DEPARTMENT OF SCIENCE

COURSE OUTLINE – FALL 2021

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

Grande Prairie Regional College respectfully acknowledges that we are located on Treaty 8 territory, the traditional homeland and gathering place for many diverse Indigenous peoples. We are honoured to be on the ancestral lands of the Cree, Dene/Beaver and Métis, whose histories, languages, and cultures continue to influence our vibrant community. We are grateful to have the opportunity to work, learn, and live on this land.

INSTRUCTOR:	Dr. Jessie Zgurski	**PHONE:**	(780) 903 6313
OFFICE:	J221	**E-MAIL:**	JZgurski@gprc.ab.ca
OFFICE HOURS:	Monday 1:00 – 5:00 PM, Tuesday 11:00 AM – 2:00 PM, 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): Lecture (Monday and Wednesday, 10:00 – 11:20 AM, J228), Laboratory (Tuesday or Thursday, 2:30 – 5:20 PM, J130), Seminar (Thursday or Friday, 11:30 AM – 12:20 PM, J228)

COURSE OBJECTIVES: To provide the student with a thorough understanding of current evolutionary theory and to demonstrate how the evolutionary process has produced a wide variety of organisms, both extinct and extant.

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 be able to 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.

NOTE: Additional detailed learning outcomes will be provided for each topic in the course.

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.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%
Seminar	10%
Midterm	20%
Final Exam	30%

The laboratory mark will be broken down as follows:

Anolis Laboratory Graphs	2%	(Due September 21 or 23)*
Brassica Lab Assignment	4%	(Due October 5 or 7)
Isopod Lab Report	10%	(Due November 16 or 18)
Plant Quiz	3%	(October 19 or 21)
Fungus Quiz	3%	(October 26 or 28)
Invertebrate Quiz	3%	(November 16 or 18)
Lab Final	15%	(November 30 or December 2)

The 10% seminar mark will be broken down as follows:

Phylogenetics Assignment	2.5%	(September 30 or October 1)*
Genetics Assignment	2.5%	(October 7 or 8)
Essay	5%	(December 9)

* These dates will depend on which lab or seminar session you are enrolled in.

GRADING CRITERIA: Most universities 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	90-100		C+	2.3	67-69
A	4.0	85-89		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

COURSE SCHEDULE/TENTATIVE TIMELINE:

Lecture Schedule – Fall 2021		
LECTURE TOPIC	**Readings Campbell's Biology)**	
	Dates (Approximate)	**Textbook Chapter**
Introduction to BI 1080	September 1	-
1. Unifying Themes in Biology	September 1, 8	Chapter 1
2. Taxonomy, Phylogeny & Systematics	September 8, 13	Chapter 26
3. Descent with Modification	September 15, 20	Chapter 22
4. Evolution of Populations	September 22, 27	Chapter 23
5. Origin of Species	September 27, 29	Chapter 24
6. History of Life	October 4, 6	Chapter 25
Midterm	**October 20, In Class**	**Covers Topics 1 - 6.**
7. Protists	October 18, 25	Chapter 28
8. Plants – Colonization of Land	October 27, November 1	Chapter 29
9. Plants – Seed & Flowering plants	November 3, 8	Chapter 30
10. Fungi	November 10, 15	Chapter 31
11. Animals - Overview	November 17	Chapter 32
12. Animals – Invertebrates	November 22, 24, 29	Chapter 33
13. Animals – Chordates/Vertebrates	December 1, 6, 8	Chapter 34
Final Exam	**TBA – Exam Week**	**Covers Topics 7 – 13**

Laboratory Schedule – Fall 2021		
Date	**Lab**	**Assignment and/or Quiz?**
September 7 or 9	Lab 1: Biology Tools and Techniques	No
September 14 or 16	Lab 2: An Introduction to Evolution and Speciation	No
September 21 or 23	Lab 3: Diversity of Photosynthetic Pigments	Hand in *Anolis* graphs by this date.
September 28 or 30	Lab 4: Plants Part I: Plant Form and Function	No
October 5 or 7	Lab 5: Plants Part II: Reproduction in Land Plants	*Brassica* lab assignment due
October 12 or 14	**No Labs: Fall Break**	No
October 19 or 21	Lab 6: Kingdom Fungi	Plant Quiz
October 26 or 28	Lab 7: Habitat Selection in Terrestrial Isopods	Fungi Quiz
November 2 or 4	Lab 8: Biology of Invertebrates (Protostomes)	No
November 9 or 11	**No Labs: Remembrance Day**	No
November 16 or 18	Lab 9: Introduction to Deuterostomes	Invertebrate Quiz, Isopod Assignment due.
November 23 or 25	Lab 10: Review Lab	No
November 30 or December 2	Lab Exam	Lab Exam

Seminar Schedule – Fall 2021		
Date	**Activity**	**Notes**
September 9 or 10	Finding primary and secondary sources	No assignment due
September 16 or 17	Statistics Tutorial I (t test)	No assignment due
September 23 or 24	Phylogenetics tutorial	No assignment due
September 30 or October 1	Population genetics	Phylogenetics assignment due
October 7 or 8	Earthviewer Activity	Population Genetics assignment due
October 14 or 15	No Seminar – Fall Break	N/A
October 21 or 22	No Seminar – Midterm Week	N/A

Seminar Schedule – Fall 2021		
Date	**Activity**	**Notes**
October 28 or 29	Statistics Tutorial II (Chi square test)	No assignment due
November 4 or 5	Writing Lab Reports	No assignment due
November 11 or 12	No Seminar – Remembrance Day	N/A
November 18 or 19	To Be Announced	No assignment due
November 25 or 26	Lab exam review exercises	No assignment due
December 2 or 3	No Seminar – Lab Exam Week	Short Essay Due by December 9.

STUDENT RESPONSIBILITIES: For our first laboratory (on September 7 or 9, 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. If you cannot make it to the laboratory due to an illness or another compelling reason, please contact the instructor and let her know. Do not attend the laboratory or class if you are ill.

Seminars start during the second week of class, so the first seminars will be held on September 9 and 10. 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 problems that will allow you to apply principles learned in class.

Students are responsible for completing and submitting work on time. Late assignments will typically be docked 10% of the mark. However, if you have a compelling reason for requiring an extension, please contact the instructor and the late penalty may be waived. The midterm will be conducted in class on October 20 and the laboratory final will be delivered during the last laboratory period. 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 at a later date. 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.

STATEMENT ON PLAGIARISM AND CHEATING: Cheating and plagiarism will not be tolerated and there will be penalties. For a more precise definition of plagiarism and its consequences, refer to the Student Conduct section of the College Calendar at http://www.gprc.ab.ca/programs/calendar/ or the College Policy on Student Misconduct: Plagiarism and Cheating at https://www.gprc.ab.ca/about/administration/policies

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

ADDITIONAL INFORMATION: 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, or the lecture guides (these will be Word documents) prior to class and writing additional notes on them during lecture. The lecture guides are designed to be filled out during lecture. Other learning resources, including practice exam questions and the pre-lab PowerPoint presentations, will be added to the page during the semester.

ACCESSIBILTY 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 asds@gprc.ab.ca and their website is Accessibility Services - Learning Commons - GPRC Learning Commons at Grande Prairie Regional College.

MENTAL HEALTH SUPPORTS: GPRC students have access to mental health counselling services. Please do not hesitate to seek help if you are suffering from issues such as anxiety, depression, trauma, grief, or any coping-related concerns. Go to http://www.mystudentsupport.com/ or call 1-855-849-8641 to speak to a counsellor. The GPRC website also has mental health supports available. Please visit https://www.gprc.ab.ca/services/mental_health/ for more information.