

University of Arkansas - Fort Smith  
5210 Grand Avenue  
P.O. Box 3649  
Fort Smith, AR 72913-3649  
479-788-7000

### **General Syllabus**

#### **CHEM 39961 Foundations of Chemistry Research**

Credit Hours: 1

Lecture Hours: 0

Laboratory Hours: 3

Prerequisite: completion of at least 12 hours of chemistry and consent of the department head.

Effective: 2018~2019

#### **I. Course Information**

##### **A. Catalog Description**

Practical exposure to the concepts of literature searches, experimental design, data analysis, and presentation of results as they relate to chemistry research projects. May be repeated for a total of three hours.

##### **B. Additional Information - None**

#### **II. Student Learning Outcomes**

##### **A. Subject Matter**

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

1. Conduct a literature search as it pertains to chemistry research
2. Design experiments pertaining to chemistry research
3. Interpret and analyze experimental data
4. Present research results

##### **B. University Learning Outcomes**

Foundations of Chemistry Research enhances student abilities in the following areas:

##### **Analytical Skills**

**Critical Thinking Skills:** Students will identify a problem or issue and will research, evaluate, and compare information from varying sources in order to evaluate authority, accuracy, recency, and bias relevant to the problems/issues. Students will generate solutions/analysis of problems/issues evaluated and will assess and justify the solutions and/or analysis.

**Communication Skills (written and oral)**

Students will communicate proficiently. Students will compose coherent documents appropriate to the intended audience and effectively communicate orally in a public setting.

**Ethical Decision Making**

Students will model ethical decision-making processes. Students will identify ethical dilemmas and affected parties and will apply ethical frameworks to resolve a variety of ethical dilemmas.

**Global & Cultural Perspectives**

Students will reflect upon cultural differences and their implications for interacting with people from cultures other than their own. Students will demonstrate understanding or application of their discipline in a global environment and will demonstrate how their discipline impacts or is impacted by different cultures.

**III. Major Course Topics**

- A. Conduct literature search as it pertains to chemistry research with Scifinder®
- B. Design experiments pertaining to chemistry research
- C. Interpret and analyze experimental data
- D. Present research results