BIOL 4402: Research Internship

1-4 Credit Hours

Prerequisite: (BIOL 3300 and BIOL 3300L) and two BIOL 3000/4000 level biology lab courses; approval of the internship coordinator and Biology and Physics department chair prior to registration

This course is a supervised, credit-earning research-based experience of one academic semester with an approved business firm, private agency or government agency. The experience is academic in nature and students will learn to collect and/or manipulate scientific data to produce an academic presentation. The preparation of a research proposal prior to the experience is required.

BIOL 4411K: Stem Cell Technology

4 Credit Hours

Prerequisite: BIOL 3300 and BIOL 3300L

Stem cells offer great promise for modern medicine. This course gives students hands-on experience in handling, differentiating, analyzing and purifying stem cells in culture. Students will also gain a broad understanding of in vivo stem cells, including the developmental aspects of cellular self-renewal and tissue regeneration. This is a lab intensive course and will feature in-lab lectures, a formal written component, and in-class presentations.

BIOL 4412K: Cell and Tissue Culture

4 Credit Hours

Prerequisite: BIOL 3410

This course examines the basics of culturing eukaryotic cells, tissues, and organs in vitro. Students will learn the basic cell culture techniques and how they apply to cell lines and primary organ cultures. The application and potential of stem cells and tissue engineering will also be discussed. In the laboratory, students will learn how to propagate adherent and non-adherent cell lines and have an opportunity to create primary cell and organ explants cultures. Students will also apply knowledge of aseptic techniques to plant tissue culture applications.

BIOL 4420K: Plant Physiology

4 Credit Hours

Prerequisite: (BIOL 1108 and BIOL 1108L), and CHEM 3361

Plant physiology is the study of plant function. Students will learn how plants obtain, transport and utilize water, mineral nutrients, and organic molecules. Students will be introduced to mechanisms used in defense against pathogens and herbivores and learn how environment and hormones control plant growth and development. Students will examine each process at the biochemical, cellular and organismal level. Laboratory studies will introduce students to contemporary approaches used in the study of plant physiology.