NORTHWESTERN POLYTECHNIC

DEPARTMENT OF ACADEMIC UPGRADING

COURSE OUTLINE – Winter 2025

BI0130 (EC): Biology Grade 12 Equivalent – 5 (5-0-2) 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: Maiya Sears
OFFICE: C405
PHONE: (780) 539-2766
E-MAIL: MSears@nwpolytech.ca

OFFICE HOURS: As posted on office door or by appointment

I try to respond to all emails sent on business days (Mon-Fri) within a 24-hour period. If your email has gone unanswered for over 48 hours, please send it again.

CALENDAR DESCRIPTION: The concepts in this course include nervous and endocrine systems; human reproduction and development; cell division, genetics, and molecular biology; populations and community dynamics.

PREREQUISITE(S): Complete all of the following:

- BI0120 (Biology 20)
- EN0120 (English 20-1 or 20-2)
- MA0110 (Math 10C) or MA0123 (Math 20-3)
- A student may register in BI0130 if the student has achieved a mark of 60% or better in Alberta Education Biology 20 within the previous four years or permission of the instructor.

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REQUIRED MATERIALS: Inquiry into Biology-McGraw-Hill Ryerson.

Students are responsible for all fees associated with ProctorU, a live proctoring service for online exams. Fees are paid when you schedule your exams through ProctorU.

Pricing per exam is as follows:
60 minutes or less - $16 USD
61-120 minutes - $25 USD
121 - 180 minutes - $31 USD

DELIVERY MODE(S):

- **Asynchronous (online) –** This type of course will be delivered online through NWP's learning management system. There are no set class times and students attend remotely and asynchronously.
- Instructor help will be available remotely via Zoom and email.

LEARNING OUTCOMES: As stated by Alberta Education, upon successful completion of this
course the student will be able to:

- Explain how the nervous system controls physiological processes
- Explain how the endocrine system contributes to homeostasis
- Explain how survival of the human species is ensured through reproduction
- Explain how human reproduction is regulated by chemical control systems
- Explain how cell differentiation and development in the human organism are regulated by a combination of genetic, endocrine and environmental factors.
- Describe the processes of mitosis and meiosis
- Explain the basic rules and processes associated with the transmission of genetic characteristics
- Explain classical genetics at the molecular level
- Describe a community as a composite of populations in which individuals contribute to a gene pool that can change over time
- Explain the interaction of individuals in a population with one another and with members of other populations and explain, in quantitative terms, the change in populations over time
- Lab Skill objectives (focus on scientific inquiry): Initiate, plan, perform, record, analyze, interpret, communicate and work in a team

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TRANSFERABILITY:

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

** For courses with alpha (letter) grading, a 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: Final grades will be assigned based on the following components.

Labs, Quizzes, Presentations	20%
Unit 1 Exam	15%
Midterm	25%
Unit 3 Exam	15%
Final	25%

GRADING CRITERIA:

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

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

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COURSE SCHEDULE/TENTATIVE TIMELINE:

	Week	Topic	Text Resource	Academic Evaluation
Unit A	1	Structure and Organization of the Nervous System The Central Nervous System The Structure of a Neuron and The Reflex Arc	Chapter 11	
	2	The Sense Organs The Nerve Impulse Synaptic and Neuromuscular Transmission	Chapter 12 Chapter 11	Module 1 Lab
	3	Structure and Organization of the Endocrine System Hormonal Regulation of Growth, Development, and Metabolism Hormonal Regulation of the Stress Response Hormonal Regulation of Blood Sugar	Chapter 13	Module 2 Lab Unit A Quiz
Unit B	4	The Male and Female Reproductive Systems Sexually Transmitted Infections and Fertility Hormonal Regulation of the Reproductive System	Chapter 14	**Unit Exam I** covers weeks 1-3 (Chapters 11,12, and 13)
	5	Fertilization and Embryonic Development	Chapter 15	Module 3 STI Presentation Unit B Quiz
	6	**Review and Midterm Exam covers weeks 1-5 (Chapters 11,12,13,14, and 15)**		
Unit C	7	The Cell Cycle The Reproduction of Somatic Cells The Formation of Gametes Reproductive Strategies	Chapter 16	Module 5 Lab
	8	Theories and Terminology of Inheritance Mendel's Laws and Monohybrid Crosses Multiple Allele and Incomplete Dominance Crosses Dihybrid Crosses Probability	Chapter 17	Module 6 Lab

	9	Chromosomal Theory and Sex-linked Inheritance Genes and the Environment Polygenetic Traits Crossing Over Frequencies and Gene Mapping Pedigrees	Chapter 17	
	10	DNA Structure and Replication Transcription and Translation Mutations and Genetic Recombination Genetic Engineering	Chapter 18	Unit C Quiz
	11	**Unit Exam II covers weeks 7-10 (Chapters 16,17, and 18)**		
Unit D	12	The Hardy-Weinberg Principle The Causes of Gene Pool Change	Chapter 19	Module 8 Lab
	13	Species Interactions and Symbiotic Relationships Role of Defence Succession Population Growth	Chapter 20	Unit D Quiz
	14	Catch-up/Review		
	15	**Final Exam (Scheduled by the Registrar's Office) covers weeks 7-14 (Chapters 16,17,18,19, and 20)**		

STUDENT RESPONSIBILITIES: Refer to Northwestern Polytechnic's Policy on Student Rights and Responsibilities at https://www.nwpolytech.ca/about/administration/policies/fetch.php?ID=69.

Students are expected to participate fully in achieving their educational goals. This includes keeping up to date with deadlines and engaging intentionally with classroom and lab activities. Students are expected to demonstrate respect for their peers, as well as faculty and staff. Any questions, concerns, or appointment requests for the instructor should be communicated by email or phone. Please include the course name (BI0130) in the subject line for all emails.

Acceptable Use of AI Policy

The use of artificial intelligence (AI) tools, such as ChatGPT, is NOT permitted for exams,

quizzes, or laboratory/in-class assignments in this course and doing so will be considered
academic misconduct (see policy below). For take-home assignments (i.e., presentations), AI tools may be used to help generate ideas and direct your learning on a given topic. However, students are advised to do their own research and must at least verify the information presented by AI tools. Directly copying answers from AI results is unacceptable and will be considered plagiarism. Students are responsible for ensuring their information is accurate, written in their own words, and cited from a reliable (non-AI) source. Any generative AI tools used must always be cited.

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.

Additional Information:

USING PROCTORU:

This course uses ProctorU Live for online exams. To utilize this service, you are required to complete the following steps:

- Create a ProctorU account by clicking the ProctorU link in the course.
- Download and install the Guardian Web Browser, Google Chrome, and the ProctorU extension.
- Schedule each exam at least 3 days (72 hours) in advance. If you miss this deadline, you cannot take the exam.
- Pay for the proctoring service. The fees are exclusively your responsibility and in no event shall be the responsibility of Northwestern Polytechnic.

For more detailed instructions click here, and for video instructions click here.

Before each exam, you must complete a room scan with your web camera, during which you will show your surroundings to a live proctor.

The invigilator will ask to view (but not collect or store) your student identification to verify your identity and will remotely access your computer to unlock the exam.

When monitoring your actions via video streaming, the invigilator may possibly record your actions if they suspect academic integrity behavioural issues. You will be verbally notified if/when recording begins.

The collection of and access to the personal information listed above is permitted under subsection 33(c) of the *Freedom of Information and Protection of Privacy Act*, RSA 2000, c F-25, which states, "No personal information may be collected by or for a public body unless that information relates directly to and is necessary for an operating program or activity of the public body." In addition, subsection 39(4) states, "A public body may use personal information only to the extent necessary to enable the public body to carry out its purpose in a reasonable manner."

Records Retention: Any video records of you created by ProctorU will be kept by ProctorU for a maximum of 7 days in order to make a decision about any possible academic integrity infraction, after which time it shall be permanently deleted. All other personal information collected and stored by ProctorU within your profile account will be permanently deleted if the account has not been used after one year.

Consent to Store Personal Information Outside Canada

ProctorU is an American company. An agreement is in place between ProctorU and Northwestern Polytechnic by which ProctorU will take reasonable steps to protect your personal information from unauthorized access and disclosure. Information about how ProctorU protects your privacy can be found in their Privacy Policy.

By using the ProctorU service via Northwestern Polytechnic, you consent to the storage of and access to your personal information outside of Canada.

This consent is in effect from the day you register with ProctorU and expires one year after completion of your exam.

Additional privacy and liability information regarding the use of ProctorU is available on the NWP website.