

Chemistry 274 Spring, 2009

Date	Company/Topic	Speaker
Jan 30	Course Outline and Overview of the Chemical Industry	Dr. David Lewis
Feb 6	"Basics of Resume Preparation" and "Basics of Cover Letter Preparation"	Ms. Staci Heidtke
Feb 11	Internship Mania	10 am – 3 pm in Council Fire Room No class meeting this Friday (Feb 13)
Feb 20	EverCat Fuels (biodiesel)	Dr. Ron Fedie, Mr. Brian Krohn
Feb 27	Stepan Company	Mr. Colin Crimmins (UWEC alum)
Mar 6	*Tour of Career Services	Ms. Staci Heidtke
Mar 13	*	
Mar 16-20	SPRING BREAK!	No class meeting
Mar 27	Covance	Mr. Josh Stangl, Mr Kenny Dungar, Ms. Amy Luoma (all UWEC alums)
Apr 3	*	
Apr 10	April Break	No class meeting
Apr 17	New Glarus Brewing Company	Mr. Jared Jankowski (UWEC alum)
Apr 24	Ace Ethanol, LLC	Mr. Bob Sather, Board Chair (UWEC emeritus)
May 1	Student Posters (10)	Poster Presentation
May 8	Student Posters (10)	Poster Presentation and Evaluation

*Speakers and dates not fixed yet

- I. **INSTRUCTOR:** David E. Lewis
Lecture: 12:00-1:00 pm F
Office and office hours: by appointment in 458 Phillips; we will arrange for regular times later.
My Schedule:

	Monday	Tuesday	Wednesday	Thursday	Friday
8-9	Chem 326	326 lab A02	Chem 326	Research	Chem 326
9-10	Research	326 lab A02	Research	Research	Research
10-11	Research	326 lab A02	Research	Research	Research
11-12	Research	Research	Research	Research	Research
12-1	DPC Mtg	Research	Faculty Mtg	Lunch	Chem 274
1-2	326 lab A01	326 lab A03	Research	Research	Research
2-3	326 lab A01	326 lab A03	Research	Research	Research
3-4	326 lab A01	326 lab A03	Research	Research	Research
4-5	Review session	Review session	Research	Research	Out of Office
5-6	Review session	Review session			

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II. **CLASS ATTENDANCE**

Attendance will be taken. **Students are required to attend all outside speaker seminars to pass the course.** Only in emergencies can you miss these, and the absence must be explained to the satisfaction of the instructor. Only then will a makeup be considered, and the makeup assignment will be lengthy. **Missing days when other students present their posters will lower the score on your poster by 10 points.**

III. **GRADING**

Attendance at Outside Speaker Presentations (8 x 10)	80 points
Reports on Speaker Interviews (2 x 20)	40
Resume and Cover Letter	50
Chemical and Company Reports	50
Poster	<u>50</u>
	Total = 270 points

Points will be subtracted for late assignments at a rate of 10% of the assignment's value per day that it is late.

IV. **TEXT**

Chenier, P.J. *Survey of Industrial Chemistry*, 3rd edition, Kluwer Academic/Plenum Publishers: New York, NY, 2002; available in the rental textbook library.

V. **GOALS OF THE BACCALAUREATE**

This course is intended to help students develop the following:

- Ability to inquire, think, analyze
- Ability to write, read, speak, listen
- An understanding of numerical data
- An understanding of science and the scientific method

VI. **DETAILS OF ASSIGNMENTS**

Students will attend seminar presentations, prepare a resume, write several short reports and give an oral presentation. Details are given below.

A. Attendance at Outside Speaker Presentations

All students are required to attend each seminar by an outside speaker. Attendance will be taken. See the notes under Class Attendance if a presentation is missed.

B. Speaker Interview Reports

Each student is required to interview two of the visiting speakers. **A 2-3 page interview summary must be submitted no later than the Friday following the talk. Reports should be submitted to me electronically in the form of .doc (not .docx) files using Times New Roman 12 pt font, 1 in margins all round, and double spaced.** Both grammar and content will be evaluated. Be sure to put your name and the speaker's name at the top of the report and label it as an **Interview Report**. Prior to the interview, each student should prepare a brief list of questions to ask. Interview topics might include the following:

1. What are the career opportunities in the speaker's field?
2. How did the speaker come to his/her current position?
3. What advice would the speaker give on seeking that first job?
4. What might be a reasonable starting level of compensation in today's job market?
5. What level of compensation might one expect in three to five years into the future?
6. What are the main attributes that employers seek in a new employee?
7. What is the greatest difficulty the speaker encountered in his/her early career?

Obviously there is no limit to the questions one could ask. Be creative! In order to expedite efficient student-speaker interactions, each student will sign up for a preferred interview.

Interview times are 1:15-2:00 or 2:00-2:45 pm. In addition, all students are invited to meet with the speaker during a free pizza lunch from 11:30-12:00 in room P-401.

C. Resume and Cover Letter

Students will prepare their own 1-2 page resume and a one page cover letter. Ms. Staci Heidtke of Career Services will cover the essentials of resume and cover letter preparation on Feb. 2 and Feb. 16. The cover letter must be written in response to a particular job posting that you find interesting (search the web, consult Career Services, etc.) The resume and cover letter will be due on **Fri., March 7** and will be reviewed and critiqued by the instructor and by Ms. Heidtke. Students are encouraged to have their resumes reviewed by student assistants in Career Services (Schofield 226) before turning in the final product.

During the week of March 12-16 (no scheduled class), students will arrange to meet with Ms. Heidtke to review their completed resumes. This critical follow-up is intended to give you important feedback so that you can leave UWEC with an effective resume.

D. Chemical and Company Report

Each student will write short reports on **one chemical from the list of the Second 50 Industrial Chemicals (Chapter 13) AND one chemical company**. Check the reference books and periodicals below to find additional information concerning the chemical. The chemical report should be no more than five (5) pages, not including charts, figures or tables that you may use. Both grammar and content will be graded. Include the following points in your chemical report, but not necessarily in this specific order:

1. Manufacturing process, including a schematic outline and chemical reactions of manufacture
2. Properties of the chemical
3. Major derivatives or end uses of the chemical
4. Economic aspects of its production and use, including price, volume, and market future. Use up-to-date data for this section as much as possible.
5. Primary manufacturers of the chemical
6. Any pollution or toxicological problems associated with manufacture and use of the chemical

You must select the chemical company as early as possible so that you can write to the company for information and their latest annual report. You may wish to select 4-5 companies, write for information, and then decide on which one to report after you see their responses. If you can find the website for the company, much of the appropriate information will likely be available. **Literally thousands of chemical company websites can be linked from an alphabetical list of chemical suppliers at one webpage: <http://www.neis.com/>**

The company report section should be no more than three (3) pages in length. Include the following in your report:

1. A brief history of the company
2. The company's main products, services, and business activities
3. Current employment level, assets, sales, and profit profile from last year, and rate of increase for the last few years
4. Location of major operations, including production, research and development, sales offices, and management headquarters

The last section of your report will be a list of references that you used for both the chemical and the company. The format of the references may vary, but do include complete references and be sure to reference at the point of use in your paper.

These reports are due on **Friday, May 2**.

E. Poster Presentation

Each student will present a poster on their chosen chemical. The poster should be a good summary of, and cover all important aspects of, your written report. You are encouraged to use PowerPoint or other presentation software to assemble your poster. Figures, diagrams and tables are useful ways of presenting information in a poster format, rather than lots of text. Your poster should be assembled so that viewers of your poster can follow and understand the material on their own. Of course, you will be present in case questions come up. **The instructor and your classmates will evaluate your poster, including how well you answer questions. Poster sessions (six posters per class period) are scheduled during the last two weeks of class and during our final exam time (see Course Outline).**

VII. REFERENCES

A. Books in the library:

- Agam, G. *Industrial Chemicals: Their Characteristics and Development*; Elsevier: New York, 1994. TP200.A45, 1994.
- Anastas, P. T.; Warner, J. C. *Green Chemistry. Theory and Practice*, Oxford University Press: New York, 2000. TP155.A657. 2000
- Anastas, P. T.; Williamson, T. C. *Green Chemistry: Designing Chemistry for the Environment*; Oxford University Press: New York, 1996. TP155.G635. 1996
- Austin, G.T. *Shreve's Chemical Process Industries*, 5th ed; McGraw-Hill Book Co.: New York, 1984. TP145.S5, 1984.
- *Büchner, W.; Schliebs, R.; Winter, G.; Büchel, K.H. *Industrial Inorganic Chemistry*; VCH: New York, 1989. TP200.I5313, 1989.
- Carraher, Jr., C.E. *Seymour/Carraher's Polymer Chemistry*, 4th ed.; Marcel Dekker: New York, 1996. QD 381.S483, 1996.
- Chang, R.; Tikkanen, W. *The Top Fifty Industrial Chemicals*; Random House: New York, 1988. TP145.C43, 1988.
- Emerson, W.S. *Guide to the Chemical Industry*, Wiley-Interscience: New York, 1983. TP145.E46.
- Eveleth, W.; Kollonitsch, V. *The Kline Guide to the Chemical Industry*, 5th ed.; Charles H.

- Kline and Co., Inc.: Fairfield, NJ, 1990. HD9651.5.K55, 1990.
- Friary, R. *Jobs in the Drug Industry: A Career Guide for Chemists*; Academic Press: San Diego, 2000. RS403.F825. 2000.
- Geiser, K. *Materials Matter: Toward a Sustainable Materials Policy*; MIT Press: Cambridge, MA, 2001. TA403.6.G45. 2001.
- Heaton, A. *The Chemical Industry*, 2nd ed.; Blackie Academic and Professional: New York, 1994. HD9650.5.C522, 1994.
- Heaton, A. *An Introduction to Industrial Chemistry*, 3rd ed.; Blackie Academic and Professional: New York, 1996. TP155.I57, 1996.
- Kasanas, H.C.; Klein, R.S.; Lindbeck, J.R. *Technology of Industrial Materials*; Bennett and McKnight Publishing Co.: Peoria, IL, 1979. TA403.K36, 1979.
- *Kent, J.A. *Riegel's Handbook for Industrial Chemistry*, 9th ed.; Van Nostrand Reinhold Co.: New York, 1992. TP145.R54, 1992.
- Lowenheim, F.A.; Moran, M.K. *Faith, Keyes, and Clark's Industrial Chemicals*, 4th ed.; Wiley-Interscience: New York, 1975. TP200.F3, 1975.
- Robbins-Roth, C. *Alternative Careers in Science: Leaving the Ivory Tower*; Academic Press: San Diego, 1998. Q149.U5 A66. 1998.
- Stocchi, E. *Industrial Chemistry*, vol. 1; Ellis Horwood: New York, 1990. TP155.S8313, 1990.
- *Szmant, H.H. *Organic Building Blocks of the Chemical Industry*; Wiley-Interscience: New York, 1989. TP247.S98, 1989.
- Tedder, J.M.; Nech Vatal, A.; Jubb, A.H. *Basic Organic Chemistry, Part 5: Industrial Products*; John Wiley and Sons: New York, 1975. QD253.B32.
- Thompson, R. *Industrial Inorganic Chemicals*; 2nd ed.; Royal Society of Chemistry: Cambridge, 1995. TP200.I48, 1995.
- Ulrich, H. *Raw Materials for Industrial Polymers*; Oxford University Press: New York, 1988. TP1087.U45, 1988.
- *White, H.A. *Introduction to Industrial Chemistry*; Wiley-Interscience: New York, 1986. TP145 .W46 1986.
- *Wiessermel, K.; Arpe, H.-J. *Industrial Organic Chemistry*, 2nd ed.; VCH Publishers: New York, 1993. TP247.W4413, 1993.
- *Wittcoff, H.A.; Reuben, B.G. *Industrial Organic Chemicals*; John Wiley: New York, 1996. TP247.W59, 1996.
- Wittcoff, H.A.; Reuben, B.G. *Industrial Organic Chemicals in Perspective. Part One: Raw Materials and Manufacture*; Wiley-Interscience: New York, 1980. TP247.W59, 1.
- *Wittcoff, H.A.; Reuben, B.G. *Industrial Organic Chemicals in Perspective. Part Two: Technology, Formulation and Use*; Wiley-Interscience: New York, 1980. TP247.W59, 2.
- *Wiseman, P. *Petrochemicals*; John Wiley and Sons: New York, 1986. TP692.3 .W57 1986

B. Library reference books (first floor of library):

*Kirk-Othmer's *Encyclopedia of Chemical Technology*, TP9.E685 reference. A multivolume authoritative work. The 2nd and 3rd editions are in the regular stacks (5th floor) but are older. The 4th edition is in reference only (1st floor). We have all volumes (A-Z) of the 4th ed. There is also an index.

*Ullmann's *Encyclopedia of Industrial Chemistry*, TP9.U57 reference. Another multivolume work better for chemistry than Kirk-Othmer. We have all 28 volumes (A-Z). There is also an index.

**Chemical Economics Handbook*, HD9650.01.S54 reference. Contains 38 volumes of very useful economic data on chemicals, chemical products, and the chemicals and allied products industry. It's a bit dated but it still contains useful information. Volume 1 is the index. Use it.

C. Periodical Indices (first floor of library):

To search these important indices, go to http://wilsonweb2.hwwilson.com/cgi-bin/auto_login.cgi

Then click on "Applied Science and Technology Full Text" and "General Science Abstracts Full Text." You can also click on "Reader's Guide Abstracts Full Text." Then click Search or Search Plus. Type a word or phrase and click on Search Now. You will get a list of articles with references. Some may have to be ordered through interlibrary loan. Some can be found in the library's periodical stacks (second floor).

**Applied Science and Technology Index*. Hard copies are on Index Table 4B and cover up to 1995. This index can be searched on the Web. See above.

**General Science Index*. Hard copies are on Index Table 4B and cover up to 1998. This index can be searched on the Web. See above.

Reader's Guide to Periodical Literature. Hard copies are on Index Table 4B and cover up to 1997. This index can be searched on the Web. See above.

D. Periodicals (second floor of library):

**Chemical Market Reporter*. Weekly prices for many important chemicals are given in this newspaper.

**Chemical Week*. A very useful weekly publication that highlights recent trends and news in the chemical industry, including current prices for selected commodity chemicals.

Chemical and Engineering News. Membership in the American Chemical Society is strongly recommended and this periodical is part of the membership. If you are a chemist, you should be reading this every week.

E. The Internet

ChemExpo is the chemical industry's source for over 20,000 chemicals, latest news, chemical profiles, business briefs, a directory of chemical products and companies, forums, a calendar of events, a business card exchange, and a column on people and jobs.

<http://www.chemexpo.com>

Chemistry and Industry magazine has a web site that contains news and features from the current issue, plus hundreds of articles from past issues. It has a searchable database of jobs in chemistry, a list of meetings, and daily science news.

<http://www.chemind.org/>

The Chemical Industry Home Page gives information on chemical industry associates, management resources, chemical company websites, and chemical sales resources. You can type in a subject and search the whole chemical industry.

<http://www.neis.com>

An *Industrial Products Overview* by the U. S. Census Bureau covers many chemical products.

<http://www.census.gov/ftp/pub/econ/www/industry.html>

A searchable hazardous chemicals database is available from the University of Akron.

<http://ull.chemistry.uakron.edu/erd/index.html>

Material Safety Data Sheets contain health and safety information on thousands of chemicals. These are available at a number of locations. Some of the sites are alphabetical by chemical name. Some allow the user to key in a chemical name. Some will link you to many other MSDS sites. Here are a few locations.

Vermont Safety Information <http://hazard.com/>

University of Utah <http://listeria.nwfsc.noaa.gov/msds.html>

U.S. Dept. of Commerce <http://research.nwfsc.noaa.gov/msds.html>

Denison University <http://www.denison.edu/sec-safe/safety/msdsres.html>

Interactive Learning Paradigms, Inc. <http://www.ilpi.com/msds/index.html>

Pesticide information is readily obtainable on the Extoxnet.

<http://ace.orst.edu/info/extoxnet>

Chemfinder gives information and manufacturers for any searched chemical.

<http://chemfinder.camsoft.com>

A list of the Top 200 Prescription Drugs in the U. S. is available.

<http://www.rxlist.com/top200.htm>