Spring 2-1-2022

BIOO 105N.00: Introduction to Botany

Edwin J. Burke
University of Montana, Missoula, ed.burke@umontana.edu

Recommended Citation

This syllabus is used in all sections of BIOO 105N.

BIOO 105: Introduction to Botany

Lecture Meeting Times and Place
Monday and Wednesday 10:00 -10:50 hrs. in Natural Science 307

Lecture Instructor
Edwin J. Burke
105 Stone Hall
Phone: 243-5157

email: ed.burke@mso.umt.edu (*please write BIOO 105 in email subject*)

Office Hours
Monday11:00 – 13:00 hrs. . Look for me in either Stone 105 (my office) or Stone 102 (Wood Science Laboratory). Please, come and see me if you need any help, but If I am not in my office, 105 Stone Hall, always check for me just down the hall in the Wood Science Lab, Stone Hall 102. If my office hours conflict with your schedule please let me know via email and we will set up a different time. In your email subject area, please write BIOO 105, so I know you are a student requesting information. This will allow me to answer your request ASAP.

Laboratory Instructors
Lab Sections 1 & 2; Scott Debnam, scott.debnam@umconnect.umt.edu,
Lab Sections 3 & 4; Brooke Bannerman, brooke.bannerman@umconnect.umt.edu

Course Lecture and Laboratory Times and Locations
Lecture-Monday and Wednesday 10:00-10:50 am; Natural Science 307
Labs will be held in Natural Sciences (NS) (aka. “Botany Building”) 202.
Laboratory- Sect. 1, Tuesday, 09:00-10:50; Sect. 2, Tuesday 11:00-12:50; Sect. 3, Tuesday 13:00-14:50; Sect. 4, Tuesday, 15:00-16:50.

Course Pack
An electronic, or printed on request, course pack that will accompany the lecture is available. This course pack has many color plates, micrographs, diagrams and photos that increase the price slightly over a black and white/greyscale rendition, but the added cost is worth it when it comes to linking lecture and lab course packs with lecture and laboratory visuals.

In addition to the course pack, textbooks can be useful resources to review class notes and to study. For that purpose, I recommend that you periodically use one of the several different texts in the Mansfield Library. Note, however, that I will not follow any particular text in lectures, although all topics I will cover in lecture are also covered in introductory Botany texts.

Laboratory Manual
BIOO 105 Introduction to Botany Lab Guide, to be used in conjunction with the Course Pack, will also be available on-line. Check with your lab instructor.

General Course Content
BIOO 105, Introduction to Botany, is a one-semester exploration of the world of plants that combines lectures and laboratory exercises. Plant Biology (Botany) is a very broad, yet it is a discipline serving as a base of knowledge for several other fields of study. In this course we will address some of the principal areas of botanical sciences, including a general understanding of plants from molecular, cellular, physiological and diversity perspectives. An emphasis will also be placed on the societal uses of plants.

While the lecture and labs complement each other, the lab portion is a stand-alone component of the course. Some laboratory exercises will follow what has been covered in lecture, but others will not. Therefore, it is very important that you *read the lab manual in advance*. Laboratory materials and

expectations will be discussed in lab. *Attendance in lectures and laboratories is mandatory*; you cannot pass the course without a lab grade, and *if you miss three labs or more you will not get a lab grade (i.e. you will fail the course).*

Course Objectives

- Learn the fundamental structure of plant cells and their organelles
- Learn the steeps in the light dependent and light-independent reactions of photosynthesis
- Learn the cell and tissue types of plants
- Learn the life cycles of the various classes of plants
- Learn the major types of plant hormones and their effects on plant growth, development, reproduction and death
- Learn the fundamental and practical aspects of the "Scientific Method"

Course Outcomes

- Learn and utilize the fundamentals of the scientific method of investigation through observation, hypothesis formation and testing, data collection and analysis and drawing of conclusions
- Learn and appreciate the importance and biological beauty of plants
- Acquire a basic understanding of the structure and function of plants
- Learn and appreciate the extraordinary diversity of organisms within the plant kingdom.
- Learn and appreciate the remarkable ability of terrestrial plants to grow, survive and reproduce despite the fact that they cannot move to search for food, shelter or mates.
- Learn how plants cope with their surrounding environment (including the presence of other organisms)

Exams and Grading

Please note, this class is offered for traditional letter grade only, it is not offered under the credit/no credit option.

There will be 2 lecture exams and a lecture final. All will be on-line using MOODLE. The final will be partly comprehensive, but with an emphasis on the material covered after exam II. Each of the first two exams will be worth a total of approximately 150 points and the final's contribution will be approximately 300 points, for a lecture total of approximately 600 pts. The lab portion of the grade will be comprised of reports, in-lab assignments, papers, collections and any other material submitted for grading, and will total approximately 250 pts. Your overall final grade for BIOO 105 is a combination of lecture (60%) and lab (40%) scores. Again, recall you cannot pass the course if you have missed more than three labs.
Please note once again, that this class is offered for traditional letter grade only, it is not offered under the credit/no credit option

Letter Grade Assignment

A ≥ 90.00; B = 80.00 – 89.99; C = 70.00 – 79.99; D = 60.00 – 69.99; F ≤ 59.99

Suggestions For Success

Regular attendance in lecture and lab is critical and mandatory. Students will get the most out of lecture and lab time if they prepare in advance. It is critical that you take good notes and remain engaged in class. I believe that learning is not simply the accumulation of information, but rather the ability to process this information and to place it into a broader, relevant context. A very effective way to do this is by taking good notes in class and then reviewing the notes after class. I encourage students to ask questions any time during lecture. I enjoy very much when student participation in class leads to spontaneous class discussions. This creates a more interactive teaching/learning environment which is beneficial to all of us. Study groups and discussions are extremely helpful and fun (?) and I highly encourage this type of "concept and details polishing". I am glad to participate in study sessions if students ask. While working in groups is beneficial, students are expected to work alone during all exams, lab quizzes and completion of lab worksheets.

Makeup Exams and Quizzes
Sometimes you have no control over situations that preclude you from getting to laboratory on-time to take the lab quiz exam. Plan your makeup quiz with your lab instructor if you know ahead of time that you will miss any quiz. Your instructor will be much more likely to work with you if you let them know, if possible, ahead of time via email. If you must miss a lecture exam, the same procedure, including a good explanation of your situation must be provided, preferably in written form in advance of the scheduled time of the exam. If you are too sick or otherwise prevented from taking a lecture exam, drop me an email for the record, and I will get you a new time period in which you can take the exam. Again, the exams will be online through Moodle, so I am sure we can accommodate your needs within the Moodle framework

Accommodations for Students
The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students. If you have a disability that adversely affects your academic performance, and you have not already registered with the Office of Disability Equity (ODE) (formerly Disability Services for Students). ODE, 406-243-2243, will work with the student and their advisor on a case-by-case basis. I will work with you and Disability Services to provide an appropriate modification. Only students registered with ODE will be considered for accommodation during exams. Please contact me *one week before* each exam if you require any service through ODE.

Drops, Withdraws, Change of Grade Status
Important Dates Restricting Opportunities to Drop a Course Spring 2022 (See also Spring 2022 Official Dates and Deadlines calendar):

Deadline	Description	Date
To 7th instructional day	Students may add classes via CyberBear without consent of instructor	26 January-last day
To 15th instructional day	Students can drop classes on CyberBear with refund & no "W" on Transcript. Refunds where applicable	7 February-last day
16th to 45th instructional day	A class drop requires a form with instructor and advisor signature, a $10 fee from registrar's office, student will receive a 'W' on transcript, no refund.	8 February - 29 March
Beginning 46th instructional day	Students are only allowed to drop a class under very limited and unusual circumstances. Not doing well in the class, deciding you are concerned about how the class grade might affect your GPA, deciding you did not want to take the class after all, and similar reasons are not among those limited and unusual circumstances. If you want to drop the class for these sorts of reasons, make sure you do so by the end of the 45th instructional day of the semester. Requests to drop must be signed by the instructor, advisor, and Associate Dean (in that order) and a $10 fee applies. Instructor must indicate whether the individual is Passing or Failing the class at the time of request.	30 March – 6 May

Academic Calendar: To help you plan your spring break trip to Utah
- https://www.umt.edu/provost/academiccalendar/

Final Exam Schedule: Please use this calendar to figure out your final exam date- https://www.umt.edu/registrar/students/Finals%20Week%20Schedules.php

Student Conduct Code: Please reach out to your Chair/PD and me if you need assistance on any conduct code issues- https://www.umt.edu/student-affairs/community-standards/default.php

BIOO 105 Tentative Lecture Schedule

Date	Lecture topic
19 January	Introduction
24 January	Chemical Constituents and Architecture of Cell Walls
26 January	Martin Luther King Day (Holiday)
1 February	Chemistry of Life
2 February	Plant Cell Wall Chemistry and Architecture
7 February	Primary Wall Structure
9 February	Middle Lamella and Secondary Cell Wall
14 February	Plant Cells-Cytoplasm and Organelles
16 February	Plant Cell Types, Tissues and Organs (cont.)
21 February	**Presidents Day (HOLIDAY)**
23 February	Plant Cell Types, Tissues and Organs (cont.)
28 February	**Lecture Exam I (online using MOODLE) (tentative date)**
2 March	Plant Body-Roots, Holdfasts; water and nutrients
7 March	Roots, water and nutrients (cont.)
9 March	Leaf structure, morphology, arrangement
14 March	Photosynthesis and respiration
16 March	Reproduction in Plants: Lower plants-Bryophytes; Reproduction in Gymnosperms
21-25 March	**Spring Break**
28 March	Reproduction in Gymnosperms; Reproduction in Angiosperms
30 March	Reproduction in Angiosperms (cont.)
4 April	**Lecture Exam II (online using MOODLE) (tentative date)**
6 April	Plant Phylae- Bryophyta (mosses), Hepatophyta (liverworts) and Anthrocerophyta (hornworts
11 April	. Plant Phylae Lycopodiophyta (club mosses) and Pteridophyta (ferns); structure and life cycles
13 April	Plant Phylae- Superdivision Spermatophyta (seed plants); Divisions Cycadophyta, Ginkgophyta and Gnetophyta
18 April	Plant Phylae- Superdivision Spermatophyta (seed plants); Division Coniferophyta

20 April	Division Coniferophyta (cont.)
25 April	Division Angiospermae
27 April	Division Angiospermae (cont.)
2 May	Gymnosperm and Angiosperm Identification and Ecology; Campus walk for Tree Identification- 5 species
4 May	Gymnosperm and Angiosperm Identification and Ecology; Campus walk for Tree Identification- 5 species
9- 13 May	**Final Examination Week Botany Final Exam (online using MOODLE) (date to be announced)**
14 May	**Graduation**