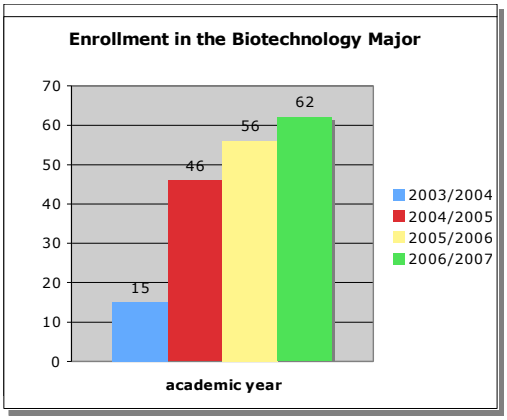
MPS PLANT BIOTECHNOLOGY

Rationale:



Biotechnology is a growing career opportunity in the United States and many students are interested in pursuing careers in this area. Four years ago, we began offering an undergraduate major in biotechnology and enrollments have grown significantly (see adjacent figure). To build on this success, we propose to offer a MPS option in Plant Biotechnology that would complement our existing graduate programs and offer a unique opportunity to many traditional and non-traditional students. This MPS option will be distinct from a MS program by offering a focused coursework-based option that can be completed in one year. It will allow students to learn useful laboratory and research skills without having to complete an extensive thesis project. This option will be particularly useful for secondary school teachers seeking permanent certification, industry researchers returning for "retooling ", and probably most useful to our own ESF students graduating from various majors who wish to broaden their knowledge base and technical skills to make themselves more qualified for today's competitive job market.

Requirements:

Of the required total of 36 credit hours, 19 credit hours including 2 credit hours of graduate seminars (EFB 797) are core requirements as listed below. Additional 9 credit hours will be from a list of directed electives, leaving 8 credit hours of open elective coursework.

Catalog Statement:

Plant Biotechnology Option: For students who need to broaden their knowledge base and technical skills of the increasingly useful biotechnology, for professionals returning for "retooling", and also for the recent graduate in a variety of disciplines in biology and chemistry. Requirements consist of 19 credit hours of core coursework including 2 credit hours of graduate seminars (EFB 797), 9 credit hours of directed electives and 8 credit hours of open electives for a total of 36 credit hours.

Coursework:

Required Core Courses (19 credit hours):

EFB601 MOLECULAR BIOL TECHNIQUES (3)

EFB626/FOR626 PLANT TISSUE CULTURE METHODS (3)

EFB627 PLANT ANATOMY AND DEVELOPMENT (3)

EFB530 PLANT PHYSIOLOGY (3)

EFB531 PLANT PHYSIOLOGY LAB (2)

EFB625 PLANT BIOTECHNOLOGY (3)

EFB797 SEMINAR (1)

Directed Electives:

APM510 STATISTICAL ANALYSIS (3) Fall

EFB501 MICROBIOLOGY FOR BIOPROCESSING (3) Fall

EFB535 SYSTEMATIC BOTANY (3 credits) Fall

EFB542 FRESHWATER WETLAND ECOSYSTEMS (3) Spring

EFB600 TOXIC HEALTH HAZARDS (4) Fall

EFB609 MOLECULAR BASIS/EVOLUTION (3) Spring

EFB611 TOPICS IN ENVIRONMENTAL TOXICOLOGY (3) Spring

EFB628 MYCORRHIZAL ECOLOGY (3) Spring

EFB640 MYCOLOGY (3) Fall

EFB645 PLANT ECOLOGY (3) Spring

EFB733 TECH IN PLANT PHYSIOLOGY (2-4) Spring & Fall

EFB798 RESRCH PROB/ENV&FOR BIO (1-3) Spring & Fall

EFB898 PROFESSIONAL EXPERIENCE (1-12) Spring & Fall

ERE585 MICROSCOPY AND PHOTOMICROGRAPHY (3) Fall

ERE685 TRANSMISSION ELECTRON MICROSCOPY (5) Spring.

ERE785 SCANNING ELECTRON MICROSCOPY (5) Fall & Spring.

FCH530 BIOCHEMISTRY 1 (3) Fall

FCH531 BIOCHEMISTRY LAB (3) Fall

FCH532 BIOCHEMISTRY II (3) Spring

FCH571 WOOD CHEMISTRY I (3) Spring

FCH630 PLANT BIOCHEMISTRY (3) Spring

FOR655 ADVANCED FOREST GENETICS & TREE IMPROVEMENT (3) Spring