

Capstone Coordinator: Professor C. LeRoy Blank 121 CHBA 325-2967
Direct questions and turn in materials to: Lance Goins, 214 CHBA, 325-4121

This course is the final enrollment for our undergraduate students who are working on a research project supervised by a faculty member known as the Mentor. In some cases, their only activity will be writing the Senior Thesis, since the bulk of the laboratory work will have been finished prior to this semester. Students must participate in special group meetings, e.g., departmental Program Assessment activities, and in Senior Thesis presentations. Research students are strongly encouraged to attend the Karcher and Barton Lectures.

Prerequisites:

The student will typically have worked at least two semesters on the Senior Thesis project by enrollment in an "independent study/research" course (e.g., CHEM 3990, 4990, 3980) prior to enrollment in CHEM 4913, Senior Thesis, and have a chemistry and overall GPA greater than 2.5. Prior work as an employee (paid work) typically would not be applicable. Mentors may require more previous experience prior to approving an enrollment. Prospective Mentors located outside of the Department of Chemistry and Biochemistry must be pre-approved by the Capstone Coordinator.

Work Plan:

The mentor will develop a work plan (see attached sheet) with the student which will be signed by the Mentor and the student. A copy of the work plan should be left with the coordinator for the student's file. **Work plans should be turned in no later than the last day of the second week of classes, Friday, August 31st.**

Reading Committee:

The student will obtain permission from an additional faculty member who, along with the Mentor, will be the Reading Committee for the Senior Thesis. At least one member of the Reading Committee must be a faculty member within the chemistry/biochemistry department. **The student will submit in writing, the name of this faculty member by Friday, September 21st.** Typically both the faculty Mentor and the other faculty member serving as the reader will be from the Department of Chemistry and Biochemistry. If either is not, however, the arrangement must be pre-approved by the Capstone Coordinator.

Editorial Review:

The student will submit a final draft of the Senior Thesis for editorial comments to the Capstone Coordinator no later than noon Friday, November 2nd. These comments will be available the following week. The Senior Thesis represents several semesters of work. The typical length will be 20-30 pages of text exclusive of title, signature and preliminary pages, and should be prepared according to the attached Senior Thesis Style Guide.

Thesis to Reading Committee:

Submission of the Senior Thesis to the Reading Committee will be no later than noon on Monday, November 26th. The committee members (mentor plus another faculty member) will review the document and then discuss their evaluation with the student. When the desired changes have been made, the committee members will sign the Senior Thesis and, separately, recommend a CHEM 4913 grade to the Capstone Coordinator. **A letter signed by the committee members indicating the recommended student course grade will be given to the Capstone Coordinator no later than Friday, December 7th.**

Presentation:

A Poster Session will be held on Monday, December 3rd from 3:30-5:00 p.m. (we will let you know the room at a later date; the room will be available at 3:00 p.m. for the set-up of posters). Refreshments will be served. The posters should be approved by mentors before the poster session. Summer thesis students must participate in the Fall poster session.

Final Draft:

Four (4) bound and signed copies of the approved final thesis must be submitted as follows no later than Friday, November 30th, 2007:

Two (2) copies should be deposited with Lance Goins in CHBA 214.

One (1) copy should be deposited with the student mentor for his/her files.

One (1) copy should be deposited with the student's Reader for his/her files.

Chemistry 4913

Work Plan

Due Date: Friday, August 31st, 2007

Student's Name _____ Major _____

Mentor _____

Overall GPA _____ Chemistry GPA _____

Work plan (The work plan should briefly describe the project as well as the Mentor's work requirements and the approximate length of the Thesis). You may generate this form on your computer and/or attach the plan on a separate paper.

Signed _____ Date _____
(Student)

Signed _____ Date _____
(Mentor)

The Mentor and the student agree to follow the guidelines for the semester in which the Senior Thesis is completed.

STYLE GUIDE FOR SENIOR THESIS

The final document should be professional in appearance and free of typographical and printing errors, using a font of no less than 10pt and no more than 12pt in size.

ORDER OF MATERIAL: Title Page, Signature Page, Acknowledgements, Table of Contents, List of Tables, List of Illustrations, Abstract, the Text of the Senior Thesis, Bibliography or Literature Cited, Appendix, Index.

Three final copies of the senior thesis must be printed on 100% cotton or rag bond paper (clearly watermarked as 100% cotton on each page), including the signature page. Twenty (20) pound weight is the minimum acceptable weight. If photos or other materials are attached to the paper, they must be secured **ONLY** with rubber cement. Do not use any other type of glue, tape, etc., to affix the attachments.

Original signatures of both reading committee members must be on all signature pages of the final senior thesis copies.

Required margins: Left = No less than 1 ½" (35 mm)
 Right = minimum 1"; maximum 1 ½" (25-35mm)
 Top = minimum 1"; maximum 1 ½" (25-35mm)
 Bottom = minimum 1"; maximum 1 ½" (25-35mm)

(Margin is measured from edge of paper to line of text; not to page number.)

Title Page (as per example on page 6)

1. Name of University, College, and Department
2. Title
3. Correct Name of Degree
4. Graduate's Name (first name first)
5. Location should always be Norman, Oklahoma
6. Year and month of graduation

Signature Page (as per example on page 7)

1. Must have title of senior thesis.
2. Must have "A SENIOR THESIS APPROVED FOR".
3. Correct name of department "CHEMISTRY AND BIOCHEMISTRY"

Page Numbers

1. Title Page (unnumbered) is "i".
2. Signature page (unnumbered) is "ii".
3. Next page is "iii". This is the first preliminary page to be numbered, e.g. Table of Contents.
4. The text starts as Page 1 and should be numbered consecutively.

SPACING: The Senior Thesis will be double spaced (a line space between 35 and 50 lines per page), with the exception of the Table of Contents, Bibliography, footnotes, and quotations of more than four lines and of two or more sentences, with no more than 12 characters per inch. In general the Senior Thesis text format will follow the style guide for an ACS journal.

CITATIONS: The citations must use the American Chemical Society style guidelines, with the addition of paper titles in quotation marks.

- The references should be sequentially numbered in the order of first appearance and appear as endnotes.
- Since papers are normally short the same reference number should be used for each reference to the paper.

- When citing a book, include the title of the book and list the specific page number(s) for the citation.

Book without editors:

Author, A. B.; Author, C. D. *Book Title*; Series Name and number; Publisher: City, STATE (2 letters), year; Vol. 1, pp xx-yy.

Book with editors, no authors named:

Book Title; Editor, A. B.; Editor, C. D., Eds.; Series Name and number; Publisher: City, STATE (2 letters), year; Vol. 2, pp xx-yy.

Book with editors and authors named:

Author, A. B. In *Book Title*; Editor, C. D., Ed.; Series Name and number; Publisher: City, STATE (2 letters), year; Vol. 3, pp xx-yy.

- Journal references are cited in two ways, depending on whether the journal has continuous pagination (e.g. Inorg. Chem) or individual pagination (e.g. Chem. Engr. News). When the cited journal begins a volume at page 1 and then continues through several issues with sequential page numbers, do not include an issue number in your citation; however, for Chem. Engr. News you would show the issue number since each issue begins with page 1.

Journal with Continuous Pagination:

Woodbridge, E.L.; Fletcher, T.R.; Laufer, A.H. *J. Phys. Chem.* **1988**, 92, 4938.

Journal with Individual Pagination:

Freemantle, M. *Chem. Eng. News* **1998**, 76(28), 15-16.

- Magazine with dates instead of volume numbers:
Author, A. B.; Author, C. D. *Magazine Abbrev.* October 26, 1995, p. 20.
- Thesis reference:
Author, A. B. Thesis Title. Ph.D. thesis, Institution Name, City, STATE, year.
- When citing information from a web-based index, include the website URL and the date the article was accessed in the citation.

Beharry, S.; Bragg, P.D. Properties of Bound Inorganic Phosphate on Bovine Mitochondrial F1F0-ATP Synthase. *J. Bioenerg. Biomembr.* **2001**, 33, 35-42; *PubMed* <http://www.ncbi.nlm.nih.gov/PubMed/>, PMID=11460924 (accessed July 2001).
- The Senior Thesis (and the NSF!) requires the title of papers in the citation.
- Cite beginning and ending pages 345-399. Do not use an abbreviated numbering system, e.g. 345-99, as a style since the reader is not really sure of the meaning; never cite an intermediate page number within the body of a citation for a paper. (see next item)
- If you are citing a long paper (>20 pages) it would be helpful for the reader to cite the specific page number for a specific comment; however, do this after the reference using the format: “; p 203.” after the full citations. You will never see this helpful addition in a chemical journal.
- Figures and tables of data may be photocopied and pasted into your paper; however, you must provide attribution.
- Scientific papers normally do not use quotation marks when using an author’s words or a close paraphrase for statements of fact, e.g. a synthesis, a boiling point, or for a theoretical explanation in a published source. Use citation numbers to clearly show the work is not your work. However,

if you must copy someone's words or value system, use quotation marks to show the words are not yours.

- Private communications are normally cited as Private Communications along with the year. For unpublished results, give author names and affiliations. Describe submitted material as *unpublished*. Unless an article has been published, it is either *unpublished* or accepted, in which case it is *in press*. Include the journal name and year.

Title Page Sample

University of Oklahoma
College of Arts and Sciences
Department of Chemistry and Biochemistry

**DNA Sequencing of Bacterial Artificial
Chromosomes 77h2 and 357f7
From the Cat-Eye Syndrome Region of
Human Chromosome 22**

A Senior Thesis
Submitted to the Faculty

In partial fulfillment of the requirements for the
Degree of
Bachelor of Science in Chemistry

By
Student A. Smith
Norman, Oklahoma
Fall 2004

**DNA Sequencing of Bacterial Artificial
Chromosomes 77h2 and 357f7
From the Cat-Eye Syndrome Region of
Human Chromosome 22**

A SENIOR THESIS
APPROVED FOR THE DEPARTMENT OF CHEMISTRY
AND BIOCHEMISTRY

by

POSTER SESSION INSTRUCTIONS

Summer/Fall 2007

The Poster Session will be held Monday, December 3rd from 3:30 - 5:00 p.m. The room (to be announced later) will be available for set-up at 3:00 p.m.

Posters must be approved by the student's Mentor before the Poster Session.

All materials must be prepared in advance as they would for a presentation at a national conference. Materials will have to be read by attendees from a distance of a meter or more, so lettering must be large and legible. There are several examples of excellent poster presentations throughout the Chemistry department hallways.

Posters may be one large sheet supported by an easel (easels provided by the department) or a tri-fold poster which sits on a table.

You should inform Lance Goins via email regarding the type of poster you will be using at least two weeks prior to the poster session.