



DEPARTMENT OF SCIENCE
COURSE OUTLINE – WINTER 2020

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

INSTRUCTOR: Dr Jessie Zgurski **PHONE:** 780-539-2863 (Office)
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OFFICE HOURS: Mon, Tues 2 – 5 PM, Wed. 2:30 – 5 PM, Thurs. 11:30 AM – 1:30 PM.

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:

- All required resources are available at the book store.
- 1) Reece, J. B., Urry, L. A., Cain, M. L., Wasserman, S. A., Minorsky, P. V., Jackson, R. B., Rawle, F. E., Durnford, D. G., Moyes, C. D., Scott, K., and Walde, S. J. 2017. *Campbell Biology, Second Canadian Edition*. Pearson Canada Inc., Don Mills, ON.
- 2) Gillies, S. L., and Hewitt, S. (eds). 2011. *Biology on the Cutting Edge*. Pearson Canada, Inc., Toronto, ON.
- 3) *Biology 1080 Laboratory Manual 2018*, University of Alberta

DELIVERY MODE(S): Lecture, Laboratory, Seminar.

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, tetrapods, and amniotes.

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

TRANSFERABILITY: University of Alberta, University of Calgary, University of Lethbridge, Athabasca University, Augustana Faculty (University of Alberta), Concordia University College, Grant MacEwan University, King's University College.

***Warning:** Although we strive to make the transferability information in this document up-to-date and accurate, **the student has the final responsibility for ensuring the transferability of this course to Alberta Colleges and Universities.** Please consult the Alberta Transfer Guide for more information. You may check to ensure the transferability of this course at Alberta Transfer Guide main page <http://www.transferalberta.ca> or, if you do not want to navigate through the links, at <http://alis.alberta.ca/ps/tsp/ta/tbi/onlineSearch.html?SearchMode=S&step=2>

**** Grades 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**

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|--------------------------------|-----|
| EVALUATIONS: Laboratory | 40% |
| Seminar | 10% |
| Midterm (Feb. 25) | 20% |
| Final Exam | 30% |

GRADING CRITERIA:

Please note that 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

Lectures: Tues. and Thurs, A301, 8:30 – 9:50 AM. Lectures start Jan. 6, 2020.

Laboratories: Wed. or Fri. J130, 2:30 – 5:20 PM. Labs start Jan 15 or 17, 2020.

Seminars: Mon. (J202) 11:30 AM – 12:20 PM or Fri. (J202), 8:30 – 9:20 AM. Seminars start Jan 13 or 17, 2020.

| TOPIC | Readings (pages) (Campbell's Biology) | |
|-----------------------------------|--|--|
| | 1st Canadian Edition | 2nd Canadian Edition |
| Introduction to Biology 1080 | - | - |
| Unifying themes in Biology | 1-30; 353-354 | 1-28; 355-356 |
| Taxonomy, Phylogeny & Systematics | 576-594 | 579-602 |
| Evolutionary Principles | 484-501 | 492-509 |
| Evolution of Populations | 502-521 | 510-529 |
| Origin of Species | 522-541 | 530-549 |
| History of Life | 542-545; 548-573 | 550-554; 557-581 |
| Protists | 616-643 | 625-651 |
| Plants – Colonization of Land | 644-663 | 652-671 |
| Plants – Seed & Flowering plants | 664-683 | 672-691; 867-871 |
| Fungi | 684-702 | 692-711 |
| Animals - Overview | 703-715 | 712-725 |
| Animals – Invertebrates | 716-747 | 726-758 |
| Animals - Chordates | 748-775 | 759-784 |

STUDENT RESPONSIBILITIES: Please put cell phones on vibrate or airplane mode during the lectures as a courtesy to the instructor and other students. Many studies have found cell phones to be impediments to learning in class, as they are distracting. You may use a laptop to take notes. Do not use phones or laptops for non-academic purposes, such as watching videos or surfing the internet. It is discourteous to the instructor, and if done on a laptop, very distracting to other students.

Students will be allowed to use standard non-programmable calculators in exams. All other electronic devices are prohibited and should not be brought into exams. Students found to be using a prohibited electronic device during an exam will be required to leave and will receive a mark of zero for that exam.

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 Moodle. 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. Other learning resources, including practice exam questions, will be added to the page during the semester.