What is a scientific paper?
Aims, content, context, writing style

Library research - where to start?
Discussion of library resources available (SciFinder Scholar, Sciencedirect.com, Chem. Abs., SSI, Current Contents etc.) and use

Web research - where to start?
Publishers, professional societies, library catalogs, on-line databases

Web research - how to do a search?
Working out what you want, how to
Abstracting papers
Reading a research article, where’s the important information?, the bibliography paper trail, annoying things that authors do

Formatting a research paper - the academic side
What’s it about?, OK, so what’s it really about?, What’s a good title?, What are the keywords?, What am I trying to show?, What goes where?, ORGANIZATION, What about references?, grammatical style, textual flow, summarizing results, reviewing other people’s work, plagiarism, citations, experimental details
Formatting a research paper - the computer side

Which word processor?, What other software do I need?, How do I make it look good?, How do I put in a graphic, a graph, an equation, a table?

Formatting a scientific presentation - the academic side

Get a title, tell the audience what you are going to talk about, talk about the work, tell them what you talked about, use lots of graphics, make things simple.
Formatting a scientific presentation - the computer side

What is Powerpoint? What can Powerpoint do?, How do I put a presentation together?, What about the flow?, Should I make it flashy?, OUTLINE!

Highly Recommended and Encouraged Tools:
Computer with word processor (MS Word suggested), graphics package (MS Paint or GIMP suggested), graphing program (Excel suggested), bibliography manager (Refworks or EndNote suggested), and presentation package (MS PowerPoint suggested).
Topics for papers

One of the challenges of writing a research paper is choosing a **good topic**: one that interests you and that is *neither too broad nor too narrow*.

**Too broad:**
Plastics

**Too narrow:**
In vitro inhibition of yeast valyl-tRNA synthetase by the valine homologue of ochratoxin A

A variety of links to reference sources are listed on the course webpage:

http://www.unf.edu/~michael.lufaso/chem4931/index.html

Finding a research topic requires a survey of the literature.

http://top25.sciencedirect.com/

- Choose an area that is well defined and of interest to you
- Can be in any of the areas of chemistry
- Keep in mind that the topic areas of the faculty mentors need to be taken into consideration.
- Faculty will help students refine topics as needed.
- Once you have decided on a topic, research that topic enough to produce a paragraph and a title.
Possible Mentors

Dr. Chalk  Instrumental Analytical Chemistry/Environmental Chemistry
Dr. Davis  Physical Chemistry/Surface & Colloidal Chemistry
Dr. Eng  Inorganic/Solid State Chemistry/Thermodynamics/Thin Films
Dr. Lufaso  Inorganic Chemistry/Solid State Chemistry
Dr. Nyquist  Biochemistry
Dr. Pradhan  Physical Organic Chemistry/Synthetic Organic Chemistry
Dr. Pyati  Environmental/Analytical Chemistry
Dr. Romanchick  Organic Chemistry/Polymer Chemistry/Industrial Chemistry
Dr. Stern  Biochemistry
Dr. Troendle  Analytical Chemistry/Spectroscopy
Dr. Vergenz  Physical Chemistry/Computational Chemistry

...and other laboratory lecturers.

Manuscript Requirements:
The scientific paper will be a review article in an area chosen by the student. However, it is required that the topic have an identifiable and heavy emphasis in the field of chemistry and the application of chemical principles. The following are general criteria for production of the paper:

- The paper will be ~15 pages long including text, figures, graphs, tables, equations, and references
- The paper should contain the following components: title, authors name and address, ~100 word abstract, introduction, background, current research, future directions, summary, bibliography
- The text should have a line spacing of 1 1/2
- The paper must contain a minimum of two figures (of which one must be a graph)
- The paper must contain a minimum of one table
- The paper must contain a minimum of one equation (either mathematical or chemical)
- The paper must contain a minimum of 15 references (minimum of 10 from primary literature)
**Scientific Presentation Requirements:**

The scientific presentation will briefly overview the area chosen by the student. The following are general criteria for production of the presentation:

- The presentation will be 18-22 slides long maximum (20 minutes).
- The presentation should contain the following slides: title/author, outline, background, current research, future directions, conclusions, acknowledgments.
- The presentation must contain at least one figure.
- The presentation must contain at least one table.

**Grading and Evaluation:**

**Scientific paper**

The following criteria will be used to evaluate student papers:

- Technical writing ability, scientifically appropriate grammar and syntax,
- Appropriate organization, formatting and flow, citation of all reference sources, and adherence to the presented guidelines.

**Presentation**

The following criteria will be used to evaluate student presentations:

- Logical flow of slides, ability to see all information presented, slide complexity, appropriate use of scientific/technical vocabulary,
- Organization and flow, and adherence to the presented guidelines.

Faculty will attend presentations and will individually grade each talk. The grades from each faculty member will be pooled and used to determine the overall grade.