

# ORIENTATION AND COMPUTING FOR CHEMICAL ENGINEERS

ChEE 1000, Fall 2015

MW 11-12:15, PL 3020

Section 002 – F 11-12:45, NE 1039; Section 003 – T 3-4:45, PL 2010

Section 091 – T 11-12:45, NE 1039; Section 092 – R 3-4:45, PL 2010

## **Aim**

The objectives of the chemical engineering program are to graduate students that will: (1) be employed as a chemical engineer or in another related technical field or successfully complete graduate or professional studies, 2) demonstrate effective problem solving skills that will enable them to be successful professionals, and 3) be able to function effectively in a professional environment.

The goals of this class are to facilitate the transition to university life, introduce the various engineering disciplines, and prepare the student for the chemical engineering program in particular. Specifically, students should be able to: (1) communicate via email and electronic messaging, (2) prepare technical reports, (3) perform computations using a spreadsheet, (4) perform unit conversions, (5) identify process variables, (6) convert between concentration units, (7) convert between mass and volume, (8) calculate pressures, (9) convert between temperature scales, (10) perform material balances, (11) identify graduation requirements, (12) identify campus resources, and (13) work efficiently.

Upon completion of this class, the student will be able to: 1) apply knowledge of mathematics, science, and engineering in problem solving, 2) identify, formulate, and solve engineering problems, 3) understand the impact of engineering solutions in a global, economic, environmental, and societal context, 4) recognize the need for, and possess the ability to engage in life-long learning, 5) use the techniques, skills, and modern engineering tools necessary for engineering practice, and 6) understand the distinctions between chemical engineering and other disciplines and career areas in engineering.

## **Textbook**

R.M. Felder and R.W. Rousseau, Elementary Principles of Chemical Processes, 3<sup>rd</sup> Edition, John Wiley & Sons Inc., New York, 2005.

## **Instructor**

G. Glenn Lipscomb, Professor of Chemical & Environmental Engineering, 3048 Nitschke, (419) 530-8088, Email: [glenn.lipscomb@utoledo.edu](mailto:glenn.lipscomb@utoledo.edu)

## **TAs**

Office Hours: TBA

## **Office Hours**

I have an open door policy and will try to accommodate you at all times. I often will be available on-line.

## **Grading**

Letter grades will be assigned based on the percentage of points accumulated using the scale: A, 100-90; B, 89-80; C, 79-70; D, 69-60; F, 59-. The point total will consist of a sum of the following items:

Homework	30%
Quizzes	30%
Group Project	10%
First Exam	10%
Second Exam	10%
Third Exam	10%

## **Quizzes**

Quizzes will be given through the class web site.

## Class Plan Overview

Week	Topics	Reading
8-24	Chapter 2	2.0-2.4 (FR)
8-31	Chapter 2/3	2.5-2.8/3.0-3.3 (FR)
9-7	Chapter 3	3.3-3.6 (FR)
9-14	Chapter 3/Process Classification	4.0-4.1 (FR)
9-21	Balances & Calculations/ <b>FIRST TEST</b>	4.2-4.3 (FR)
9-28	Balances & Calculations	
10-5	Life During College	Univ. Resources/Policies (UGH)
10-12	Life During College	Steps to Academic Success (UGH)
10-19	Balances on Multiple Processes	4.4 (FR)
10-26	Recycle and Bypass	4.5 (FR)
11-2	Chemical Reaction Stoichiometry	4.6 (FR)
11-9	<b>SECOND TEST</b>	
11-16	Balances on Reactive Processes	4.7 (FR)
11-23		
11-30	Combustion Reactions	4.8 (FR)
12-7	<b>THIRD TEST</b>	
12-14	<b>FINAL EXAM WEEK</b>	

UGH = Undergraduate Handbook; FR = Felder and Rousseau, Elementary Principles of Chemical Processes.

## Detailed Class Plan

Monday	Wednesday	Recitation
8-24 <i>Class overview</i>	8-26 2.0-2.4 (FR)	Login
8-31 2.4-2.8 (FR)	9-2 3.0-3.3 (FR)	Email, Word
9-7 <b>No Class, Labor Day</b>	9-9 3.3-3.6 (FR)	Excel – calculations
9-14	9-16 4.0-4.1 (FR)	Excel – relative vs. absolute cells
9-21 4.2-4.3 (FR)	9-23 <b>FIRST TEST</b>	Excel – graphing/curve fitting
9-28	9-30	Excel – solving equations
10-5 <b>No Class, Fall Break</b>	10-7 <i>Green Section (UGH)</i>	<b>No Class, Fall Break</b>
10-12 <i>Yellow Section (UGH)</i>	10-14	Spring 15 registration
10-19 4.4 (FR)	10-21	Excel – database
10-26 4.5 (FR)	10-28	Excel – programming
11-2 4.6 (FR)	11-4	
11-9 <b>SECOND TEST</b>	11-11 <b>No Class, AIChE Meeting</b>	<b>No Class, AIChE Meeting</b>
11-16 4.7 (FR)	11-18	PowerPoint
11-23	11-25 <b>No Class, Thanksgiving</b>	<b>No Class, Thanksgiving</b>
11-30 4.8 (FR)	12-2	Presentations
12-7	12-9 <b>THIRD TEST</b>	

## Academic Policies

Students are responsible for following all academic policies of the University. The student handbook is available at: <http://www.utoledo.edu/studentaffairs/index.html>. Academic Policies can be read in their entirety on the Academic Policy Webpage at: <http://www.utoledo.edu/policies/academic/undergraduate/index.html>.

**Academic Dishonesty:** Academic dishonesty will not be tolerated. Among the aims of education are the acquisition of knowledge and development of the skills necessary for success in any profession. Activities inconsistent with these aims will not be permitted. Students are responsible for knowing what constitutes academic dishonesty. If students are uncertain about what constitutes plagiarism or cheating they should seek the instructor's advice. For examples of Academic dishonesty please visit the policy webpage.

**Missed Class Policy:** Students are expected to attend every class meeting of courses in which they are registered. Only in specific, unavoidable situations does the university excuse absences from class (see policy for specific on excused absences).

**Academic Accommodations:** Any student who feels s/he may need an accommodation based on the impact of a disability should contact me privately to discuss. Students with documented disabilities need to contact the Office of Accessibility at 419.530.4981 in RH 1820 to coordinate reasonable academic accommodations in accordance with ADA and Section 504 of the Rehabilitation Act of 1973.