

Course Syllabus  
Chemistry 426.01  
Advanced Integrated Laboratory  
2 Credit Hours  
Spring 2007

(The Student Acknowledgement Form at the end of the syllabus must be completed, signed, and turned in to the Instructor by Jan 22, 2007)

|                  |   |               |                    |
|------------------|---|---------------|--------------------|
| Instructor:      | Dr. Benny E. Arney                      | Semester:     | Spring 2006        |
| Classroom        | CFS 313                                 | Class Time    | MW 1:00-4:50 PM    |
| Office<br>Phone: | 294-1531 off-camp ext.<br>41531 on-camp | Email:        | CHM_BEA@SHSU.EDU   |
| Office:          | CFS-326, CFS 305                        | Office Hours: | TTh: 8:30-10:50 AM |

**Course Description:**

This course will involve in-depth experiments that require the use of sophisticated synthetic and analytical procedures in areas of organic, inorganic, and analytical chemistry. The first hour of the Monday Lab-day will be devoted to lecture over topics relevant to the lab and/or problem sets.

Prerequisites: CHM 239 with C or higher, Concurrent enrollment or completion with a C or higher in CHM 467 & MTH 142. Competence in the use of MS-Word, MS-Excel, and chemical structure software (ChemWindows).

This is a senior capstone laboratory course based on the students' need to integrate prior laboratory and lecture experience in order to successfully complete and report on a set number of laboratory experiments. Generally 4-8 hr of work and study outside of lab are required for each afternoon of laboratory.

**Course Objectives:** To provide the students with a hands-on experience with a more advanced level of experiments. This is considered an opportunity for the students to utilize and apply the theoretical models and concepts of their didactic education in reports and discussions of the significance of their laboratory. Pursuing experiments and interpretations beyond the obvious are, with supervision, encouraged and expected.

**Required Textbooks:**

Your textbooks from your Freshman Chemistry, Organic, Analytical, and Inorganic Lecture and Laboratory Courses.

**Required Supplies:**

Department approved Lab Goggles, Lab Notebook that produces copies, Dish-detergent, non-erasable ink pens, a Sharpie marker.

### **Attendance Policy:**

As this course is a performance-based course, the student must attend sufficient meeting of laboratory to conduct the experiments and collect the data and thus at least once a week is required. Students must work individually, with the single exception of the nickel glycinate experiment where they may work in pairs. Each time you attend lab you are required to sign-in.

### **Assignments:**

There are two grade generating components for this course.

1. Professionalism and Attitude: The student's total grade points from the reports may be reduced by increments determined by their preparation and ability to work undirected in the laboratory. (See discussion below: Professionalism and Attitude)
2. Laboratory Reports: Each (8) report is worth 13 points each for a total of 104 points. (See discussion below: Lab Reports)

### **Grading Plan:**

The final grade will be determined by the sum of the three (3) components.

Total Points = Prof&Att + Reports + Prob.Sets

A  $\geq$  90

B  $\geq$  80

C  $\geq$  70

D  $\geq$  60

Grades will be given back to each student (during class time only) for turned in assignments. Reports and Problem Sets will not be returned but may be viewed after grading during office hours or by appointment.

A request for a regrade of an assignment must be submitted in writing within one week of receiving the returned grade. The request must state specific reasons for the regrade.

Sample Acceptable Reasons for Regrade requests:

- a. Arithmetic Error: Miscalculation of grade.
- b. Grader Overlooked material: loss of points for missing something that was present.

Sample Unacceptable Reasons for Regrade requests:

- a. Someone else got a higher grade.
- b. Got the "right" answer, but did not show work.
- c. Forgot to include .....

**NOTE:** If you disagree with the grading of a question, etc. because of conflicting textual information bring it to Dr. Arney's attention. Do not use the internet as a resource.

### **Academic Dishonesty:**

All students are expected to engage in all academic pursuits in a manner that is above reproach. Students are expected to maintain complete honesty and integrity in academic experiences both in and out of the classroom. Any student found guilty of dishonesty (by the professor) in any phase of academic work will be subject to disciplinary action. The University and its official representatives may initiate disciplinary proceedings against a student accused of any form of academic dishonesty including, but not limited to, cheating on an examination or other academic work which is to be submitted, plagiarism, collusion and abuse of resource material.

### **Laboratory Rules of Conduct:**

Students will refrain from behavior in the laboratory that intentionally or unintentionally disrupts the learning process and the mission of the university.

1. Approved laboratory goggles must be worn by the student at **ALL** times in the laboratory.
2. No shorts, open shoes, loose-long hair, dangerously loose clothing will be allowed in the laboratory.
3. All containers used must be reclosed immediately.
4. No unauthorized or unapproved work may be performed in the laboratory.
5. Cell phones and pagers must be turned off or set to silent before class begins.
6. The laboratory is not for individual instruction, tutoring, or addressing questions about a particular grade. These types of interactions should be addressed during office hours or by appointment. It is disruptive and a waste of the other students' time and efforts to do this in lab. The use of new apparatuses will be demonstrated as deemed necessary by the instructor.
7. Student may not do the following in Lab.
  - a. Eat.
  - b. Use tobacco products.
  - c. Use offensive, disruptive or obscene language or remarks.
  - d. Read newspapers or non-class related materials.
  - e. Socialize about unrelated matters.
  - f. Engage in distractive behavior.
  - g. Wear distractive clothing.
8. Each student is expected to be prepared to start working when they arrive in lab.
9. Horseplay will not be tolerated (See Professionalism and Attitude).
10. The work area, balances, and equipment must be kept clean and functional.
11. Carelessness and/or abuse of equipment and material will not be tolerated (See Professionalism and Attitude).

Students engaging in inappropriate behavior or being especially disruptive shall be directed to leave the classroom. Students who are excessively or especially disruptive also may be reported to the Dean of Students for disciplinary action in accordance with university policy.

### **Visitors to the Classroom:**

Unannounced visitors may not enter the laboratory and must present a current, official SHSU identification card to be permitted to remain just out of the laboratory. They must not present a disruption to the class by their attendance. If the visitor is not a registered student, it is the instructor's discretion whether or not the visitor will be allowed to remain.

### **Professionalism and Attitude:**

As this is a senior level laboratory, seriousness, maturity, preparation, and self-initiative are not only hoped for, but is also expected in each student. Each student is expected to be prepared to perform their chosen experiment whenever they show up for lab. In order to provide an incentive for the students to achieve these elements of behavior, adjustments for unacceptable behaviors will be made to the final point total for the semester. An exhaustive list is impractical but a few examples may help. Any such adjustment will be discussed with the student, but clearly dangerous activities will be acted upon. **Remember these points are deducted from the final total points.**

Examples:

- 1 pt – leaving work area messy or littered.
- 1 pt – leaving balance dirty.
- 1 pt – leaving reagent bottles open.
- 1 pt – not labeling every flask, beaker, etc. in use.
- 5 pt – not coming prepared for the work.
- 5 pt – not notifying the TA or Instructor of a spill.
- 5 pt – leaving a reaction unattended.
- 5 pt – leaving glassware dirty.

Dangerous activities, unauthorized experiments, stealing materials or equipment from the lab or performing experiments in a manner that endangers others can, at the discretion of the instructor, lead to automatic failure of the course without regard to points already earned.

### **Experimental Reports:**

Each experiment requires a report. Each report must be printed using a word processor, graphs, charts, structures, etc. must be produced using the appropriate software available on the university system. The format for each report will be given in a separate handout which lists the experiments and their sources.

## Student Acknowledgement of Syllabus:

I, \_\_\_\_\_ (*your name*) having SHSU ID# \_\_\_\_\_, have printed the syllabus for CHM 426.01 (Spring 2007). I further acknowledge that I have read said syllabus and that I am familiar with its contents. I also recognize that my continuance in this course requires that I agree to its content and requirements and that changes to this syllabus are only possible if they further the aims of the course.

I am also aware that questions and/or problems with the course must be addressed to the instructor. If these problems are not part of the day's scheduled material, it should be addressed after class, during office hours, or by appointment.

Signed : \_\_\_\_\_

Date: \_\_\_\_\_

**Course Format** : Each student is expected to complete 8 (eight) experiments and turn-in a report for each. The report for each experiment is to be in the format of the indicated Journal. These reports are to be written in journal article format to facilitate the communication skills of the reporters. Attached to report will be the raw collected data in a format to be determined by the instructor.

- ADVISE:**
- (1). It is to your advantage to attempt perform two or more experiments concurrently as most will have significant waiting periods which could be utilized for other experiments and work-ups.
  - (2). Prior to lab you must obtain an acceptable procedure for the experiment, from the indicated sources, and prepare to perform the experiment by studying and understanding the operations involved and the nature and handling of the materials to be used.
  - (3). The multi-step synthesis is best started as early as possible and run concurrently with other experiments.
  - (4). You will not be “*prepped*” for each lab and are responsible for procuring the appropriate procedures and knowing the proper use of equipment. However, potentially hazardous operations will be monitored and NEW procedures, such as vacuum distillations will be discussed and demonstrated.
  - (5). The T.A.’s primary function in the laboratory is for safety and to provide the necessary material and equipment. The T.A. is not a source of information on the performance of the experiment.

**LAB SAFETY:** You are required to provide and wear at ALL TIMES in the laboratory, a pair of safety goggles and we strongly recommend a lab coat or apron. You should wear full-length pants or floor-length skirts (dresses) with closed shoes.

NO SHORTS,  
NO TIES,  
NO SUNGLASSES,  
NO CELL-PHONES,  
NO OPEN-TOED SHOES,  
NO UNAUTHORIZED EXPERIMENTING, AND  
NO EATING OR DRINKING OR USE OF TABACCO IN THE  
LABORATORY.