



## SYLLABUS OF RECORD

### I. Catalog Description

CHEM 499 Problems in Chemistry Education .....Var. – 1sh

Prerequisite: Chemistry Education major; Permission of chairperson

A course of independent study on selected problems in chemistry education,

faculty member who is supervising the study.

### II. Course Objectives

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

1. Select a problem in chemistry education to investigate.
2. Conduct a literature search for articles, including Material Safety Data Sheets, that involve the selected problem in chemistry education.
3. Conduct laboratory work that is related to the selected problem in chemistry education.

### III. Course Outline

This course is an independent study so there is no detailed course outline. In

general, this course contains the following components:

- A. Initial meeting with the chemistry education faculty member who is supervising the independent study. (2 hours)

Topics may include:

- a. Expectations of the student.
- b. Literature search instructions.
- c. Laboratory safety rules.
- d. Laboratory notebook instructions.
- e. Conference meeting schedule.
- f. Formal report instructions.
- g. Lesson plan instructions.

- B. The independent study. (45 hours)

Study includes:

- a. Literature search and readings.

d. Writing the formal report.

e. Writing the lesson plan

## IV. Evaluation Methods

The final grade will be determined as follows:

| Percent of Grade | Evaluation Method | Description   |
|------------------|-------------------|---|
| 5%               | Literature Search | At least 5 articles from refereed journals such as the <i>Journal of Chemical Education</i> or <i>The Science Teacher</i> |

## VII. Required Textbook(s), Supplemental Books and Readings

There is no required textbook for this course.

Journals containing articles on chemistry education are:

- *American Heritage of Invention & Technology*
- *American Journal of Physics*
- *American Scientist*
- *Bulletin for the History of Chemistry*
- *Chem13 News*
- *Chemical Engineering Education*
- *Chemical Heritage*
- *Chemistry & Industry*
- *The Chemistry Place*
- *Chemunity News*
- *Computing in Science and Engineering*
- *Educacion Quimica*
- *Education in Chemistry*
- *Educause Review*
- *Foundations of Chemistry*

- *International Journal of Science Education*

## VIII. Special Resource Requirements

The students are required to purchase goggles and a laboratory notebook.

Depending on the study, the student may have to purchase household chemicals

Materials of the course are: hardware store and hardware store

## Course Analysis Questionnaire

### Section A: Details of the Course

A1. CHEM 499 Problems in Chemistry Education is the counterpart to CHEM 498 Problems in Chemistry.

CHEM 499 is designed specifically for the chemistry education majors.

Prior to our program revisions, all chemistry and chemistry education majors took CHEM 498 Problems in Chemistry. Now CHEM 498 has been revised so that it better meets the needs of the chemistry majors, but no longer meets the needs of the chemistry education majors. For example, the focus of CHEM 498 is to prepare the students to do scientific research, writing, and presentations in

chemistry. Thus, CHEM 498 is preparing students to be chemists. CHEM 499 is preparing chemistry education majors to be chemistry teachers.

A2. This course does not require changes in the content of existing courses or requirements for the program.

A3. This course was the former CHEM 498 which is now revised specifically for the

**Section B: Interdisciplinary Implications**

- B1. This course will not be taught by instructors from more than one department or team taught within the department.
- B2. There is no relationship between the content of this course and the content of courses offered by other departments.
- B3. This course will not be cross-listed with other departments.

- B4. Seats in this course will not be available to students in the School of Continuing Education.

**Section C: Implementation**

- C1. Faculty resources are adequate. Faculty workloads for the chemistry education faculty will be the same as before when the course was CHEM 498.
- C2. Other resources and their adequacy are described in the table below.

| <b>Resource</b> | <b>Adequacy</b>   |
|-----------------|---|
| Space           | Laboratory and desk space are available in the Chemistry Department. Computers are available in the Chemistry Department's computer lab |



- C6. We plan to accommodate one or two students in a section of this course. There are very few senior chemistry education majors.
- C7. No professional society recommends enrollment limits or parameters for a course of this nature.
- C8. This course is not a distance education course.