

University of Notre Dame  
Department of Chemistry & Biochemistry  
University Libraries of Notre Dame

**CHEM 23202**

Spring 2008

Finding & Presenting Chemical Information

A student who intends to become a practicing chemist, or who will use chemistry in allied fields of science and medicine, should know how to use the chemical literature effectively and efficiently. With the continued information explosion, much time can be wasted and important information missed unless an efficient information research strategy is developed.

The course is designed to teach three things:

1. to familiarize you with the major sources of chemical information and major sources of information in related fields with hands on use of these resources,
2. to practice using information research strategies, and
3. to develop skills in presenting information in chemistry.

**Instructor:**

Thurston Miller, 231 Nieuwland Science Hall, miller.115@nd.edu

**Office Hours:**

Monday & Wednesday 3:30 – 4:30

**Book – Reference for ACS Citation format:**

*The ACS style guide: a manual for authors and editors.* 2<sup>nd</sup> ed.; Dodd, Janet S., Ed.; American Chemical Society: Washington, DC, 1997.

**Class Meeting Locations:**

CHEM 23202/01 DBRT 331 Tue 12:30 – 1:20

CHEM 23202/02 DBRT 331 Tue 2:00 – 2:50

CHEM 23202/05 DBRT 228 Thu 12:30 – 1:20

## Schedule:

Session 1 – Introduction to copyright and reading a bibliography

Quiz

Session 2 – Introduction to conventions used in chemical literature and searching google.com.

Assignment 1 due

Session 3 – Bibliographic searching using SciFinder Scholar (Chemical Abstracts & MEDLINE)

Assignment 2 due      Abstract (Draft 1) due

Session 4 – Bibliographic searching using Web of Science

Assignment 3 due

Session 5 – Finding physical and chemical properties & presentation pointers

Assignment 4 due

Session 6 – Structure and reaction searching using SciFinder Scholar

Assignment 5 due      Abstract (Draft 2) due

Session 7 – Structure and reaction searching using CrossRef

Session 8 – Patents

Assignment 6 due

Spring Break

Session 9 – Searching NCBI bioinformatics databases

Assignment 7 due      Abstract (Final) due via email

Session 10 to 13 – 4 10-minute presentations

Evaluations due

Session 14 – 2 10-minute presentations

Evaluations due      Course evaluation

## Class Format:

Sessions 1-2:            Lecture

Sessions 3-9:          Lecture, resource demonstrations, in-class practice problems

Sessions 10-ult:       Presentations, questions, evaluations

## Assignments:

The purpose of the assignments is two-fold:

1. To familiarize you with research methods and resources;
2. To help you prepare for your presentation.

There will be seven assignments.

Assignments will be due before the beginning of the next session. They can be turned in before class begins or in the Chemistry Library. If the assignment is turned in after class it will be late.

There is a penalty for late assignments. For each weekday an assignment is late there will be a 10% reduction in the possible score. So if you are 10 days late the assignment will get a zero.

For example, let's say you are 5 days late on assignment worth 25 points. This means you have lost 50% of the total score possible (12.5 points). So if you missed 6 points on the assignment then your score for the assignment would be 6.5 points ( $25 - 12.5 - 6 = 6.5$ ).

Six of the seven assignments will count toward your overall grade. The assignment with the lowest grade will be discarded.

All citations must be in the *Accounts of Chemical Research* format using RefWorks.

### **Presentation:**

Each person will give a 10-minute presentation at the end of the semester.

The presentations for each day will have a theme. Each theme will have 4 or more compounds associated with it. Each person will select one of the compounds. Each person must have a unique compound.

Each presentation will have three components

1. Synthesis of the compound;

The minimum is a laboratory synthesis (biosynthesis or historical synthesis is an added bonus). Explain why you chose this lab synthesis rather than another lab synthesis, give the yield, know mechanism of each step.

2. Characterizations of the compound;

A thorough characterization will include as many of the following as possible (if the data doesn't exist then it is not possible): CAS RN #, mp/bp, solubility – what could it be recrystallized from?, physical characteristic at STP, spectra –  $^1\text{H}$  NMR,  $^{13}\text{C}$  NMR, IR, MS, (UV-Vis, electrochemistry if appropriate) and interpretation of spectra

3. Something chemically interesting about the compound;

This could be anything chemically interesting and it is your choice – there are no areas you must cover. Examples of chemically interesting might include but are not limited to – describe an interesting mechanism of one (or more) step(s) of the synthesis, make a connection with something you are learning in class or are working on in a lab, applied uses for your compound, commercial uses of the compound, etc.

Your presentation will be specifically about the compound you select.

Prior to the presentations, each person will write a 75 to 125-word abstract of your presentation. There are two reasons to write an abstract: 1. to give an overview or summary of your presentation or paper, and 2. to tell busy listeners or readers why they should take some time to listen to your presentation or read your paper.

Each presenter will electronically submit 1. a bibliography of all the sources consulted in preparing their presentation prior to their presentation, and 2. the powerpoint slides of their presentation.

Each member of the audience will evaluate each presentation. The evaluations do not impact the grade of the presenter but provide constructive criticism for improvement. You will see the evaluations made by your peers of your presentation.

A faculty member from the Chemistry Dept will be present during your presentations to evaluate the subject content of the presentations and to ask at least one question.

There will be some time after each presentation for members of the audience to ask questions

### **Quizzes:**

There will be two quizzes.

The first quiz will help me learn about you and your knowledge of chemical information resources and searching techniques. The first quiz is pass/fail – if you take the quiz you pass it; if you don't take the quiz you fail it. The first quiz is given the first day of class.

The second quiz will be given sometime between week 10 and the end of finals week. It will be graded. This second quiz will test your knowledge of chemical information resources, searching techniques, publication types, copyright, patents, knowledge of database content, and locating information at Notre Dame.

### **Grading:**

100 – 91	A	45%	Presentation
90 – 81	B	30%	Assignments
80 – 71	C	10%	Evaluating peer presentations
70 – 61	D	10%	Post-Test
60 – 0	F	5%	Pre-Test

### **Suggestions for Success from students in previous classes:**

- \* “Really take time in the assignments. The assignments can be useful later for the presentation.”
- \* “When doing the homework, find relevant info about your compound.”
- \* “Start early.”
- \* “It's useful. Pay attention.”
- \* “Be prepared to spend a lot of time researching.”

### **Academic Integrity:**

It is expected that work on assignments, abstract, presentation or quizzes will be your own and not some one else's.