

## COURSE PROPOSAL

Proposed by: Dr. Elizabeth Landecker, Life Science Department

Course title: Mycology

Essence of the proposal: The course, MYCOLOGY, will be offered to upperclassmen and graduate students who wish to broaden their biological background or who are specializing in microbiology or botany. Prerequisites are Biology I and II. 4 semester hours.

Uniqueness: The Mycology course would be unique in the college as it would provide an extensive treatment of the fungi. At the present, fungi are only briefly introduced in the elementary biology and botany courses.

Objectives: The specific objectives of the course are 1) to stimulate interest in the fungi, 2) to teach the fundamental principles of mycology, 3) to acquaint the student with a great variety of fungi, 4) to demonstrate that fungi are involved in industry and in man's everyday life, and 5) to provide a foundation course for anyone who wishes to study mycology further.

Scope of the course: The course will be divided into three main topics which will be taught by separate lecturers. The main topics will be 1) morphology and taxonomy of fungi, 2) structure and reproduction of the fungi, and 3) ecology of fungi and their relation to man. A more detailed course outline is attached.

Teaching material: Teaching material will include lectures, laboratory, demonstration, laboratory exercises, and field trips.

Evaluation: Methods of evaluation will be oral questions and analysis of laboratory exercises.

Rationale: Mycology has long been a neglected and undervalued branch of biology. For example, fungi are the only living systems in fungi which can be studied in the laboratory from a different viewpoint. Similarly, biological structures, processes, and relationships are often a hindrance to understanding of other facets of mycology. A course in mycology enlarges the student's general concept of biology as a whole. In addition, fungi are involved in ecological relationships with all other types of organisms, for example, they maintain soil fertility so that higher plants can flourish. Fungi are also involved in man's everyday life, for example, they cause diseases of man, they are used to produce antibiotics and chemicals, they are used to produce food, and they are used in the production of foods such as cheese.

Recognition of the importance of fungi in industry and human life, in addition to the many practical uses of fungi in the home, is the basis of the proposal.

Proposed Mycology course, continued:

of available textbooks. In the United States, there was only one mycology textbook available from 1953 to 1969. Since 1969, three additional mycology textbooks have been published (one was written by Dr. Sandaker who will teach mycology at Glasboro). In addition to the textbooks, publication of other medical works such as clinical practice and reference books has been especially marked in the past few years.

The growth of mycology may also be seen in the numbers of mycology courses being offered. For many years mycology was taught primarily at the graduate level, but now it is being taught in large numbers of undergraduate institutions.

There are many careers in which a knowledge of mycology is beneficial or even essential. These include medical mycology, pharmacology, plant pathology, genetics, industrial mycology, ecology, and basic research involving fungi.

## MICROBIOLOGY COURSE OUTLINE

### PART I: Morphology and taxonomy of the fungi

1. Cell structure and organization
2. The lower fungi (Zygomycetes)
3. The Ascomycetes
4. The Basidiomycetes
5. The Fungi Imperfecti

### PART II. Physiology and reproduction of the fungi

6. Growth (mechanics, nutritional and physical requirements)
7. Metabolism (carbon, nitrogen, lipid biosynthesis and catabolism)
8. Reproduction (parasexuality, heterothallism, compatibility systems, nutritional and physical requirements)
9. Spores (release, dispersal, dormancy, germination)

### PART III. Ecology and utilization by man

10. Fungi as saprophytes (role of fungi in decomposition and in soil, deterioration of man's materials by fungi)
11. Fungi as predators
12. Fungi as parasites (diseases of animals, man, and plants)
13. Fungi as symbiotes (partnerships with insects, algae, mycorrhizae)
14. Fungi and man (poisonous fungi; mushroom cultivation; production of alcoholic beverages, etc.; industrial production of vitamins, medicines, organic compounds by fungi)

Catalog description:

Mycology: 4 semester hours, 2 lectures and 1 laboratory weekly.  
A comprehensive treatment of the morphology, taxonomy,  
physiology, and ecology of fungi; and their involvement  
in man's everyday life. Prerequisites: Biology I and II.