



## **Purpose of course**

1. understand why compounds behave in response to experimental conditions (theory)
  - a. temperature
  - b. solvents
  - c. acids or bases
  - d. adsorbents and dessicants
  - e. catalysts and other reagent
2. use (theory) to successfully manipulate nature (compounds)
  - a. not simply finish an experiment, or following directions
  - b. understand the purpose (design) of the directions
3. opportunity to compare nature (experiment) versus theory (science)
4. think and solve problems for yourself – maybe no manual in real job?
5. learn good lab practices and techniques

## Today's Schedule

1. review course policies and safety procedures
2. check-in: lab equipment and forms

## **This course focuses mostly on preparation, extraction an purification of bioactive molecules**

1. Preparation of a compound has two parts: Reaction/Extraction and Purification
2. is no good if product is impure



## Review schedule

### Review Lab Policies and information

**First two weeks are hard**

### Getting yourself prepared

1. check syllabus for where to get information
2. review text and website materials
  - a. internet videos
  - b. experiments in text – overall process – not step by step instruction
  - c. operations collected and explained end of text
  - d. experiment notes on website for additional information
  - e. demonstration of operations video (examples)
3. 15 minute question and answer period for most questions, remaining questions left for the lab
4. **Multitask:** prep the next step of the experiment while waiting for a sample to heat, cool, distill, develop, etc.

### **No Cookbook: There are no step by step directions**

1. the exact procedure you use is your decision
2. prepare and understand plan (Prelab write up)
3. examples of procedures are in each Operation at the back of the text and in the internet videos
4. theory and principles are described for each experiment and operation.
5. check each piece of glassware, apparatus, to see if it functions

### **Typical Day**

1. Turn in Post lab, Turn in Prelab
2. write questions on board –initial questions important to you



3. go to lab, follow plan and use Prelab information to carry out experiment
4. record observations, activities, etc as they occur in notebook.
5. turn in procedure at end of day
6. some samples must be dried overnight so mp and weights should be done before next lab
7. if you attend whole period and do not finish, you may make arrangements at end of lab for completion at another time

**Final** - comprehensive. Questions will ask about theory and execution of experiments similar to ones done in the lab, identify and explain use of equipment, safety and first aid information

### **Safety Seminar**

Students will not be allowed to continue the course until they get a satisfactory grade on a safety and first aid test. Must read the introduction to laboratory text, which includes information on safety procedures and MSDS.

Undergraduate Catalog: “In addition, to ensure that students enrolled in laboratory courses learn the necessary safety information to safely participate in the laboratory course, all prerequisites and/or corequisites for all laboratory courses are strictly enforced. As a result, when a student enrolls in a laboratory course without prior completion of the necessary prerequisite or corequisite, the student will be dropped from the laboratory course. In addition, when a student simultaneously enrolls in a laboratory course and corequisite course, but subsequently drops or discontinues the corequisite course, the student will be dropped from the laboratory course.”

1. preparation - understanding experimental operations
2. safety goggles - must be worn whenever you are in the lab
3. do not leave goggles in your drawer
4. put them on before you enter the lab

### **Why?**

Someone could splash you as they go by or an abandoned flask could under pressure.



5. Check-in day is the only day you may go in the lab **without** eye protection
6. do not wear goggles on forehead
7. check for moisture build up before coming to lab
9. Do hold flask with one hand while transferring hazardous liquid into it.
3. **skin exposure:** Lab chemicals should be wiped off with a towel and then washed immediately. Remove exposed clothing. If discomfort is experienced after 5 min of washing with water, ask your instructor (or another student) to come to you while you continue washing (yell if necessary). Describe the accident to the instructor (or student) as you continue to wash the exposed area. Your instructor (or student) will call the Health Center for recommendations and tell them you will be coming and return. After you have administered or received adequate first aid (based on MSDS) you will be escorted by another student or staff to the Health Center. The instructor will call the Health Center when you leave. The escort will notify the instructor when they arrive and the instructor will stay in the lab in case the Health Center needs further information.
4. use gloves whenever you feel it is necessary, (strong acids and bases, reactive organics and inorganics). **Gloves are available in the lab pack at the bookstore. Gloves are not supplied by course.**
5. **Eye exposure:** if you can't see ask nearest person to escort you to eye wash. Rinse with eye wide open. Continue as in skin exposure
6. **Inhalation:** call Health Center and check MSDS.
7. **Fire:** yell fire, put out fire if manageable (need only one extinguisher). If Technical Assistant (TA) is not already using extinguisher use it immediately. Do not let fire get between you and the exit. If not controlled in less than 60 sec, evacuate the lab and pull nearest alarm switch. Stay close to building to provide information to the fire department.
8. **Cuts:** If a cut does not stop bleeding, apply pressure, ask someone to tell the Health Center you are on the way and ask someone to escort you.

## Expectations of TA

1. Grade labs - returned the week following it was due
2. help you understand concepts not recite facts
3. **should not leave the lab during the lab period**



4. TA's may give advice not directions. If you follow TA's advice, it will be assumed you understand the advice and you are responsible for the consequences