CHM 470 COURSE SYLLABUS

Oakland University
Winter 2006

I. Course Overview

A. Basic Information

Department: Chemistry
Course Prefixes: CHM 470
Course Title: Industrial Chemistry
Credit Hours: 3

Class meets Thursdays, 6:00 PM – 9:00 PM in Room 185 SEB

B. Instructors’ Information

Name: Klaus Friedrich, Ph.D.
Office: Science and Engineering Building (SEB)
Mailbox: 264 SEB under name of Friedrich.
Office Phone: 
E-mail Address: friedri2@oakland.edu
Mailing Address: Chemistry Department, 285 SEB, Oakland University, Rochester, MI 48309-4477
Office Hours: By appointment

C. Catalog Course Description

Survey of the major sources and uses of chemicals, industrial chemical processes, fundamental raw materials, and career paths available in the chemical industry. More intensive treatment of selected industrial processes.

Prerequisite/Comment: CHEM 235

D. Required Text

Industrial Organic Chemicals, Second Edition
by H. A. Wittcoff, B. G. Reuben, J. S. Plotkin
Wiley - Interscience
E. Course Goals and Objectives

Basic chemical, technological, regulatory and operational principles pertinent to work in chemical industry, especially in a production environment, will be covered. Topics related to polymers and most petrochemical processes will not be included. CHM 470 is designed to help prepare the student for work in an industrial environment including process design, control and optimization, plant operation, quality control and related fields.

Upon completion of this course, you should be familiar with the following topics:

1. Describe how chemicals are developed in industry starting from inception of a marketing idea to delivery of the commercial product.
2. Understand the interdependence of Research & Development, Product Management, Regulatory, Legal, Engineering, Production, Marketing and Sales functions in a chemical company.

II. Course Policies and Procedure

A. Grading

There will be four problem sets, a mid-term and a comprehensive final exam as well as a group presentation. The due dates for these activities are shown in the Timetable. You may not leave the room and return during the exam. If you have a medical reason, that makes this prohibitive, please let the instructor know as soon as possible.

The graded work will be:

- Four problem sets 20 % of final grade
- Mid-term exam 20 % of final grade
- Final exam 30 % of final grade
- Group presentation 30 % of final grade

B. Examinations

Examinations are based on material covered in class and in the textbook. Both, the mid-term and final exams will last 120 minutes. A full understanding of the assigned problem sets is mandatory for adequate performance on the exams. No make-up exams are given. Should you miss an exam for non-legitimate reasons, you will receive a grade of zero on the missed examination. If you need to miss a scheduled exam date, please let the instructor know in advance. If you turn in written assignments late, there will be a grade penalty of 20% each day the assignment is late.
C. Academic Conduct

The University’s regulations that relate to academic misconduct will be fully enforced. You are to present your own work. Any student suspected of cheating by copying on exams, changing answers on exams after they are scored, having another person take an exam, obtaining exam questions prior to the exam time, use of any previous student’s course work, plagiarism or by other means will be referred to the Academic Conduct Committee. Students found guilty of academic misconduct face suspension or permanent dismissal. Anyone found by the Academic Conduct Committee to be guilty of misconduct will also receive a 0.0 grade for the course from the instructor in addition to whatever sanction(s) the Committee decides.

III. Timetable

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<tr>
<th>Lecture Date</th>
<th>Topics</th>
<th>Exam/Assignments</th>
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<tr>
<td>01 / 05 / 06</td>
<td>Chemical Plants, Chemical Reactors</td>
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<tr>
<td>01 / 12 / 06</td>
<td>Chemicals from Methane</td>
<td>1. ProblemSet</td>
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<tr>
<td>01 / 19 / 06</td>
<td>C₂-Stream, C₂-Building Blocks</td>
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<td>01 / 26 / 06</td>
<td>Aluminum and other Metals</td>
<td>2. Problem Set</td>
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<tr>
<td>02 / 02 / 06</td>
<td>R &amp; D, Regulatory, Development, Marketing,</td>
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<td></td>
<td>Production, Logistics</td>
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<tr>
<td>02 / 09 / 06</td>
<td>C₃-Stream, C₃-Building Blocks</td>
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<tr>
<td>02 / 16 / 06</td>
<td>C₄-Stream, C₄-Building Blocks</td>
<td>Mid-term Exam</td>
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<tr>
<td>02 / 23 / 06</td>
<td>Inorganic Nitrogen and Sulfur Compounds</td>
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<td>03 / 09 / 06</td>
<td>Basic Aromatics (1)</td>
<td>3. Problem Set</td>
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<td>03 / 16 / 06</td>
<td>Basic Aromatics (2)</td>
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<td>03 / 23 / 06</td>
<td>GMP / Pharmaceuticals</td>
<td>4. Problem Set</td>
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<td>Dyes and Pigments</td>
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<td>04 / 06 / 06</td>
<td>Laboratory Automation, Micro Reactors</td>
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<td>Presentations</td>
<td>Review Session</td>
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<td>Final Exam</td>
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