of health and academic support services, including counselling, dental, disability resource centre, help centre, learning skills, sexual violence support & education, library, and writing centre. For more information on each of these services, visit the **STUDENT SERVICES** link on the College website at <http://camosun.ca/>

College Policies

Camosun strives to provide clear, transparent, and easily accessible policies that exemplify the college's commitment to life-changing learning. It is the student's responsibility to become familiar with the content of College policies. Policies are available on the College website at <http://camosun.ca/about/policies/>. Education and academic policies include, but are not limited to, Academic Progress, Admission, Course Withdrawals, Standards for Awarding Credentials, Involuntary Health and Safety Leave of Absence, Prior Learning Assessment, Medical/Compassionate Withdrawal, Sexual Violence and Misconduct, Student Ancillary Fees, Student Appeals, Student Conduct, and Student Penalties and Fines.

A. GRADING SYSTEMS <http://camosun.ca/about/policies/index.html>

The following two grading systems are used at Camosun College:

1. 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 | | 1 |
| 0-49 | F | Minimum level has not been achieved. | 0 |

2. Competency Based Grading System (Non GPA)

This grading system is based on satisfactory acquisition of defined skills or successful completion of the course learning outcomes

| Grade | Description |
|-------|---|
| COM | The student has met the goals, criteria, or competencies established for this course, practicum or field placement. |
| DST | The student has met and exceeded, above and beyond expectation, the goals, criteria, or competencies established for this course, practicum or field placement. |
| NC | The student has not met the goals, criteria or competencies established for this course, practicum or field placement. |

B. 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 at <http://camosun.ca/about/policies/index.html> 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 are designed to have an anticipated enrollment that extends beyond one term. No more than two IP grades will be assigned for the same course. |
| 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. |

Course Schedule:

Note: The following is a **tentative** schedule of course topics and events. Course topics may be added or deleted as time permits. Any changes to this schedule will be announced in class and posted on D2L.

| Week | Lecture Topics (Tues/Thurs) | Textbook Chapter* | Lab Topics (Thurs or Fri) |
|------------------|--|-------------------|---|
| 1 (Jan 7-11) | Course Introduction Characteristics of Life | 1,4,5,6 | Lab Safety and Introduction Lab 1: Concentration & Standard Curve |
| 2 (Jan 14-18) | Metabolism | 8 | Lab 2: Enzyme Activity |
| 3 (Jan 21-25) | Cellular Respiration | 9 | Lab 3: Cellular Respiration |
| 4 (Jan 28-Feb 1) | Cellular Respiration cont'd Photosynthesis | 9 10 | Lab 4: Plant Hormones (stomata, apical dominance) |
| 5 (Feb 4-8) | Photosynthesis/Plant Growth MIDTERM 1 – February 7 | 10,39 | Lab 4: Plant Hormones (coleoptile expansion) Lab 5: Photosynthesis |
| 6 (Feb 11-15) | Membrane Structure & Function Intracellular Communication | 7 11 | Lab 4: finish Plant Hormones (apical dominance, coleoptile expansion) |
| 7 (Feb 18-22) | READING BREAK – NO CLASSES OR LABS | | |
| 8 (Feb 25-Mar 1) | Mitosis & Cell Cycle Meiosis | 12 13 | LAB EXAM 1 |
| 9 (Mar 4-8) | Meiosis cont'd Genetic Inheritance | 13 14,15 | Lab 6: Diffusion & Osmosis |
| 10 (Mar 11-15) | Genetic Inheritance cont'd MIDTERM 2 – March 14 | 14,15 | Lab 7: Mitosis & Meiosis Lab 8: Drosophila - 1 |
| 11 (Mar 18-22) | DNA Replication | 16 | Lab 8: Drosophila - 2 |
| 12 (Mar 25-29) | From Gene to Protein | 17 | Lab 9: PCR -1 |
| 13 (Apr 1-5) | Hormones and Endocrine System | 45 | Lab 9: PCR -2 |
| 14 (Apr 8-12) | Neurons and Nervous System | 48,49 | LAB EXAM 2 |
| Apr 15-26 | Final Exam (to be scheduled by College Registrar and posted on Camlink) | | |

*Textbook chapters noted here will be covered, at least in part. However, in some cases we will not be covering the whole chapter in Biology 126. Only the topics covered during class will be tested on exams.