NORTHWESTERN POLYTECHNIC

DEPARTMENT OF SCIENCE

COURSE OUTLINE – Fall 2025

BI1080 (A2): Introduction to Biological Diversity – 3 (3-1-3) 105 Hours for 15 Weeks

Northwestern Polytechnic acknowledges that our campuses are located on Treaty 8 territory, the ancestral and present-day home to many diverse First Nations, Metis, and Inuit people. We are grateful to work, live and learn on the traditional territory of Duncan's First Nation, Horse Lake First Nation, and Sturgeon Lake Cree Nation, who are the original caretakers of this land.

We acknowledge the history of this land and we are thankful for the opportunity to walk together in friendship, where we will encourage and promote positive change for present and future generations.

INSTRUCTOR:	Dr. Jessie Zgurski	**PHONE:**	780-539-2863
OFFICE:	J221	**E-MAIL:**	JZgurski@nwpolytech.ca
OFFICE HOURS:	Monday/Wednesday 2:00 – 5:00 PM, walk-in, or by appointment.		

CALENDAR DESCRIPTION: This course examines the major lineages of life on Earth. It provides an overview of evolutionary principles and classification, the history of life, and the key adaptations of prokaryotes, protists, fungi, plants, and animals. Laboratories survey the diversity of biological form and function and introduce students to data collection and scientific writing.

PREREQUISITE(S)/COREQUISITE: Biology 30 (Prerequisite)

REQUIRED TEXT/RESOURCE MATERIALS:

1) Wasserman, S. A., Minorsky, P. V., Jackson, R. B., Scott, K. G. E., Rawle, F. E., Moyes, C. D., Durnford, D. G., Walde, S. J., Cain, M. L., Urry, L. A., and Reece, J. B. 2021. Campbell Biology, Third Canadian Edition. Pearson Canada. (Recommended Textbook. The Second Edition of Campbell Biology, Canadian Edition, is also acceptable.)

2) Biology 1080 Lab Manual (Required – Available at the Bookstore)

3) Binder for Biology 1080 Lab Manual (and other lab handouts) – It should be able to hold about 200 pages.

DELIVERY MODE(S): Lectures (Tuesday and Thursday, 10:00 – 11:20 AM in J202), Laboratory (Tuesday or Thursday, 2:30 – 5:20 PM in J130), Seminars (Monday 1:00 – 1:50 PM in B201 or Friday 11:30 – 12:20 PM in B201).

LEARNING OUTCOMES: By the end of the course, students should:

- Understand how to use the scientific method to test biological hypotheses.
- Be able to describe the process of natural selection and provide examples of the evidence for evolution via natural selection.
- Be able to use current phylogenetic and taxonomic nomenclature to discuss the evolution of life on Earth.
- Be able to list the characteristics that define the major clades of life, including the eukaryotes, fungi, land plants, vascular plants, seed plants, flowering plants, chordates, and amniotes.

TRANSFERABILITY:

Please consult the Alberta Transfer Guide for more information. You may check to ensure the transferability of this course at the Alberta Transfer Guide main page http://www.transferalberta.alberta.ca.

** Grade of D or D+ may not be acceptable for transfer to other post-secondary institutions. **Students are cautioned that it is their responsibility to contact the receiving institutions to ensure transferability.**

EVALUATIONS:	Laboratory	40% (Labs start September 9 or 11, 2025)
	Seminar	10% (Seminars start September 8 or 12, 2025)
	Midterm	20% (In class, October 28, 2024)
	Final Exam	30% (During exam week, exact time and place TBA)

The final exam period is from December 13 to 20, 2025, and the precise time and place of the exam will be determined by the registrar's office. Please be available to write final exams on campus during exam week.

The 40% laboratory mark will be broken down as follows:

Assignment	Weighting	Due Date*
Lab Biosafety Online Mini-Course	1%	Sept. 9 or 11
Isopod Lab Assignment	5%	Oct 7 or 9

Assignment	Weighting	Due Date*
Algae Lab Questions	2%	Oct 14 or 16
Museum Questions	2%	October 21 or 23
Lab 1, 2, 6, 7, 8 Questions/Sketches	1% each	At the end of lab
Brassica Experiment Lab Report Part I (Introduction and Materials and Methods)	3%	Nov 4 or 6
Brassica Experiment Lab Report Part II (Results and Discussion)	5%	Nov 18 or 20
Lab 9 Diagrams	2%	Nov 25 or 27
Lab Final	15%	December 2 or 4

* This due date will depend on which lab section you are registered in.

The 10% seminar mark will be based on participation and three short assignments that you can work on during the seminar period.

GRADING CRITERIA

Please note that most universities will not accept your course for transfer credit **IF** your grade is **less than C-**.

All marks will be assigned according to the criteria outlined in this syllabus.

Alpha Grade	4-point Equivalent	Percentage Guidelines		Alpha Grade	4-point Equivalent	Percentage Guidelines
A+	4.0	95-100		C+	2.3	67-69
A	4.0	85-94		C	2.0	63-66
A-	3.7	80-84		C-	1.7	60-62
B+	3.3	77-79		D+	1.3	55-59
B	3.0	73-76		D	1.0	50-54
B-	2.7	70-72		F	0.0	00-49

NORTHWESTERN POLYTECHNIC

COURSE SCHEDULE/TENTATIVE TIMELINE:

Lecture Schedule – Fall 2025		
LECTURE TOPIC	**Readings (Campbell's Biology)**	
	Dates (Approximate)	**Textbook Chapter**
Introduction to BI1080	September 4	-
1. Unifying Themes in Biology	September 4, 9	Chapter 1
2. Taxonomy, Phylogeny & Systematics	September 11, 16, 18	Chapter 26
3. Descent with Modification	September 18, 23, 25	Chapter 22
4. Evolution of Populations	September 25, October 2, 7	Chapter 23
No Class – Truth and Reconciliation Day	September 30	N/A
5. Origin of Species	October 7, 9	Chapter 24
6. History of Life	October 14, 16	Chapter 25
7. Protists	October 21, 23	Chapter 28
Midterm	October 28	Covers Topics 1 - 6
8. Plants – Colonization of Land	October 30, November 4	Chapter 29
9. Plants – Seed & Flowering plants	November 4, 6	Chapter 30
Fall Break – No Class	November 10 – 14	N/A
10. Fungi	November 18, 20	Chapter 31
11. Animals - Overview	November 20, 25	Chapter 32
12. Animals – Invertebrates	November 25, 27, December 2	Chapter 33
13. Animals – Chordates/Vertebrates	December 4, 9, 11	Chapter 34
Final Exam	**TBA – Exam Week**	**Covers Topics 7 – 13, and Selected Material from 1 – 6.**

NORTHWESTERN POLYTECHNIC

Laboratory Schedule – Fall 2025		
Date	**Lab**	**Assignment Due?**
September 9 or 11	Lab 1: Biology Tools and Techniques	Lab Biosafety Online Mini-Course. Hand in lab drawings at end of period.
September 16 or 18	Lab 2: An Introduction to Evolution and Speciation	Hand in graphs and answers to questions by end of lab period.
September 23 or 25	Lab 3: Habitat Selection in Terrestrial Isopods	No
September 30 or October 2	No Labs: National Day for Truth and Reconciliation	No
October 7 or 9	Lab 4: Diversity of Photosynthetic Pigments	Isopod Assignment Due.
October 14 or 16	Lab 5: Museum Field Trip	Algae Assignment Due.
October 21 or 23	Lab 6: Plants Part I – Plant Form and Function	Museum Questions Due. Hand in sketches and answers to questions by end of lab period.
October 28 or 30	Lab 7: Plants Part II – Reproduction in Land Plants	Hand in sketches and answers to questions by end of lab period.
November 4 or 6	Lab 8: Biology of Invertebrates (Protostomes)	Part I of *Brassica* Lab Report due. Hand in sketches and answers to questions by end of lab period.
November 11 or 13	Fall Break! No Lab.	No
November 18 or 20	Lab 9: Introduction to Deuterostomes	Part II of *Brassica* Lab Report Due. Hand in sketches and answers to questions by end of lab period.
November 25 or 27	Lab 10: Review, and Reptile presentation	Rat and Perch Dissection Diagrams Due
December 2 or 4	Lab Exam	Lab Exam this week

NORTHWESTERN POLYTECHNIC

Seminar Schedule – Fall 2024	
Date	**Activity**
September 8 or 12	Finding primary and secondary sources
September 15 or 19	Statistics Tutorial I (Chi-Square Test), Hypothesis Testing
September 22 or 26	Phylogenetics tutorial
September 29 or October 3	Population Genetics Exercise
October 6 or 10	Earthviewer Exercise
October 13 or 17	No Seminar – Thanksgiving
October 20 or 24	Statistics Tutorial II (t-test) and Lab Report Writing
October 27 or 31	No Seminar – Midterm Week
November 3 or 7	Algae and Protista Exercises
November 10 or 15	No Seminar – Fall Break
November 17 or 21	Fungi Exercises
November 24 or 28	Lab Exam Preparation
December 1 or 5	Final Exam Preparation Exercises

STUDENT RESPONSIBILITIES: For our first laboratory (on September 9 or 11, depending on your lab section), please bring a copy of the lab manual, a binder, and something to write with. Please wear closed-toe shoes. Lab coats and gloves will be provided.

Seminars start during the second week of class, so the first seminars will be held on September 8 or 12, depending on your section. Please bring paper and something to write with. During seminars, you will learn skills that will be necessary to write lab reports, such as how to conduct the required analytical statistical tests. You will also work on questions and problems related to the lecture material. The mark is based primarily on attendance and participation, but everyone gets one “free” seminar absence. In other words, if you miss one seminar, it will not affect your mark. Students must also participate in the seminar exercises to earn full participation marks. There will be some short assignments, many of which you can complete during the seminar.

Students are responsible for completing and submitting work on time. Late assignments will typically be docked 5% of the mark per day late. No assignments will be accepted if they are more than one week late. Assignments not handed in will receive a mark of zero.

The midterm will be conducted in class on October 28 and the laboratory final will be delivered during the last laboratory period on December 2 or 4. A calculator will be permitted during the midterm and the laboratory final; otherwise, electronic devices are prohibited during exams. Students who cannot write the midterm or laboratory exam during the scheduled time due to a serious illness or another compelling reason must arrange to write it later. The final exam will be held during exam week. Failure to write the final exam will result in a grade of zero unless the exam was missed for a compelling reason (such as an illness). In such a case, the exam will be deferred.

You are expected to take notes in this class. Copies of the lecture PowerPoint presentations will be made available on the course website prior to the lectures. I recommend printing out copies of the PowerPoint files and writing additional notes on them during lecture. Alternatively, you can load them up on your tablet or e-reader and take notes that way. The PowerPoints are designed to be filled out during lecture. Other learning resources, including practice exam questions and pre-lab PowerPoint presentations, will be added to the course web page during the semester.

Phones should be put away during this class (including during labs or seminars), and tablets and computers should only be used for taking notes. Using electronic devices to play games, watch videos, shop, or browse social media is distracting to other students and inconsiderate to the instructor. Except in cases of approved accommodations from Accessibility Supports and Disability Services, students are not permitted to take photos or make audio/video recordings during class.

STATEMENT ON ACADEMIC MISCONDUCT:

Academic Misconduct will not be tolerated. For a more precise definition of academic misconduct and its consequences, refer to the Student Rights and Responsibilities policy available at https://www.nwpolytech.ca/about/administration/policies/index.html.

**Note: all Academic and Administrative policies are available on the same page.

Please note that all assignments completed for this class, except for the rat and perch dissection diagrams, must be completed individually.

ACCESSIBILITY SUPPORTS AND DISABILITY SERVICES: If you require disability-related accommodations and support, please contact the Accessibility Supports and Disability Services office. Their Email address is AS@nwpolytech.ca and their website is https://libguides.nwpolytech.ca/learningcommons/AccessibilityServices