

**Eastern Illinois University
New Course Proposal
BIO 1092G, Practical Botany, Honors**

1. Catalog Description

- a. BIO 1092G
- b. Practical Botany, Honors
- c. 2-2-3
- d. F,S,Su
- e. Pract Bot Honors
- f. This course will introduce students to the importance of plants in their daily lives. Emphasis will be placed on students learning methods for the identification, growth and maintenance of plants used in landscaping, gardening and the home. Does not count toward the Biological Sciences major or minor. Credit for BIO 1092G will not be granted if the student already has credit for or registration in BIO 1002G or BIO 1200G.
- g. Admission to the University Honors College
- h. Fall 2006

2. Student Learning Objectives and Evaluation

- a. *Student Learning Objectives:* In accordance with the goals of general education, students will learn to:
 - describe botanical characteristics of plants that are important to grow and maintain plants successfully, such as structure (morphology), function (physiology), identification (systematics), genetics, and ecology. (speak and write effectively; think critically)
 - apply horticultural principles to home landscaping situations including soil management, fertilizer applications, environmental modifications, plant propagation, pest control, pruning, planting, and designing a landscape plan. (think critically, responsible citizens)
 - identify plant materials (ornamentals, herbs, vegetables, fruits, houseplants and grasses) that are frequently used in landscaping as well as evaluating where, when and how they should be used. (think critically)
 - describe the responsible use of plants and chemicals (fertilizers and pesticides) in landscaping to prevent the spread of invasive plants and to save genetic diversity in our ecosystems (think critically, responsible citizens)
- b. Assessment of student achievement for stated objectives.
Exams (45%). Three hourly exams will cover material from both lectures, laboratories, and field trips. The final exam will be comprehensive. Exams will include objective, short answer and essay types of questions.

Laboratory Reports and Laboratory Notebook (25%). The laboratory reports (12-15) will include specific essay type questions that require proficient writing skills and critical thinking. Some of the reports will require simple mathematical analysis of data and graphing of analyzed data to sharpen their reasoning skills as they interpret results. The laboratory notebook will keep records of activities done in laboratories.

Written Reports (10%). A large report will be required on a social issue involving plants. Suggested topics could be: feeding the growing human population; the importance of saving plant genetic diversity; how plant biomass could solve the world energy crisis; plant solutions to pollution; genetically modified foods; ground water contamination from lawn and farm chemicals; use of organic vs. chemical fertilizers; use of natives vs. exotics in landscaping. Students will be encouraged to discover their own topic. Other

short reports may be used including assignments to review gardening websites, books or television shows. These reports will require them to convey their opinions and understanding of material.

Oral Presentations (10%). Students will give an oral presentations in one of several formats. They may participate in a debate dealing with social issues involving plants (see possible topics in written reports section). Another possible format is for students to work as a group to develop a landscape design for a homeowner. This project would involve collecting information from the site, talking to the homeowner, developing the landscape plan, and presenting the plan to the homeowner. The plan would be developed using computer software.

Field Trips (5%). Students will participate in field trips to local gardens, nurseries and/or the Missouri Botanical Garden. On these trips, they will be given a scavenger hunt list of information to find. Campus trips of their own might include challenges where students will be directed to places on campus and asked questions about what is happening. The questions will relate to topics covered in class (i.e. pest problems, use of mulch, planting techniques, microclimate situations). On other campus trips, students may install plants in campus gardens established to demonstrate native plants available for landscaping (i.e. prairie, woodland or wetland species).

Plant Collection (5%). A plant collection will be compiled to identify 30 commonly cultivated landscape plants of different types along with a description of their environmental needs and horticultural use.

Objectives	Exams	Laboratory Reports/ Notebook	Written Reports	Oral Presentations	Field Trips	Plant Collection
Describe Botanical Characteristics	X	X			X	
Apply Horticultural Principles	X	X	X	X	X	X
Identify Plant Materials	X	X			X	X
Describe Responsible Use of Materials	X	X	X	X	X	
GE —Speak Effectively				X		
GE —Write Effectively	X	X	X			X
GE —Think Critically	X	X	X	X	X	X
GE —Responsible Citizens	X	X	X	X		

- c. Not a technology-delivered course.
- d. Not a graduate level course.
- e. This course meets the criteria of a writing-active course because it requires the students to complete frequent, brief writing activities as mentioned in the description for a writing active course. These frequent, brief writing activities include weekly lab reports, lab notebook, and short essay questions on the exams. The course also requires the students to write a paper. The writing activities are designed to assist students in mastering course content and secondarily to strengthen the student's writing skills which are appropriate for a writing-active course.

3. Outline of the Course

a. Units of time: 30 fifty-minute lectures plus 15 110-minute laboratories over 15 weeks

- One week Introduction to the class; historical information on the field of botany and horticulture's role in the botanical sciences; importance of plants in daily life and plant classification; importance of maintaining plant biodiversity and techniques used to maintain genetic diversity; invasive and native plants
Laboratory exercise on the use of botanical keys; campus tour and/or greenhouse tour with an emphasis on classification
- Three weeks Plant morphology, anatomy and life cycles
Laboratory exercise on flowers, fruits, seeds, vegetative structures and modified plant structures
- One week Environmental factors and plant growth
Laboratory exercise on the effects of various light intensities and temperatures on plant growth and development including seed germination
- Two weeks Soil characteristics – including soil structure, soil texture, pH, soil minerals, water relationships, soil microbes, fertilizers and composting
Laboratory exercise on soil testing for pH, texture, and mineral deficiencies; environmentally sound methods of fertilizer application; composting
- One week Identification of plant pests and the environmentally and socially responsible use of pesticides; alternative strategies for pest management
Laboratory exercise on weed and insect pest identification; identification of plant diseases caused by bacteria, viruses, and fungi; interpretation of pesticide labels; responsible use of pesticides
- One week Regulation of plant growth via hormones and pruning
Laboratory exercise on pruning techniques for woody and fleshy plants; hormone application experiment
- Two weeks Landscape design with woody evergreens and deciduous plants; including tree and shrub planting techniques
Laboratory exercise on the identification and selection of woody landscape plants and the development of a landscape plan for a commercial building, park or home
- One week Plants used indoors in commercial buildings and private homes
Laboratory exercise on the identification and care of houseplants used in home and commercial settings such as office buildings, malls, apartment buildings, and school yards; floral design; use of terraria
- Two weeks Principles involved with successful vegetable, fruit and/or flower gardening; methods for the selection of suitable annuals, biennials, perennials, ground covers, vines, etc. for the garden location; growing plants from seeds vs. nursery stocks
Laboratory exercise on the identification of plant materials and landscape design project
- One week Lawns from seed or sod; planting and maintenance of home lawns and commercial lawns (golf courses, parks, etc.)
Laboratory exercise on the identification of lawn grasses for full sun versus shade and heavy use vs. light use; methods for maintaining a

healthy lawn including trimming, watering, fertilizing, pest control and seeding

- b. Not technology-delivered.

4. Rationale

- a. Purpose and need: This course meets the requirements of the biological sciences component of the Scientific Awareness segment of the General Education core. The proposed course would be an honors section to parallel BIO 1002G, which is available already for students not in the honors program. It will provide an honors general education class in the botanical sciences. Students will learn basic facts and principles of the botanical sciences, including plant structure, classification, reproduction and physiology. This botanical knowledge will help them understand basic cultural principles related to plant propagation, soil, water, fertilizers, environment and pests. This applied science information will show students how to use plants successfully for personal enjoyment and possible career opportunities. During the hands-on laboratory experiences, students will learn how scientific method is used to aid understanding in the botanical sciences. The historical importance of plants will be used to relate to current environmental and social concerns.
- b. Justification: This is an introductory course with no prerequisites so it is appropriate for a freshman level course. It is honors because it involves a great deal of collaborative thought including interaction among students on projects and writing assignments.
- c. Similarity to existing courses: This proposed course is an honors counterpart of BIO 1002G and includes a more detail-oriented curriculum and more in-depth discussion than BIO 1002G. Topics may overlap slightly with BIO 3312 (Horticulture). However, Horticulture is a majors class with information geared for majors and a prerequisite of BIO 1100.
- d. Impact on program: This course is not required for any specific program, major or minor.

5. Implementation

- a. Faculty members to whom the course may be assigned: Janice Coons, Nancy Coutant, Gordon Tucker or any qualified faculty member in the Department of Biological Sciences.
- b. Additional costs to students: \$30.00 course fee for laboratory supplies and field trips (pending approval of the President's Council).
- c. Text: *Practical Horticulture* by Laura Williams Rice and Robert P. Rice, Jr., Sixth Edition, Prentice Hall, Upper Saddle River, New Jersey, 2006.
Laboratory handouts or manual: Laboratory handouts or manual will be prepared by the instructor.

6. A community college course may be judged equivalent to this course.

7. Date approved by the department or school: October 6, 2005

8. Date approved by the college curriculum committee (COSCC): 28 October 2005

9. Date approved by the Honors College: 24 October 2005

10. Date approved by CAA: 16 December 2005