

**University of Arkansas - Fort Smith
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General Syllabus

BIOL 2100V Introduction to Undergraduate Research

Credit Hours: 1 to 4 Variable Lecture Hours: 0~4 Variable Laboratory Hours: 0~8 Variable

Prerequisites: Department permission, freshman or sophomore status.

Effective Catalog: 2019~2020

I. Course Information

A. Catalog Description

Introduction to undergraduate research focusing on scientific topics appropriate for freshman and sophomore students. Students will review scientific methods to design experiments, identify variables, collect and analyze data, and present research findings in written or oral form. The course may be repeated for a total of six hours.

B. Additional Information - NA

II. Student Learning Outcomes

A. Subject Matter

Upon completion of this course, the student will be able to:

1. Understand scientific research methods to read and synthesize published scientific papers.
2. Demonstrate an ability to identify scientific problems and design investigations to address those problems.
3. Formulate testable hypothesis.
4. Design a pilot test project to collect and analyze data.
5. Effectively present experimental design and initial findings orally and in writing to a general audience.

B. University Learning Outcomes (ULO)

Communication Skills (written and oral)

Students will communicate proficiently. They will compose coherent research documents appropriate to the intended audience. They will effectively communicate their research findings in a public or departmental setting.

Analytical Skills

Students will evaluate information gathered for and during the investigation. They will utilize critical thinking skills to solve problems and draw correct conclusions based on acquired data. Students will also review and study the primary literature for their research to improve their understanding.

III. Major Course Topics

- A. Understand scientific research methods
- B. Introduction to reading scientific publications
- C. Recognize scientific problems
- D. Introduction to experimental design
- E. Develop testable hypothesis
- F. Understand data collection techniques
- G. Describe hypothesis production and experimental design