

ABT Agricultural Biotechnology

ABT 101 INTRODUCTION TO BIOTECHNOLOGY. (1)

An introduction to biotechnology: historical perspectives, current applications and future directions. The course will consist of informal lectures and interactive discussions led by Biotechnology faculty and visiting professionals. The course will also orient students to the educational/career opportunities in Biotechnology and assist them in developing a focus for their individualized degree programs. Lecture, two hours per week. Prereq: First year or first semester transfer students in Agricultural Biotechnology.

ABT 201 SCIENTIFIC METHOD IN BIOTECHNOLOGY. (1)

A course designed to acquaint students with the common experimental methods used in agricultural biotechnology. Students will be presented with several case studies which demonstrate basic scientific reasoning and experimental strategies. The students will then use their understanding of basic scientific methods and agricultural systems to critically evaluate work from the current scientific literature. Each student will be required to provide a written and oral evaluation of a research project in some aspect of agricultural biotechnology. The class will provide the students with the basic skills needed for preparing their own research proposals. Prereq: ABT 101 and enrollment in the Agricultural Biotechnology degree program or consent of instructor.

ABT 301 WRITING AND PRESENTATIONS IN THE LIFE SCIENCES. (2)

The goals of this course are to expose students to current scientific literature in the life sciences, develop skills for the evaluation of primary research literature and presentations, prepare students to write an independent research proposal, and develop oral communication skills. Student participation is a key component of activities, and students are required to provide both oral and written evaluations of research publications, presentations, and proposals. A major part of the course involves students developing, writing, and presenting an independent research proposal in coordination with a research mentor. This course should be taken prior to ABT 395 or ABT 399, and students must identify a research mentor early during the semester. Prereq: Agricultural Biotechnology major or consent of instructor.

ABT 360 GENETICS. (3)

The basic principles of heredity as currently understood from evidence accumulated in classical, cytogenetic, molecular, and quantitative genetic experiments. Emphasis is placed on a thorough understanding of genetic principles and the relationship of genetics to all biological disciplines. Prereq: Six credits in biological sciences and one course in general chemistry. (Same as ASC/ENT 360.)

ABT 361 GENETICS LAB ONLINE. (1)

Analysis and interpretation of genetics problems using interactive computer programs. Prereq: ABT/ASC/ENT 360 (should be taken concurrently).

ABT 395 INDEPENDENT STUDY IN BIOTECHNOLOGY. (1-4)

Independent study in biotechnology under the supervision of a faculty member. Prereq: Agricultural Biotechnology major and consent of appropriate instructor before registration.

**ABT 399 EXPERIENTIAL LEARNING
IN BIOTECHNOLOGY. (1-6)**

An internship in biotechnology under the supervision of a faculty member. May be repeated to a maximum of six credits. Prereq: Consent of the instructor, chairperson for the Agricultural Biotechnology degree program and completion of a learning contract before registration.

**ABT 460 INTRODUCTION TO
MOLECULAR GENETICS. (3)**

Molecular genetics is the study of the biochemical basis of heredity and focuses on the structure and expression of DNA at the molecular and cellular level. The course will provide a detailed understanding of the biochemical events involved in genome replication, prokaryotic and eukaryotic transcription, and translation of DNA, as well as RNA processing, recombination and the theoretical underpinnings of genetic engineering. Prereq: ABT/ASC/ENT 360 or BIO 304 or consent of instructor. (Same as ENT 460.)

**ABT 461 INTRODUCTION TO
POPULATION GENETICS. (3)**

This survey course examines the population dynamics and equilibria of genes in nuclei, chloroplasts and mitochondria. Emphasis will be on biological relevance (in plants, animals, and microorganisms), but some theoretical derivations will also be introduced. Prereq: ABT 360 (or equivalent) and one course in probability/statistics. (Same as BIO/ENT/FOR 461.)

**ABT 495 EXPERIMENTAL METHODS
IN BIOTECHNOLOGY. (4)**

A laboratory techniques course designed to give students the technical skills and understanding necessary to critically examine biological systems at the molecular level. The course will emphasize the principles of chemistry, biochemistry and molecular biology as applied to a model system for laboratory investigations. Laboratory, nine hours per week. Prereq: BIO 150 and AGR 360, or consent of instructor.