DEPARTMENT OF SCIENCE

COURSE OUTLINE – WINTER 2020

BT2050 A3 – FUNDAMENTALS OF PLANT BIOLOGY (3-0-3), 90 HOURS FOR 15 WEEKS

INSTRUCTOR:	Dr. Jessie Zgurski	**PHONE:**	1 (780) 903 6313
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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:
An overview of the diversity and biology of organisms traditionally included in the plant kingdom (algae, fungi, lichens, mosses, ferns, gymnosperms and flowering plants). Emphasis throughout the course is on the relationship between structural and functional innovations in plants and how these have influenced their reproduction and evolution in various ecosystems. Symbioses and co-evolutionary relationships between or among different kinds of plants, and with other groups of organisms, are also considered.

PREREQUISITE(S)/COREQUISITE: BI1080 **(Prerequisite)**

REQUIRED TEXT/RESOURCE MATERIALS:

"Botany: an Introduction to Plant Biology" by James D. Mauseth, 2017, 6th edition, Jones and Bartlett Learning. **(Recommended)**

Botany 205 Laboratory Manual 2019/20. **(Required)**

DELIVERY MODE(S): Lecture (Tues, Thurs 10:00 – 11:20 AM in B201) and Lab (Thurs, 2:30 – 5:30 PM in J126)

COURSE OBJECTIVES: The major objective of this course is to provide students with a foundational understanding of the morphology, physiology, and evolution of plants and other photosynthetic organisms. Throughout the course, students will also be introduced to various human interactions with plants so they may better appreciate our dependence on these organisms. Practical applications of many of the concepts introduced in the course will also be discussed. After completing the course, students should have improved their communication skills, especially in the use of botanical terminology that will allow them to articulately discuss the morphology, ecology, and evolution of plants. In the laboratory, students will also learn practical techniques used to study plants and algae.

LEARNING OUTCOMES:

Upon completion of this course, students should be able to:

● Describe the internal and external organization of plants, and explain the function of the tissue types found in plants.
● Describe the structures involved in plant reproduction, and compare the reproductive structures found among the major plant groups and algae, including green algae, nonvascular plants, seedless vascular plants, gymnosperms, and angiosperms.
● Explain the process of photosynthesis and compare the three major photosynthetic pathways used by plants: C_3 photosynthesis, C_4 photosynthesis and CAM photosynthesis.
● Name the various lineages (phyla) that diverged within the kingdom Plantae, and discuss the evolutionary relationships among them.

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

TRANSFERABILITY:
***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 the Alberta Transfer Guide main page or, if you do not want to navigate through few links, at http://alis.alberta.ca/ps/tsp/ta/tbi/onlinesearch.html?SearchMode=S&step=2

** 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: Midterm Exam – 20% (February 25)
Laboratory – 40%
Assignment (Term Paper) – 10% (March 26)
Final exam – 30% (Non-cumulative)

The midterm exam will be held in class on February 25, 2020. The final exam will take place during the exam period, which runs from April 15 – April 25, 2020 (including evenings and Saturdays). Failure to write the midterm or exam will result in a grade of zero unless the exam was missed for a compelling reason (such as illness). In such a case, the exam will be deferred.

GRADING CRITERIA: Please note that most universities will not accept your course for transfer credit **IF** your grade is **less than a 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

Alpha Grade	4-point Equivalent	Percentage Guidelines		Alpha Grade	4-point Equivalent	Percentage Guidelines
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:

Topic	Dates (Tentative)	Recommended Text Reading
1. Introduction to BT2050 and Overview of Plant Life	January 7 & 9	Chapter Two
2. Plant Tissues and the Primary Growth of Stems	January 9 & 14	Chapter Five
3. Leaves	January 16 & 21	Chapter Six
4. Roots	January 21 & 23	Chapter Seven
5. Secondary Growth and Woody Plants	January 28 & 30	Chapter Eight
6. Flowers and Reproduction	February 4 & 6	Chapter Nine
7. Photosynthesis (and Respiration)	February 11 & 13	Chapters Ten (and Eleven)
8. Transport Processes	February 27 & March 3	Chapter Twelve
9. Soils and Mineral Nutrition	March 3 & 5	Chapter Thirteen
10. Plant Development	March 10 & 12	Chapter Fourteen
11. Algae	March 17 & 19	Chapter Nineteen
12. Nonvascular Plants	March 24	Chapter Twenty
13. Seedless Vascular Plants	March 26	Chapter Twenty-One
14. Gymnosperms	March 31 & April 2	Chapter Twenty-Two
15. Angiosperms	April 7 & 9	Chapter Twenty-Three

STUDENT RESPONSIBILITIES: Students are expected to attend classes, and laboratory sessions. All assignments must be completed in full and handed in by the date specified. Refer to the College Policy on Student Rights and Responsibilities at https://www.gprc.ab.ca/about/administration/policies/#academic_policies

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