Course Syllabus

Chemistry 4175_700
Supervised Problems

Course Description: Individual study and/or laboratory research.

Number of Credit Hours: 1 – 4 semester hours

Course Prerequisites and Corequisites: Prerequisite: Permission of instructor. Pass-Fail grading.

Program Learning Outcomes:
3. The student will perform qualitative/quantitative chemical analyses/syntheses using modern instrumentation.
4. The student will articulate scientific information through oral communication. (depending on instructor or project)
5. The student will articulate scientific information through written communication.
6. The student will demonstrate ability to integrate knowledge content, laboratory skill, critical thinking and problem solving, and communication skills via participation in research projects.

General Education Core Curriculum Objectives: There are no specific general education core curriculum objectives in this course. This course is not a general education core curriculum course.

Course Objective: The student should demonstrate their ability to conduct independent research.

Student Learning Outcomes: Upon completion of this course, students will be able to:
- apply the chemistry knowledge obtained during the college career. (PLO 3, 6)
- analyze experimental results based upon trends in data. (PLO 5)
- practice the safe use/handling of chemicals and their proper storage. (PLO 3)

Outline of Topics (approximate course time):
Variable: dependent on instructor and selected course content.
Instructor: Dr. 'Tayo Odunuga

Department: Chemistry and Biochemistry

Email: odunugao@sfasu.edu (preferred)

Phone: (936) 468-6468

Office: 122 Math Building

Class time: To be discussed and agreed with the Instructor. 1 credit hour = 3 hours of lab time.

Place of Meeting: Virtual - Zoom

Office Hours: By appointment only

Text and Materials:
Lab notebook and literature pertaining to research topic.

COURSE CALENDAR:
Student will be involved in the conduct of faculty research under the guidance of the professor. The student will meet with the professor as arranged to discuss the research for the day/week.

This course is for 1 hr. credit and repeatable. The course involves a mentored research experience for the duration of a semester (8 weeks) designed to develop research skills through participating in research and to develop some of the skills needed for professional success after graduation. Students are expected to prepare prior to each lab (literature and concepts), attend research hours (minimum of 3 hours per week per credit hour to conduct the research), and report results (paper, presentation). Students have required academic components and deliverables: written work (daily notebook, research paper) and oral presentation. These activities average a minimum of 6 hours of work each week per credit hour.

GRADING POLICY:
Final Report: This report should cover the background material for the project, data, and interpretation of the results. This report should be written following the guidelines of the department (see below). Report is due during exam week.

Weekly Report: The student will develop and maintain a record of all research conducted during the week. The report should be in the following outline:
General laboratory notebook outline

1. Title
2. Dates
3. Name(s) of Partner(s) if applicable
4. Short but relevant introduction with references if necessary
5. Procedure: flowchart, bullets, diagrams
6. Results/Data presented in appropriate format
7. Discussion and Conclusion
8. Continuity – what to do next

Criteria for grading laboratory notebook

1. Organization – see above
2. Amount of content

Professionalism: This includes keeping deadlines, promptness to scheduled meetings, good behavior, following instructions etc.

Method of Evaluation: Grading scale will be pass/fail and will consist of the following:

- Attendance/professionalism - 30% (≥ 93% of points required to pass the course)
- Final Report - 30% (≥ 70% of points required to pass the course)
- Notebook - 40% (≥ 77% of points required to pass the course)

Overall Grading scale - Pass ≥ 80%; Fail < 80%

Attendance Policy:
The student will work at the student's own pace, but instructor must be informed of the student's hours that he/she will work. The student is expected to have thought through the research activities and to present an outline.

Academic Integrity (A-9.1):
Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism.

Definition of Academic Dishonesty
Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one's own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained
from an Internet source or another source; and (3) incorporating the words or ideas of an author into one's paper without giving the author due credit.

Please read the complete policy at http://www.sfasu.edu/policies/academic_integrity.asp

Any student found cheating will be subject to the penalties as stated in the Student Code of Conduct handbook; including but not limited to a score of zero on exam, expulsion from the class or expulsion from the University.

WITHHELD GRADES SEMESTER GRADES POLICY (A-54):
Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average.

The circumstances precipitating the request must have occurred after the last day in which a student could withdraw from a course. Students requesting a WH must be passing the course with a minimum projected grade of C.

STUDENTS WITH DISABILITIES:
To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices/.

CHEMISTRY – FINAL REPORT GUIDELINES

1.) Title Page

2.) Abstract
This is a short, quantitative discussion of the main purpose and findings of the experiment. It should be stated clearly and briefly. What was done and what results were obtained.

3.) Introduction
In general, the section will consist of a brief review of the major field, and a more intensive coverage of the specific topic at hand. You want to give the background of the project which will help define your purpose.
4.) **Materials and Methods**  
Should begin with a listing of where the chemicals used were obtained, what the purity was, and any prior purification of the starting material. The manufacturer and model number of all major equipment should be listed. The manner in which spectra were obtained should be included. The experimental equipment and glassware should be described, with a diagram if necessary. All diagrams should be labeled and numbered. All steps performed in the experimental procedure should be listed in the order that they were performed, in exactly the manner in which you performed them. Observations as to physical and chemical changes should be included.

5.) **Results**  
List all data obtained with information provided as to how the data was obtained, as well as the experimental accuracy of all measurements. The data should be compiled into tables or graphs if appropriate. All figures, spectra, and tables should be labeled, contain important parameters, and numbered. Only significant results should be presented.

6.) **Discussion**  
Data should be discussed and evaluated, both positively and negatively. Do not try to twist the data to fit the results you think should be obtained. Let the data "speak for itself", and evaluate the data fairly, even if the data seem to contradict theory you may have been expecting the data to follow. If theory predicted a straight line and your results confirmed the theory, then say so, remembering that the slope and the intercept may be of importance also. If the anticipated straight line was not obtained, say so, and give reasons why it was not obtained. Explain why or why the data does not agree with the theory. Bear in mind that the Discussion is the building block for the Conclusions. One should be able to read your discussion without making undue reference to your results section. Quite often the results of an experiment do not confirm theory. The reader will be interested in why the discrepancy exists, and it is the function of the writer to supply the information. Use the discussion section for comparison, generalizations, and other relations. Don’t describe your graphs verbally; discuss their significance. A discussion of possible sources of error should be included as well as any limitations which may have affected the validity, and/or application of the results.

7.) **Conclusion**  
The conclusions are deductions from the results, not statements of the results. The conclusions should be limited to the experimental work at hand, but if the work confirms or is contrary to accepted theory, a conclusion may be written based on that fact. Purely personal opinions or general statements should not be written. In a well-written report, the reader will have been led to the point where the writer’s conclusions seem obvious and inevitable.

8.) **Recommendations**  
This section should include recommendations for changes in equipment or procedure to improve accuracy or usefulness of the results for future work. The basis for these
recommendations should have been developed in the discussion section. You should state the problem; describe the effect it has on the results, and how to fix the problem.

9.) **Reference**
A minimum of 6 peer-reviewed articles is required in the report. The referencing format should follow the Journal of Chemical Education guidelines found at: [file:///Z:/my%20documents/SFA%20files/Teaching/Spring%20semester%20files/Spring%20202019/CHE%20470/JCE%20Referencing%20Guidelines.pdf](file:///Z:/my%20documents/SFA%20files/Teaching/Spring%20semester%20files/Spring%20202019/CHE%20470/JCE%20Referencing%20Guidelines.pdf)

10.) **Appendices**

Note: **Report must be typed in 12 pt font, 1 in. margins**

Note: This syllabus is subject to change at the discretion of the Instructor. The instructor will duly notify students of any changes to the syllabus.

Dr. ‘Tayo Odunuga
August 20, 2020