

General Education Course Proposal

Proposed Course: Bot 10 Plant Biology Units 3
Prefix No. Title

Department: Biology School: Natural Sciences

GE Category (Indicate one category only):

Foundation: A1___; A2___; A3___; B4___
Breadth: B1___; B2 X; C1___; C2___; D___; E___
Integration: B___; C___; D___; International/Multicultural___

Existing Course X; Revised Course ___; New Course ___

Course Included in Current GE Program X

New courses require the Undergraduate Course Proposal form in addition to this form.

Revised courses require the Undergraduate Course Change Request in addition to this form.

Proposed catalog description: Limit course description to 40 words using succinct phrases. Include prerequisites, limitations, lecture/lab hours. Indicate former course number, e.g., (Former Biol 105)

10. Plant Biology (3)

Not open to students with credit in BioSc 1B. Structure, function, and development of plants. General Education BREADTH, Division 2. (2 lecture, 2 lab hours.)

Enrollment limit per section: 150

Expected number of sections per semester – Year 1 1; Year 3 1

Attachments:

1. A statement presenting the ways in which this course meets the Specifications provided in the appropriate section of the General Education Policy as well as in the Policies for Inclusion and Evaluation of General Education Courses.
2. A statement of elements common to all sections of this course, identifying content, objectives, required student activities, grading policy, representative texts, and an approximate schedule for the course. Required student activities include such things as papers, research projects, homework, laboratory and/or studio performance, recitations, participation, attendance, and exams.
3. A typical syllabus for a particular offering of the course.
4. Any special cost factors associated with this course.

Approval for Inclusion in General Education

Thomas C. Malberg 3/12/98 Quamser 3/13/98
Department Chair Date School Curriculum Committee Date

King Wang 3/13/98 Peter Ann 12/15/98
School Dean Date General Education Subcommittee Date

Brandt Kehoe 12/22/98
Associate Provost Date

1/14/98

Attachment 1

Justification for inclusion of Plant Biology 10 in General Education Area B2

The information covered in Plant Biology 10 meets the area B2 criteria and reflects all of the goals and objectives of general education. Plant Biology 10 begins with a discussion that makes distinctions between scientific information versus other forms of knowledge. The students are encouraged early on in the course to try to realize the limits of scientific and other types of endeavor.

Plant Biology 10 delves into the fundamental concepts of how living things work, from single cells to multicellular organisms. The similarities and differences amongst life forms are examined with evolution being one of the key unifying themes. This course discusses a broad array of organisms; the main emphasis is flowering plants. However lecture and laboratory instruction covers four of the five taxonomic kingdoms that are currently recognized by biologists (monera, protista, fungi and plantae). Lecture material also includes current topics (biotechnology, pesticides, endangered species, etc.) whose roots of understanding are biological inquiry.

The lower division general education writing requirement is met by this course. Laboratory exercise writing plus a three to five page term paper are required. The combination of the above two will result in students writing in excess of the 2,000 word requirement.

Attachment 2

Not applicable - only one lecture section of this course taught.

Attachment 3

Botany 10

Dr. Tom Mallory
Room #S-106
Phone# 278-2001

Plant Biology *3 units, 2 lecture & 1 lab per week*

Plant Biology 10

Course Objectives: This course emphasizes the basic concepts and principles of how plant life forms work. It will also demonstrate the diversity and complexity of plants. Concepts of modern plant biology such as evolution, genetic engineering, biotechnology, the green revolution will be introduced and their possible impact on our every day lives will be discussed.

These objectives will be met through lectures, text and laboratory experience. Both lecture and laboratory components must be passed to complete Botany 10 with a passing grade.

Lectures: The lectures will focus on the foundation information which provides for our basic understanding of how plants are put together and function. Lecture topics will be according to the schedule of topics and they will begin promptly at the beginning of the period. Since the text contains much more information than is possible to cover in this course, it is important that you attend every lecture to find out what portions of the text need to be understood in detail. The majority of the questions on the lecture examinations will come from the lectures; it is to your advantage to attend each lecture session and take good notes.

Lecture Exams: The lecture exams will be multiple choice and each exam will have 75 questions on it. You will need a Scantron form #882-ES and a number 2(two) pencil. Each midterm exam will be worth 100 points. The final exam is worth 160 points. and 50% of the exam will be comprehensive (see lecture schedule for dates of exams and grading scale breakdown).

Laboratory: The laboratory activities will occur according to the sequence of exercises on the lab schedule (see schedule).

You are required to attend the laboratory meeting each week. A students laboratory grade will be lowered one grade (from B to C for example) for every three unexcused laboratory absences they accrue.

The laboratory manual is organized in such a way that each exercise requires the student to answer a series of questions. These answers are to be in complete sentences/paragraphs with correct spelling, grammar etc. A

laboratory term paper is also required. The instructions for this paper are listed below.

Laboratory Term Paper:

Your term paper must be three to five typewritten pages in length and can earn you a maximum of forty (40) points. The paper is due on or before the date given in your laboratory syllabus. **Late papers will not be accepted.** Since this paper is a requirement for the course, failure to turn it in on time is the same as not turning it in at all and may result in a failing grade for the course.

Your text and the lectures will repeatedly emphasize the fact that an understanding of the principles of science and plant biology is important for citizens in a democracy to have. This is because, for better or worse, we live in a time dominated by science and technology and a time when as never before in all of human history, mankind's activities threaten all life on the planet. We live in a time of computers, space vehicles, genetic engineering, global warming, green revolution, atomic energy, species extinction, etc. These are just a very few of the science and biology issues that are in the news almost every day. Not to know about these and not to have some understanding about them is to be ignorant about some of the most significant aspects of our culture.

For this paper you are to watch for significant (that is, something that takes more than a few lines in a newspaper) items in the current printed media (popular press, **NOT** scientific journals) that have something to do with plant biology, preferably some aspect of biology that we have studied or will study this semester. For example, the items may be about photosynthesis or genetics or ecology, etc. **Source article should be no more than two pages. The article MUST be current. It must have a 1997 publication date.**

Clip the item from the paper. If the item you found is in a magazine in the library, for example, do not clip it out and thus damage the entire magazine. Make a photocopy of the item. Attach the clipping or photocopy to the report you will write. Be sure the date of publication appears on your article. Your typed report should be double spaced and three to five **full pages** in length. Short papers will not receive credit.

The report should cover such topics as the significance of the reported item (Why is this important? How might it affect your life? etc.) and how it relates specifically to what you have been reading in the text, hearing in lecture, or doing in the lab. Do not write a report that is little more than a rehash of the article itself — that is, do not paraphrase the article. We will be looking for evidence that you have understood the meaning of the article you read. Our intent is to help you to see the material of the course has importance and significance to you as an educated person.

At the end of the report you must list the pages in the textbook that relate to the article in such a way as to aid you in your understanding of the article's content. You **must** incorporate relevant material from the textbook into your report.

In summary, each student will prepare a three to five page typewritten report on an item located in the current print media that relates directly to biology. Clip or photocopy the item and attach it to your report. The report should focus on the significance of the article and must not be a paraphrasing of the article. At the end of the report you must list those pages in the text that have information bearing on either the article or your report.

Of course it hardly need be said that this is to be written in good English as befits the work of a university student. Immediately begin watching newspapers and magazines for appropriate articles and read related sections of your text. **Don't put it off.**

Makeup Exams, Students with Disabilities, Cheating and Plagiarism

Makeup Exams: Makeup lecture exams will be given to students who have a legitimate verifiable excuse for their absence (family emergency, sick in hospital, serious automobile accident, etc.) and arrange to makeup the exam within ten calendar days of the exam day that was missed. There is no makeup for the final exam. Students who miss the final (if passing and they qualify for an Incomplete) will be permitted to take the final during the normal final exam period in a following semester. An Incomplete Grade will be assigned only according to published University regulations. Missed laboratory quizz may be madeup during the last week of instruction of the semester. Additional missed laboratory quizzes result in a zero score for each missed quiz.

Students with Disabilities: Students with disabilities should inform the instructor in accordance with University policies.

Cheating and Plagiarism: Cheating and plagiarism are not tolerated in Plant Biology 10. Please review the University Policy on Cheating and Plagiarism in your catalog.

Lecture Schedule and Reading Guide

Lecture Text - *Introductory Plant Biology* by Kingsley R. Stern, Sixth or Seventh Edition
 Lab Text - *Laboratory Exercises in Plant Biology* by Gina Arce & Thomas Mallory

<u>Date</u>	<u>Topic</u>	<u>Reading Chapters</u>
Jan. 28	Scientific Discovery and the Nature of Life	Chapters 1 & 2
30	Molecular Composition of Cells	Chapter 2
Feb. 4	The Cells, Ultrastructure, and Cell Division	Chapter 3
6	Membranes, Diffusion and Osmosis	Chapter 9 (pgs. 128-130)
11	Whole Plant Morphology, Growth and Tissue	Chapters 4 & 6
13	Stem Structure and Function	Chapter 6
18	Stem Structure; Secondary Growth & Modified Stems	Chapter 6
20	Root Structure and Function	Chapter 5
25	Leaf Structure and Function	Chapter 7
27	Movement of Water and Sugars in Higher Plants	Chapter 9 (pgs. 130-134)
March 4	<i>LECTURE EXAM AND LABORATORY EXAM</i>	
6	Soils and Mineral Nutrition	Chapter 9 (pgs. 135-141)
11	Plant Growth - Photosynthesis	Chapter 10
13	Plant Growth - Respiration	Chapter 10
18	Plant Growth - Hormones	Chapter 11
20	Protein Synthesis	Chapter 13 (pgs. 199-203)
April 1	Cell Division - Meiosis, Inheritance and Variation	Chapter 12
3	Genetics and Evolution	Chapters 13, 15 & 16
8	Genetic Engineering & Biotechnology	Chapters 13, 15 & 16
10	The Bacteria and Algae of the Soil (Kingdom Monera)	Chapter 17
15	The Algae (Kingdom Protista)	Chapter 18

<u>Date</u>	<u>Topic</u>	<u>Reading Chapters</u>
April 17	LECTURE EXAM & LABORATORY EXAM	
22	The Fungi	Chapter 19
22	The Mosses and Liverworts	Chapter 20
24	The Lower Vascular Plants	Chapter 21
29	The Ferns	Chapter 21
May 1	The Conifers	Chapter 22
6	The Flowering Plants	Chapter 23
8	Fruits, Pollenation, Seeds and Flowering Plant Evolution	Chapter 24
13	Ecology of Higher Plants	Chapter 25
22	FINAL LECTURE EXAM - 1315-1515	

GRADING

Exam I	100 pts.
Exam II	100 pts.
Final Exam	<u>160 pts.</u>
Subtotal	360 pts.
Lab Quiz I	40 pts.
Lab Quiz II	40 pts.
Lab Quiz III	40 pts.
Lab Term Paper	<u>40 pts.</u>
Total Pts. Possible	520 pts.

GRADING SCALE

A = 100-85%	(520-442 pts.)
B = 84-74%	(441-385 pts.)
C = 73-63%	(384-327 pts.)
D = 62-50%	(326-254 pts.)
F = 49% & lower	

*Plant Biology
Laboratory Schedule*

Jan. 28	Exercise 1 & 11	The cell & seeds and seedlings
Feb. 4	Exercise 2	Mitosis and cytokinesis
Feb. 11	Exercise 3	Plant tissues
Feb. 18	Exercise 4	Roots
Feb. 25	LAB EXAM	
Mar. 4	Exercise 5	Stems
Mar. 11	Exercise 6	Leaves
Mar. 18	Exercise 7	Physical process of the cell
Apl. 1	Exercise 8	Photosynthesis, digestion, respiration
Apl. 8	LAB EXAM	
Apl. 15	Exercise 10 and the Laboratory Papers are DUE Bacteria, slime molds, fungi and lichens	
Apl. 22	Exercise 10	Algae
Apl. 29	Exercise LAB QUIZ and campus walk - Higher plants	
May 6	Exercise 10	Cone bearing plants and flowering plants
May 13	LAB FINAL	

Attachment 4

N/A