



**COURSE OUTLINE**

**BIOLOGY 102  
PRINCIPLES OF BIOLOGY II**

**45 HOURS Lecture, 45 HOURS Lab  
3 CREDITS**

PREPARED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
Tara Stehelin, Instructor

APPROVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
Margaret Dumkee, Dean

APPROVED BY ACADEMIC COUNCIL: ()

RENEWED BY ACADEMIC COUNCIL: ()



This work is licensed under the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License. To view a copy of this license, visit <http://creativecommons.org/licenses/by-nc-sa/4.0/>.

## BIOLOGY 102, PRINCIPLES OF BIOLOGY II

---

**INSTRUCTORS:** Tara Stehelin, BSc, MSc  
Lucile Fressigne, PhD  
**OFFICE LOCATION:** A2806

**E-MAIL:** [tstehelin@yukoncollege.yk.ca](mailto:tstehelin@yukoncollege.yk.ca)

**TELEPHONE:** (867) 456-6957

**OFFICE HOURS:** Fri 11:00 - 12:30,  
or by appointment

**CLASSROOM:** Lecture A2402  
Lab A2805

**DATES and TIMES:** Lecture  
Mon and Wed 11:00 - 12:20

Labs: Fri 9:00 - 12:00 OR 1:00 -  
4:00

---

### COURSE DESCRIPTION

A continuing introductory course following Bio 101, emphasizing principles of wide application to all living organisms, including processes of cellular reproduction and genetics, patterns of inheritance, molecular biology of genes, animal form and function, plant form and function, plant and animal nutrition, and form and functioning of the major organ and control systems in living organisms, as well as principles of animal behavior. This course is part of core introductory science, transferrable to most Canadian universities as a second-half of a comprehensive first-year level Biology course. A comparative approach to the unity and diversity of organisms is stressed. Mandatory lab sessions reinforce subject matter presented in lectures.

### PREREQUISITES

Admission to the Division of Applied Science and Management and successful completion of Bio 101 (C- or higher) *or permission of instructor*. Math 12 (MATH 060, or equivalent) is recommended as a prerequisite. Students are expected to use basic mathematical skills.

### EQUIVALENCY OR TRANSFERABILITY

This course transfers as first-year biology (one semester) to most Canadian Universities

Please see the BC Transfer Guide or contact the School of Science for more information on transferability.

### LEARNING OUTCOMES

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

- the process and the steps involved of cellular reproduction,
- mechanisms by which genetic traits are inherited,
- patterns of inheritance and DNA structure, replication, transcription and translation,
- physiological divisions of tissue and cell types, as well as an understanding of organ functioning and organs systems in both plants and animals, including immunity, endocrine control in both plants and animals, nervous control, and mechanisms of homeostasis in animals,
- animal sensory systems, muscle systems, and
- the ecology and evolution of animal behavior.

Upon completion of mandatory lab sessions students will be able to demonstrate patterns of inheritance, complete basic statistical tests on data, and demonstrate knowledge of the following: vertebrate anatomy, principles of immunity, human health, blood components, kidney functioning, animal behavior, and scientific process. Students will also be able to demonstrate hands-on ability and understanding of detailed vertebrate dissection and lab protocol, including safety. Students will also be familiar with components required in a full lab report.

### **COURSE FORMAT**

Material will be presented in two 1.5 hr lectures and one 3 hr lab session per week. Attendance in the laboratory is mandatory. *Students must pass the lab and lecture portions of the course independently.*

### **ASSESSMENTS**

#### **Attendance and Participation**

*Attendance is mandatory in labs and greatly encouraged in lectures.*

Absence from labs results in a zero grade assigned for assignments and quizzes relevant to the missed lab. If the instructor is notified in advance of potential problems with attendance, alternate work may be assigned.

Students must attend the laboratory session assigned to them upon registration, once per week.

#### **Participation**

Students are expected to participate actively in laboratory exercises, including taking part in classroom discussions of results of lab activities and experiments.

### **LAB ASSIGNMENTS**

Assignments are given during laboratory sessions and graded on the basis of understanding and applying principles involved as well as the correctness of answers

to solutions. Most students finish assignments during the lab session, although they are not due until 12:00 noon the next week day. A lab quiz covering material from the previous lab as well as some material from that week's lab will be given each during each scheduled lab (except the first lab) to assess progress. *Students are expected to read the material for that day's lab before coming into lab.*

## TESTS

### Lecture

Quizzes/midterms on lecture material are given approximately once every two weeks. There are 5 quizzes in total, worth 10% each and a final exam worth 15% of the total mark. The final examination will be held at the end of the term and will cover material from the entire course, although it will focus mostly on the last portion of material. The examination date will be announced as soon as confirmed by administration.

### Lab

Quizzes on laboratory material are given every lab session (except the first lab) and cover material from the lab exercises the week before and from that day's lab. There is no final lab exam.

## EVALUATION

On lecture material	
Quizzes (5) 10% each	50%
Final exam	15%
On laboratory material	
Assignments (12)	17.5%
Quizzes (10)	17.5%
Total	100%

## REQUIRED TEXTBOOKS AND MATERIALS

Reece, J. B., L. A. Urry, M. L. Cain, S. A. Wasserman, P. V. Minorsky, B. Jackson, F. Rawle, D. Durnford, C. Moyes, S. Walde and K. Wilson. (2014) *Campbell Biology, 2<sup>nd</sup> Canadian Edition*. Pearson, Benjamin Cummings  
ISBN 978-0-321-77830-7

*Available for purchase in the bookstore*

Or

“Campbell Biology” 9<sup>th</sup> or 10<sup>th</sup> Edition, Reece, Urry, Cain, Wasserman, Minorsky, and Jackson. Pearson Benjamin Cummings

**Lab Manual:** assembled by instructor and handed out during first lab session.

## ACADEMIC AND STUDENT CONDUCT

Information on academic standing and student rights and responsibilities can be found

in the Academic Regulations:

[http://www.yukoncollege.yk.ca//downloads/Yukon\\_College\\_Academic\\_Regulations\\_and\\_Procedures\\_-\\_August\\_2013\\_final\\_v1.pdf](http://www.yukoncollege.yk.ca//downloads/Yukon_College_Academic_Regulations_and_Procedures_-_August_2013_final_v1.pdf)

## **PLAGIARISM**

Plagiarism is a serious academic offence. Plagiarism occurs when students present the words of someone else as their own. Plagiarism can be the deliberate use of a whole piece of another person's writing, but more frequently it occurs when students fail to acknowledge and document sources from which they have taken material. Whenever the words, research or ideas of others are directly quoted or paraphrased, they must be documented according to an accepted manuscript style (e.g., APA, CSE, MLA, etc.). Resubmitting a paper which has previously received credit is also considered plagiarism. Students who plagiarize material for assignments will receive a mark of zero (F) on the assignment and may fail the course. Plagiarism may also result in dismissal from a program of study or the College.

## **YUKON FIRST NATIONS CORE COMPETENCY**

Yukon College recognizes that a greater understanding and awareness of Yukon First Nations history, culture and journey towards self-determination will help to build positive relationships among all Yukon citizens. As a result, to graduate from ANY Yukon College program, you will be required to achieve core competency in knowledge of Yukon First Nations. For details, please see [www.yukoncollege.yk.ca/yfnccr](http://www.yukoncollege.yk.ca/yfnccr).

## **ACADEMIC ACCOMMODATION**

Reasonable accommodations are available for students requiring an academic accommodation to fully participate in this class. These accommodations are available for students with a documented disability, chronic condition or any other grounds specified in section 8.0 of the Yukon College Academic Regulations (available on the Yukon College website). It is the student's responsibility to seek these accommodations. If a student requires an academic accommodation, he/she should contact the Learning Assistance Centre (LAC) at (867) 668-8785 or [lassist@yukoncollege.yk.ca](mailto:lassist@yukoncollege.yk.ca)

## **THE LORENE ROBERTSON WRITING CENTRE**

All students are encouraged to make the Writing Centre a regular part of the writing process for coursework. The Lorene Robertson Writing Centre is staffed by helpful writing coaches from across the College and offers one-on-one appointments to students in need of writing support. For in-person appointments, the Centre coaching office is located in the Academic Support Centre in room A2302. You can also participate in coaching appointments over the phone or online. See the Academic Support Centre schedule for English and writing support

times.

## TOPIC OUTLINE

WEEK	TOPIC	Chapter
<b>Cellular Basis of Reproduction and Inheritance</b>		
1	. cell division, genetic inheritance	12, 13
2	. Mendelian inheritance	14
3	. the chromosomal basis of inheritance	15
		<i>Quiz 1 Jan 23</i>
	.the molecular basis of inheritance	16
4	.from gene to protein	17
<hr/>		
<b>Animal and Plant form and function</b>		
	. Introduction to plant structure, growth and development (self-study and covered in labs)	35
		<i>Quiz 2 Feb 6</i>
5	. Resource transport and gas exchange in plants	36
	. Soil and plant nutrition	37
6	. Basic principles of Animal Form and Function (self-study and covered in labs)	40
		<i>Quiz 3 Feb 27</i>
7	. Animal Nutrition	41
8	. Circulation and Gas Exchange in animals	42
9	. Immune systems of plants and animals	Plants pgs. 905-907 Animals CH 43
		<i>Reading Week Feb. 19 - 23th</i>
		<i>Quiz 4 Mar 13</i>
<hr/>		
<b>Homeostasis of body fluids, liver, kidney function</b>		
10	. Osmoregulation and excretion	44
11	. Hormones and the endocrine system . Sex hormones	45 Pages 1078 - 1084
12	. Neurons, nervous system . the brain	48 49
	. Sensory receptors	50
	. Muscle function	
13	. Animal Behavior	51
		Last class April 10th Final Exam (week of April 15)

## LAB TOPICS AND SCHEDULE

---

Lab 1	Cellular Reproduction - mitosis and meiosis
Lab 2	Genetics, Mendelian patterns of inheritance using <i>Drosophila</i> , introduction to a basic statistical test, the <i>chi-square</i>
Lab 3	Plant Form and Function
Lab 4	Animal Form and Function-tissues, organs, <i>vertebrate dissection start</i>
Lab 5	Digestive Systems - & <i>introduction to full lab report</i>
Lab 6	Gas Exchange
Lab 7	Liquid Transport
Lab 8	Immune Systems
Lab 9	Homeostasis: osmoregulation and excretion
Lab 10	Nervous and Muscular Systems, the brain
Lab 11	Animal Behavior - field trip to Yukon Wildlife Preserve

---