GENERAL EDUCATION COURSE PROPOSAL
Practical Botany

1. Catalog Description

a. Course level: BIO 1002G  
b. Title: Practical Botany  
c. Credits: 1-2-2  
d. Term to be offered: (F,S,Su)  
e. Title: Practical Botany  
f. Course Description: This course will introduce students to the importance of plants in their daily lives. Emphasis will be placed on instructing students in 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.  
g. Prerequisites: none  
h. Course is writing active

2. Student learning objectives

Students will:

- participate in class discussions and give oral presentation of experimental data and results to practice effective speaking skills (effective speaking)  
- convey their opinions and understanding of botanical information through various writing assignments such as laboratory reports, essay type exam questions and written class projects (effective writing)  
- sharpen their reasoning abilities as they interpret and analyze data collected in the laboratory exercises (critical thinking)  
- develop an understanding for the vital roles that plants have in the ecosystem and the significance of saving plant genetic diversity (responsible citizenship)  
- perform numerical calculations as they analyze laboratory data and prepare graphs. (critical thinking)  
- learn the responsible use of chemicals such as fertilizers and pesticides (responsible citizenship)  
- develop an understanding of the scientific method and learn to use the “method” as a problem solving tool that can be used in many situations (critical thinking)

3. Course outline

   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  
   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 propagation and modified plant structures

One week  Environmental factors and growth
   **Laboratory exercise** on the effects of various light intensities and temperatures on plant growth, development and seed germination.

Two weeks  Soil characteristics – including soil structure, pH, soil minerals, water relationships, soil microbes 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 pruning techniques for woody and fleshy plants; hormone application experiment

Two weeks  Landscape design with woody evergreens and deciduous plants
   **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  Emphasis on plants used in commercial buildings and private homes
   **Laboratory exercise** on the identification and care of plants used in the field of home and office

Two weeks  Principles involved with successful vegetable and/or flower gardening; methods for the selection of suitable annuals, biennials, perennials, ground covers, vines, etc. for the garden location
   **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 and pest control.

One week  Examinations

4. Evaluation of student learning

   a. Three hourly exams (60%)  These exams will cover material from both lectures and laboratories. Exams will include objective, short answer and essay types of questions.

   Twelve to fourteen laboratory reports (10%). The laboratory reports 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 possibly graphing of analyzed data.
Written Project (10%) – project will be a short paper (two to three pages) 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. Students will be encouraged to discover their own topic.

Final Examination (20%). The final exam will be comprehensive and will contain material from both the lectures and laboratories. The format will include objective, short answer and essay questions.

b. 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 and short essay questions on the exams. The course also requires the students to write a brief paper (2-3 pages). 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.

5. Rationale

a. This course meets the requirements of the biological sciences component of the Scientific Awareness segment of the Generals Education core. 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. This is an introductory course with no prerequisites so it is appropriate for a freshman level course.

c. This is a revision of BIO 1002C and should maintain the same curriculum i.d. as BIO 1002C. Topics may overlap slightly with Biology 3312 – (Horticulture). However, Horticulture is a majors’ class with detailed information and a prerequisite of Biology 1100.

d. This course is not required for any specific program, major or minor.

6. Implementation

a. Faculty members to whom the course will be assigned initially: Any qualified Biological Sciences faculty.

b. Lab fee - $10.00  Field trip fee – up to $10.00 – Previously approved by President's Council.
e. Course will be offered first time – Spring semester 2001

7. **Community College Transfer**

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

8. **Date approved by the department** __March 24, 2000_____________________

9. **Date approved by the COSCC** __4/14/2000__________________________

10. **Date approved by the CAA** ________________________________

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