

SYLLABUS  
**CHE 319**  
**Basic Chemical Engineering Lab**  
FALL 2004  
Bevill 162  
TR 2:00 - 4:50 pm

---

Instructor: Prof. Chris Brazel  
A133 Bevill Building, 348-9738  
CBrazel@coe.eng.ua.edu  
Department of Chemical Engineering

Laboratory Manager: Mr. James Hill  
A035 Bevill Building 348-1738  
JHill1@coe.eng.ua.edu

Laboratory Assistant: Mr. Mustafizur Rahman  
A104 Bevill Building

Course Web Page: <http://bama.ua.edu/~cbrazel/che319.htm>

Course Text: none required (though ChE course textbooks from 254, 255, 304, 305 and 306 will be needed)  
Recommended: ***Pocket Book of Technical Writing for Engineers and Scientists***, L. Finkelstein, Jr.,  
1st. ed. St. Louis: McGraw-Hill, 2000.

Reference/Reserve Texts:

***Unit Operations of Chemical Engineering***. McCabe, W.L., J.C. Smith, and P. Harriott  
New York: McGraw-Hill, 1993 TP155.7.M393

#### COURSE OBJECTIVES

This course is designed to introduce junior-level chemical engineering students to experiments that demonstrate principles learned in ChE courses (ChE 254, 255, 304, 305 and 306). Students will learn technical writing and speaking skills, data collection and analysis, teamwork skills, organizational and communication skills, how to use and calibrate measurement devices, process operations and hardware, and critical thinking skills to analyze the applicability of engineering correlations to real data.

#### GRADING

In-Class/Take-Home Assignments	15 points
Written Laboratory Reports	55 points (grading rubric to be discussed in class)
Oral Presentations	15 points
Lab Quizzes	10 points
*Attendance/Participation	5 points

*\*Unexcused absences count as -5 points each from the final course grade.* An absence excuse form is available on-line, and requires signatures of team members on the day missed, as well as the instructor.

The University of Alabama grading system applies to this course.

#### FINAL EXAM

There will be no final exam for this lab course.

#### DUE DATES

Assignments and Lab reports will be assigned throughout the semester, with due dates being generally one week after the scheduled laboratory. Reports and assignments will be graded promptly.

## GROUPS/TEAMS

In-class assignments and homework should be done individually. For lab work, groups of three will be assigned randomly during the semester for each project. Each lab group will have a Team Leader, a Theorist, and an Experimentalist. Typical roles are as follows:

**Team Leader:** responsible for organizing group, conducting a safety analysis; outlining project and report; writes introduction, objectives & executive summary, answers questions assigned with each lab, and prepares recommendations with the experimentalist.

**Theorist:** responsible for relating experiment to engineering theory, including equations; writes background and reference sections. Assists in preparing analysis spreadsheets.

**Experimentalist:** determines data to collect (with theorist), prepares procedures and experimental parameters; sets-up experiment; writes materials and procedures sections of report, including diagrams/sketches of experimental set-up, where appropriate, and contributes to recommendations section of report. Assists in data analysis.

**Analysis:** (all members) prepares analysis spreadsheet; prepares & analyzes results; writes results and discussion section of report.

## LAB TOPICS

Topics include chemical engineering subjects taught in the pre-requisites and co-requisites:

ChE 254: Material and Energy Balances

ChE 255: Thermodynamics

ChE 304: Fluid Dynamics

ChE 305: Separations

ChE 306: Heat Transfer Operations

as well as freshman/sophomore-level chemistry, math and physics. Topics of individual labs are listed in the course calendar.

## SAFETY

Students must affirm that they have read and understood the Chemistry Laboratory Safety Manual, attend a tour of the laboratories given by Mr. James Hill and attend a Chemical Hygiene Plan Training Session, as scheduled by the University Environmental and Health Services Department.

On laboratory days, **long pants must be worn, and shoes must be closed-toe (no sandals)**. If students arrive dressed inappropriately, they will be asked to change before beginning the experiment.

In the laboratory, **safety glasses are REQUIRED**. Other personal safety equipment is available, including gloves, aprons and hard hats, as needed.

**Food and drink are NOT allowed** in the laboratory or the computer lab.

## ACADEMIC HONOR CODE

All students in attendance at The University of Alabama are expected to be honorable and observe standards of conduct appropriate to a community of scholars. The University of Alabama expects from its students a higher standard of conduct than the minimum required to avoid discipline. At the beginning of each semester and on tests and projects at the discretion of the professor, each student will be expected to sign an Honor Pledge.

## HONOR PLEDGE

I promise or affirm that I will not at any time be involved with cheating, plagiarism, fabrication, or misrepresentation while enrolled as a student at The University of Alabama. I have read the Academic Honor Code, which explains disciplinary procedures that will result from the aforementioned. I understand that violation of this code will result in penalties as severe as indefinite suspension from the University.

---

\* The syllabus is accurate as of 08/31/04, but the instructor reserves the right to alter the schedule for sound pedagogical reasons if necessary. Due notice will be given for changes in the syllabus.