

**DEPARTMENT OF CHEMISTRY**  
**Florida Institute of Technology**

**Doctoral Program Guidelines**

To receive the doctoral degree, the student must 1) satisfy the preliminary comprehensive (if offered); 2) complete an approved program of course work; 3) write an acceptable research proposal and present a seminar; 4) pass cumulative written exams; 5) pass an oral comprehensive exam that includes a seminar; 6) complete a significant original research study; 7) prepare and defend a dissertation concerning the research; and 8) present a seminar on the dissertation research. Once the first five requirements have been met, the student files a formal petition for admission to doctoral candidacy. The doctoral degree requirements are described in some detail below along with examples of the appropriate forms. Refer to the attached [Doctoral Program Check List](#). Also consult the Florida Tech catalog, the Graduate Programs Policy Manual (<http://www.fit.edu/grad-programs/policies.php>), and the Florida Tech Thesis Manual and Style Guide ([http://lib.fit.edu/documents/thesis\\_manual\\_and\\_style\\_guide\\_3rd\\_edition.pdf](http://lib.fit.edu/documents/thesis_manual_and_style_guide_3rd_edition.pdf)).

- I. **Diagnostic ACS Exams.** Entering students are expected to have had a minimum of one year of undergraduate organic chemistry, physical chemistry, analytical/instrumental analysis, and inorganic chemistry. Students will be required to take multiple-choice diagnostic ACS exams in these fields. The percentiles achieved in these exams will determine which courses they can register for. These decisions must be made in consultation with academic advisors.
- II. **Selection of Advisor, Research Topic, and Doctoral Committee.** During their first semester, students meet informally with faculty members (minimum of three) to learn about the various research activities. Based on these interviews, a research advisor is selected during the first or second semester with the concurrence of the advisor and the department head. A research topic is chosen that is mutually agreeable to both the student and advisor.

With the assistance of the advisor, the Doctoral Committee is nominated. This committee consists of the advisor as chair and at least three additional members, one of whom must be a full-time Graduate Faculty member outside the chemistry department. The department head and the Director of Graduate Programs must approve this committee, generally during the second semester but at least 60 days prior to the oral comprehensive exam. An [Establishment of Doctoral Dissertation Committee](#) form must be completed with the signatures of all committee members and filed with the Office of Graduate Programs. The Doctoral Committee serves in an advisory capacity throughout the remainder of the student's doctoral program and is responsible for formally evaluating the student's progress.

- III. **Program of Study.** With the assistance of the advisor (or the Placement Committee), the program of study is prepared during the first semester. (See the attached Doctoral Program of Study form.) It is kept in the Department office until it is submitted to the Registrar's Office along with the Petition to Graduate form, generally two semesters before graduation. If any changes occur, the revised plan, approved by the advisor and the Doctoral Committee, must be the one submitted before graduation. Students engaged in research before admission to doctoral candidacy may register for Chemical Research (CHM 6095); a maximum of 18 credits counts toward the degree. All formal classes must be completed before admission to doctoral candidacy. Dissertation in Chemistry (CHM 6999) may not be taken until the term in which the student is admitted to doctoral candidacy. A total of at least 18 semester credit hours of dissertation must be taken (3-12 credits/term, every term after admission to candidacy including summer until graduation); a maximum of 30 credits count toward the degree. Once students register for dissertation, they must continue each semester until the dissertation has been accepted by Graduate Programs. Course work completed for the master's degree may fulfill a significant portion of the 33 credit hours of required doctoral course work; a request for transfer credit evaluation by the Department Head must be made during the first semester. Up to 6 credit hours of 4000-level (3000-level non-chemistry) coursework may be included in the program plan, but the [Permission for Graduate Student to Take Undergraduate Course](#) form must be submitted to the Registrar's office before registration. These courses are not included in the graduate GPA until graduation unless a request is submitted to the Registrar's office. The student must register for Chemistry Graduate Seminar (CHM 5900) each semester (see detailed section below on CHM 5900). Students who have already earned an MS degree from an accredited university will need to consult with the Department Head by presenting the corresponding syllabi of their MS courses of their previous institution. Accordingly, the Department Head may approve selected courses for transfer, or may approve the complete MS degree. In the latter case, your program plan will reflect that you have an approved MS degree (which will count toward 30 credits of your 72 credits required for the PhD degree). Although, the university system (BANNER/PAWS) will not reflect these 30 credits, you will only be required to take 42 additional credits if you have a Department Head approved MS degree. List all your MS coursework in your program plan so as to avoid redundancy when registering for your additional 12 credits of courses.

- IV. **Cumulative Exams (Written Comprehensive Exam).** The requirement for a written comprehensive examination is partly satisfied by passing six cumulative examinations. (See attached Cumulative Examination Policy.) These exams are given once per month during the fall and spring semesters.
- V. **Dissertation Research Proposal and Seminar.** The student must prepare and present the proposed doctoral research project. The presentation should occur during the second or third semester. Although the advisor will give assistance, the student provides the majority of the effort. Extensive literature review is necessary to become familiar with the science, materials, equipment and techniques.

The proposal serves the purpose of explaining the intended research in sufficient detail for the advisor and advisory committee to evaluate it. This ensures that the proposed dissertation research is of suitable content and duration for a doctoral degree and, if successfully completed, will meet acceptable scientific standards.

A good research proposal can take many forms but in general it should be a well-organized, well-documented statement of a scientific problem and an equally well-supported proposed solution. The proposal should include a clear statement of the problem, a thorough literature survey, the proposed research along with any preliminary results, and a timeline for completion of the project. In addition, if any unusual techniques (e.g. not previously used at Florida Tech) or special items of equipment (e.g. equipment which must be purchased, constructed, or borrowed) or special facilities (e.g. located off campus) are required, or for any other unusual features of the proposed research, detailed descriptions should be provided. The finished proposal should be an example of your best effort. It should be typed and neat in appearance, with numbered pages. (See the attached Guidelines for Research Proposal for title page and more details.)

Your research proposal will be presented in a seminar to the department. (See the attached seminar guidelines.) Schedule the seminar, with the approval of your Doctoral Committee and the Seminar Coordinator, followed shortly thereafter by the committee meeting. Submit a copy of the proposal to each of the committee members at least one week prior to the meeting.

At the proposal meeting, the committee will either approve the proposal, or require alterations before approval. If the proposal is approved, the members will sign the Doctoral Dissertation Proposal Conference Report / Application to Doctoral Candidacy (obtain this form from the department secretary; see example attached) which will be kept in your file. This form is submitted to the Office of Graduate Programs only when the other candidacy requirements have been met. This satisfies the University requirement that the proposal conference be held after the Comprehensive Exams. The signed approval form does not guarantee that you will complete your degree, but it does demonstrate that your proposal was judged to be sound. Keep one copy of the form for your records. The second copy is retained, along with a copy of your proposal, by the department. If the proposal is not acceptable, you will be given instructions as to the proper course of action.

- VI. **Oral Comprehensive Exam and Seminar.** The Chemistry Department's Oral Comprehensive Exam consists of a seminar and a presentation before the Doctoral Committee of an original research proposal generated by the student. The student also should be prepared to answer more general questions based on their coursework. This exam is taken only after all other requirements for admission to candidacy (i.e. Sections I–V) have been completed and must be at least one calendar year before graduation. The chief objective is to cultivate the student's ability to develop and present a research project in an area different from the student's dissertation research. This is a skill that is expected after graduation. Reading the current literature often generates ideas. The proposal must be unrelated to the present or past research of the advisor. Before developing the proposal, a one-page outline of the proposed topic must be approved by the committee members at least one month prior to the oral exam.

The proposal should be written, with numbered pages, in a format appropriate for submission to a granting agency. (See attachment for title page.) This document serves as part of the written comprehensive exam. The significance of the problem, originality of the approach, and feasibility of the method must be made clear. The following sections are recommended:

1. Specific Aims. Describe concisely and realistically what the specific research is intended to accomplish and any hypotheses to be tested. One page maximum (double-spaced) is recommended.
2. Background and Significance. Briefly sketch the background for the proposal, critically evaluate existing knowledge, and specifically identify the gaps that the project is intended to fill. Include pertinent literature references. Two to three pages are recommended.

3. Research Design and Methods. Describe the research design and the procedures to be used to accomplish the specific aims of the project. Include the means by which the data will be collected, analyzed, and interpreted. The project will not be carried out at Florida Tech and, therefore, is not limited to the resources at hand. Describe any new methodology and its advantage over existing methodologies. Discuss the potential difficulties and limitations of the proposed procedures, considering alternative approaches. Seven-page text maximum is recommended.

4. Summary. Discuss the expected outcomes and how they relate to the goals of the project. One or two pages are recommended.

The proposal must be submitted to the committee at least one week in advance of the oral exam date. An [Oral Examination Announcement](#) must be sent to the Office of Graduate Programs at least two weeks in advance of the exam date (see example attachment). The exam time (e.g. 6:00pm) is after the public seminar (e.g. 5:00 pm). An official Examination Report (obtain this form from the department secretary; see example attached) is completed at the end of the examination. Also, bring the Doctoral Dissertation Proposal Conference Report / Application to Doctoral Candidacy form, which should be in your department file (see Section V) for signatures.

To provide additional experience in giving scientific talks, you will present your comprehensive exam proposal in a seminar to the department. (See the attached seminar guidelines.) Schedule the seminar, with the approval of your Doctoral Committee and the Seminar Coordinator, for a date shortly before your exam.

VII. **Admission to Candidacy.** After completing all the items above, the Department submits the Examination Report for the Oral Comprehensive Exam along with the completed Doctoral Dissertation Proposal Conference Report / Application to Doctoral Candidacy form (see Sections V and VI) to the Office of Graduate Programs. A minimum GPA of 3.2 is required. Students who pass the oral comprehensive exam are entitled to receive an M.S. degree in Chemistry if they have followed the procedure detailed later.

VIII. **Research.** This stage begins during the first year and is generally the most enjoyable. See the attached guidelines for maintaining a proper research notebook. Your research advisor may provide you with other guidelines. The advisor will be responsible for guiding both the candidate's research and preparation of the dissertation. During the period of research, the advisor will evaluate the student's progress at the end of each semester and place a copy of this evaluation, with the student's signature, in the student's file. At least annually, the student should submit a written progress report and meet with the doctoral committee, together or with the members individually, to discuss the dissertation progress. A grade of U, D or F in a research or dissertation course or an unsatisfactory progress notification from a graduate student committee will result in removal from the doctoral degree program and placement into the non-thesis Master's option. If the student already has an MS degree they will be removed from the department.

IX. **Dissertation.** In general, the writing of the dissertation will require about one semester. Many times the first draft of the dissertation can be prepared while research is in progress. Under your advisor's direction, prepare at least one copy of your dissertation in rough draft. After making revisions as directed by your advisor, submit one corrected copy to each of the remaining committee members for their review at least one month prior to the defense. (See the attachment and the FIT style guide ([http://lib.fit.edu/documents/thesis\\_manual\\_and\\_style\\_guide\\_3rd\\_edition.pdf](http://lib.fit.edu/documents/thesis_manual_and_style_guide_3rd_edition.pdf)) and <http://www.fit.edu/grad-programs/thesis.php> for format details.) Although in some cases an advisor may separately approve portions of a dissertation draft, the committee members are under no obligation to review anything short of a totally complete dissertation. Within two weeks, committee members should notify the advisor of any major revisions (research or text) they deem necessary. Make additional corrections or changes as required.

X. **Dissertation Seminar and Defense.** This consists of a departmental seminar and a committee meeting. You will present your research and answer questions related to your graduate study.

With your advisor's approval, schedule a committee meeting for the final oral defense. Note that this meeting should be completed at least two weeks prior to the date of graduation. (See [current deadlines](#).) Schedule a seminar time with the seminar coordinator to present your research to the department prior to the final defense. The exam time (e.g. 6:00pm) is after the public seminar (e.g. 5:00 pm). An [Oral Defense Announcement](#) must be sent to the Office of Graduate Programs at least two weeks in advance of the exam date (see example attachment). Submit to each committee member a copy of your dissertation in its final form at least one week prior to the final defense. The final approved version of the dissertation (5 copies minimum) is submitted to the Office of Graduate Programs for binding and microfilming along

with an additional copy of the title page and abstract and a completed [ProQuest Publishing Agreement Form](#) and a [Survey of Earned Doctorates Form](#). Please note that any delays in the completion of the dissertation or failure to schedule and complete the final defense by the deadlines established by the University may require the student to delay graduation until the following term.

- XI. **Petition to Graduate.** To avoid a late fee, the [Petition to Graduate Form](#) (attached) along with the Doctoral Program of Study Form (attached) must be filed with the Registrar before the [deadline](#), generally early in the semester before the semester of graduation.

Florida Tech Chemistry Department  
Preliminary Comprehensive

Student Name \_\_\_\_\_

Number \_\_\_\_\_

<u>Exam</u>	<u>Date</u>	<u>Score</u>	<u>Recommendations</u>
Organic	_____	_____	_____
Physical	_____	_____	_____
Inorganic	_____	_____	_____
Analytical	_____	_____	_____

Students must earn at least a C in any deficiency course.

**FLORIDA INSTITUTE OF TECHNOLOGY**

**Chemistry Doctoral Program Plan**

(Please Print or Type)

Name: \_\_\_\_\_ Student #: \_\_\_\_\_

Address: \_\_\_\_\_ City: \_\_\_\_\_

Department: \_\_\_\_\_ Area of Specialization: \_\_\_\_\_

M.S. in Chemistry University: \_\_\_\_\_ Date: \_\_\_\_\_

Doctoral Dissertation Committee:

Advisor \_\_\_\_\_

Member \_\_\_\_\_

Member \_\_\_\_\_

Member \_\_\_\_\_

Member \_\_\_\_\_

Formal Courses (33 credits minimum; 12 credits minimum with an approved M.S. degree in Chemistry; 9 credits maximum may be non-chemistry)

Semester	Course #	Course Title	Cr.	Grade

Additional Chemistry Courses/Research (18 credits; 9 credits minimum with an approved M.S. degree in Chemistry)

Semester	Course #	Course Title	Cr.	Grade

Dissertation (30 credits; 15 credits minimum with additional chemistry courses; 18 credits maximum of CHM 6095 apply to the degree)


**72 credits total**

Signature: \_\_\_\_\_  
(Student)

Date: \_\_\_\_\_

Signature: \_\_\_\_\_  
(Faculty Advisor)

Date: \_\_\_\_\_

Approved: \_\_\_\_\_  
(Department Head)

Date: \_\_\_\_\_

Additional Doctoral Requirements

	<b>Topic</b>	<b>Date</b>
Research Proposal		
Cumulative Exams (written)		
Oral Comprehensive Exam		
Research Seminar		



FLORIDA TECH CHEMISTRY DEPARTMENT  
CUMULATIVE EXAMINATION POLICY

To quote Florida Institute of Technology's University Catalog: "Each new [chemistry] doctoral student is required to pass six cumulative exams; at least four must be in the chosen area of concentration and up to two may be in an additional area. Students must begin these exams in their second semester in residence. Four exams are offered each semester. A maximum of 11 attempts is allowed." These requirements are implemented as follows:

The student's Doctoral Committee will determine the exact distribution of areas for the exams. Cumulative examinations will be given during the fall and spring semesters. Each doctoral student must begin taking cumulative exams by the second semester of residence during which the student is enrolled in graduate chemistry courses; time spent in an M.S. program does not count. Examinations are graded on a pass/low-pass/fail basis; a pass counts as one point, and a low-pass counts as one-half point. Each student must accumulate six points within eleven tries. At least two of the six points must be earned as full "pass" grades. Once a student has started taking cumulative exams, the student must take an exam every month that cumulative exams are offered until the requirement is completed, unless excused by the Head of the Chemistry Department. A skipped exam will count as a failure. The first examination a student takes is "free": a pass or low-pass counts as such, but a failure on the first exam does not count as an attempt. Failures on exams after the first are counted.

Examinations will be offered each time in the four broad areas of chemistry (analytical, inorganic, organic, physical). At least six days before the exam date, each eligible graduate student will notify the Cumulative Exam Coordinator of their chosen area for the exam.

Examinations will take on the order of two hours each. Results, including an update on the student's standing in the cumulative examination program, will be reported via email to the student, with a written copy placed in the student's file in the department office.

Revised 08/2015

## Guidelines for Dissertation Research Proposal

The proposal should provide a clear statement of the proposed research, in sufficient detail to allow a meaningful review by the student's research committee, but not so much detail that it substitutes for the final dissertation. The proposal should be 10-15 pages (double-spaced) in length with numbered pages.

The following organization is suggested:

Title Page. See example on next page.

Statement of Proposed Research. Include a clear concise statement of what the specific research is intended to accomplish and its significance. (1page)

Introduction. A review of what is known about the subject relevant to the proposal, critically evaluating the existing knowledge and identifying the gaps that the project is intended to fill. Use references as appropriate. (4 - 5 pages)

Outline of experimental Approach. Describe the research design and the procedures to be used to accomplish the specific aims of the project. Include the means by which the data will be collected, analyzed, and interpreted. Discuss the potential difficulties and limitations of the proposed procedures, considering alternative approaches. Include any preliminary results. (4 - 6 pages)

Summary. Discuss the expected outcomes and how they relate to the goals of the project. (1 - 2 pages)

Timeline. Itemize the proposed research tasks, including the writing of the dissertation, with estimated dates for each so that you and the committee have a realistic idea of the length of time required to complete your degree. (1 page)

References. List only those cited in the proposal.

Title of Dissertation Proposal  
in Initial Capitals Only

by

Your Complete Name

Bachelor of Science, University of Florida  
Master of Science, Miami University

A dissertation proposal  
submitted to the Department of Chemistry and  
Florida Institute of Technology  
in partial fulfillment of the requirements  
for the degree of

Doctor of Philosophy  
in  
Chemistry

Approved by

\_\_\_\_\_  
(Name), Ph.D., Committee Chairperson  
Associate Professor, Department of Chemistry

\_\_\_\_\_  
Date

\_\_\_\_\_  
(Name), Ph.D.  
Associate Professor, Department of Chemistry

\_\_\_\_\_  
Date

\_\_\_\_\_  
(Name), Ph.D.  
Assistant Professor, Department of Chemistry

\_\_\_\_\_  
Date

\_\_\_\_\_  
(Name), Ph.D.  
Associate Professor, Department of (Name)

\_\_\_\_\_  
Date

Dissertation Proposal Title Page

## When It's Your Turn To Give A Seminar:

### Some Do's and Don'ts

1. Set up a plan for the talk. Ensure that:
  - (i) You Make the aim of the work clear at the beginning.
  - (ii) You present results clearly.
  - (iii) You interpret the results so that the audience can see how the work done leads to the understanding (or new methodology) sought.
2. If you decide to include non-technical material (e.g. photos of equipment, co-workers, etc.), it should go at the end of the talk. Non-technical material is not required.
3. Slides/overheads should be clearly legible. Typed lettering on artwork should be avoided because it is usually illegible on slides prepared from the artwork.
4. "Mixed media" presentations are harder to follow. Generally a seminar is best given entirely from transparencies or entirely from slides.
5. Do not make slides or overheads of typescript and then read that to the audience.
6. Time the talk. It should be 45-50 minutes. If you are significantly over or under that length of time (i.e.  $\geq 10$  minutes) you will make a negative impression on the audience.
7. Make it clear to the audience when you have finished the talk. Offer to answer questions.
8. REHEARSE THE TALK BEFOREHAND. Have the slides/transparencies ready before rehearsals and go over the talk just as you plan to give it. Recruit an audience - other students in your group or in the department and your supervisor.
9. Do not present excessive data. It simply serves to add confusion. Negative results can be meaningful and may be included where appropriate.

Title of Oral Comprehensive Proposal  
in Initial Capitals Only

by

Your Complete Name

Bachelor of Science, University of Florida  
Master of Science, Miami University

A comprehensive examination proposal  
submitted to the Department of Chemistry and  
Florida Institute of Technology  
in partial fulfillment of the requirements  
for the degree of

Doctor of Philosophy  
in  
Chemistry

Melbourne, Florida  
December 2015

Oral Comprehensive Examination Proposal Title Page

## Laboratory Notebook

A laboratory notebook is a permanent record of what transpires in the laboratory. The notebook is considered a legal document and often every page must be witnessed as well as dated. Patent rights on a new discovery depend on establishing the exact time of the discovery. The notebook forms the basis for scientific papers and reports since the first step in the process is the collection of data.

Each student should have a notebook with bound (not spiral), numbered pages for recording all data, observations, comments and notes regarding the experiments. Record all your observations as well as the data. For example, if the laboratory temperature changes significantly or you spill a sample and continue to use it, note this; when you analyze your results you may find that later data differs from earlier data and the notebook record will provide the explanation. Record everything directly into the notebook in ink; this is meant to be a permanent record. If you make a mistake, don't obliterate the mistake; simply put a line through it with a short explanation as to why you think it is incorrect. You may find later that this data was more correct than other data. Don't use scraps of paper with the intent of later transferring the information to the notebook. These scraps may be lost or become scrambled. Don't worry about having a perfectly ordered, neat notebook, as long as it is sufficiently labeled and neat that you can understand the information later. Be certain to include units and an estimate of the uncertainty for each type of data you collect. It is more important that you record everything directly into the notebook. Your notebook is the property of the University and remains with your advisor after you graduate.

### Guidelines for Doctoral Students Wishing to Earn a M.S. in Chemistry (Nonthesis Option)

Graduate Policy 1.3.3 allows an M.S. degree to be obtained while working towards the Ph.D. The following documents are required and should be submitted together (except item 4) to the Registrar's Office (Ms. Karin Almasi):

1. Master's Degree Program Plan completed and signed. Along with the four core graduate chemistry courses, five additional non-research graduate courses are required along with CHM 5095, a total of 30 credits. A final program examination is included in CHM 5095.
2. Petition to Graduate form for the M.S. in Chemistry (8031). There is a late fee (after 4/1/15 for Fall 2015 graduation; after 9/11/15 for Spring 2016 graduation). Regalia must be purchased if you wish to participate in the ceremony.
3. Letter of support from the department head.
4. Examination Report for the M.S. final examination completed and signed by the committee members. Students can substitute three credits of CHM 6095 for CHM 5095, in which case the doctoral oral comprehensive examination (the original proposal) serves as the final program examination. This would have the same date as the Ph.D. comprehensive exam but a separate form. This form should be submitted to the Office of Graduate Programs.

## Guidelines for Dissertation

The dissertation is one of the most important parts of a doctoral degree and as such it should be an example of the student's best ability. In clear understandable language the dissertation presents what the research objectives were, why they were established, how they were pursued (the experimental techniques and tools employed), what the results of the investigations are and what the results mean. There is no absolute restriction on the length of the dissertation; the appropriate length is that in which all of the above can be accomplished without any filler or padding.

The dissertation should present a consistent clear style of writing. A consistent tense should be used. In general, the past tense should be used to describe what was done or what occurred and the present tense should be used for existing results or facts. As always, care must be exercised to make clear distinctions between facts, observations and suggestions. This is especially true when making reference to the work of others. It is recommended that references be cited by use of the American Chemical Society journal format.

Prior to starting the actual writing of the dissertation prepare a detailed outline and a complete set of figures and tables. This outline should show all of the points to be made in the dissertation. The major advisor should review the outline before the dissertation proper is started. The first copy of the dissertation submitted for review by the major advisor should be a typed copy including figures and tables. The final copy submitted to the committee must be in completely finished form.

It is recommended that the following format be employed:

Preliminary Pages. These include (in order) Title Page, Approval Page, Abstract, Table of Contents, List of Figures, List of Tables and Acknowledgements.

Introduction. Background information is presented, closely related references are reviewed, and the "what and why" of the research is stated. This section should end with a clear statement of objectives.

Experimental Procedure. A very important section in which clear detailed descriptions of all experimental details are given. All equipment and materials must be included as well as procedures employed. Diagrams and figures should be used for any new or unusual equipment.

Results and Discussion. These may be two separate sections or may be combined. If separate, results should come first and should be a presentation of the results, in the form of figures, tables and graphs. Then the discussion section should follow and should make reference to, explain and discuss the previously presented results. In many cases it is easier to combine results and discussion into one section. In this format the individual results are presented and then discussed prior to going on to the next result or class or results. The results should be presented in a logical order. The order of presentation should be that which makes the results most easily understood. The chronological order in which the experiments were performed should be of little concern.

Conclusions. This very important section should clearly indicate the conclusions that can be made as a result of the research. The section should be logically consistent with the previously stated objectives and previously presented results. An indication of suggested future study should be made.

Appendices. An appendix is an optional section. Some possible uses of an appendix are: presentation of extensive data tables (summary tables should be used in text); presentation of results which are tangential to the dissertation.

Notes: Compounds, especially new ones, should be characterized in a manner that will permit publication in an ACS journal. Tables and Figures should be located as close to the point of reference as possible without leaving an abnormal amount of white space in the text.



(The following information is adapted from the Graduate Student Handbook prepared by the Department of Biological Sciences. Also refer to the Florida Tech Thesis Manual and Style Guide ([http://lib.fit.edu/documents/thesis\\_manual\\_and\\_style\\_guide\\_3rd\\_edition.pdf](http://lib.fit.edu/documents/thesis_manual_and_style_guide_3rd_edition.pdf)).

## DISSERTATION PREPARATION.

**SELECTION OF A JOURNAL FORMAT.** This manual is to be used as a reference in all questions regarding the format and style of proposals and dissertations. In order to make an easy transition from the dissertation to a journal-ready manuscript, the style and format of tables and figures, the system of referencing and the format for the literature cited should follow those of the American Chemical Society journals. In this way, figures and tables will not have to be re-drawn, and your references will already be in the format required by the journal.

If there is a problem in interpreting the journal style, the advisor should be consulted. Conferences with the advisor concerning specific problems of style and format of the dissertation should be held well in advance of when you type the final manuscript. In this way, difficulties can be worked out before too much time, effort, frustration, and money have been expended in preparing the dissertation for submission.

**STANDARDIZING PAGE AND TEXT FORMATS.** It is important to emphasize that YOU SHOULD NOT USE ANOTHER DISSERTATION AS AN EXAMPLE ON WHICH TO PATTERN YOUR DISSERTATION. NOT ALL DISSERTATIONS HAVE FOLLOWED THE RULES ADEQUATELY, AND THE RULES HAVE CHANGED OVER THE YEARS.

**Word Processor Specifications.** Select 12 point with a plain-face type (Roman or Square Serif), rather than script, italic, or some other ornamental style when printing your dissertation. If there is doubt about the size or style of type, clarify the matter with your advisor before preparing the manuscript. The same type style must be used throughout the paper; do not mix type styles.

Do not justify the right margin; not all word processors do a good job without leaving very irregular spacing within the text line.

**Spacing and Indentions.** The text must be double-spaced (3 lines per inch) including tables, captions and references.

The first sentence of each paragraph should be indented five spaces.

Any quotation of six typed lines or fewer should use the same spacing as the narrative text. Quotations longer than six typed lines should be inset. Inset quotations do not require the use of quotation marks.

**Margins.** All typing must fit within the printed margins (1½ inches at the left, and 1 inch at the top, bottom, and right) except for the page number that is placed about one inch from the top of the page and even with the right-hand margin. All computer data, illustrations, and tables that lend themselves to reproduction on 8½ x 11 inch pages must conform to the margin requirements in every way. All illustrations on photographic or other acceptable paper must conform to the margins.

**Pagination.** Every page in the manuscript EXCEPT the Title page and the Approval page must be numbered. These two pages are considered to be pages i and ii, but no pagination numeral is shown on these two pages.

- n Preliminary pages - lower case Roman numerals (iii, iv, v, vi, etc.) are used. The first page on which a number appears is the Abstract page, which is numbered iii and is placed right after the Approval page.
- n Text and Supplementary pages - Arabic numerals are used. The first page of the narrative text begins with 1 and the numbering runs consecutively to the end of the manuscript.
- n Pages are numbered consecutively, as are tables, figures, and equations.

Begin every major division of a dissertation on a new page. These major divisions are: Abstract, Dedication (optional), Table of Contents, List of Tables, List of Figures, Acknowledgments, Introduction, Materials and Methods, Results, Discussions, References, and Appendix.

Subheadings or subdivisions within chapters and sections do not start on a new page but are placed on the page wherever they appear in the development of the text. The only exception is when this produces what is termed an "orphan" (i.e., the last line of the page is the heading itself). In this case, start the heading on the following page.

Placement of Page Numbers. The Roman numerals of the preliminary pages are centered at the bottom margin. All other page numbers are placed in the upper right-hand corner of the page (one inch below the top edge of the paper and just inside the right-hand margin). Title pages that introduce a new section are counted but no page number is printed.

PARTS OF THE MANUSCRIPT. A dissertation manuscript ordinarily has three main parts: (1) the preliminary pages, (2) the text, and (3) the supplementary pages.

Preliminary Pages. (listed in the order in which they appear in the manuscript) include:

- n Title page
- n Approval page
- n Abstract
- n Table of Contents
- n List of Figures (if more than one figure is used)
- n List of Tables (if more than one table is used)
- n Acknowledgments (the Dedication page, if any, is placed directly before or after the acknowledgments page)

The Text. (listed in the order in which they appear in the manuscript) include:

- n Introduction/Review of the Literature
- n Body of the dissertation with the larger divisions (Materials and Methods, Results, Discussion and/or Conclusion.)

Supplementary Pages. (listed in the order in which they appear in the manuscript) include:

- n References (required in all dissertations or records of study)
- n Appendices (if needed).

All preliminary page titles, all chapter designations and titles, and supplementary page titles are centered at the top of the page (within the margins) and are typed in bold with only initial letters capitalized.

Examples of some of the major parts of the manuscript are presented in Fig. 1 through 3.

Title Page. The Title page must follow exactly the style, spacing, and form of the example in Fig. 1. Points to note particularly are:

- n The title is typed with initial capital letters, single spaced (if the title is more than one line in length) and centered within the margins of the paper.
- n There is no page number on the Title page (although it is considered to be page i).
- n The full legal name of the author, without initials and without designation of profession, military rank, or marriage is listed as shown.
- n The full name of the degree to be awarded is written out with initial capital letters.
- n Degrees are awarded only in May and December. The appropriate month and year must be shown on this page.

Approval Page. The Approval page, following exactly the style, spacing, and form of the example shown in Fig. 2, must bear the original signatures of all members of your advisory committee and the Department Head. Care should be taken to assure that they sign in black ink, since other colors do not reproduce well.

The number of members on your advisory committee determines the number of signature spaces on the page. The position (in terms of the committee) of each member of the committee must be indicated under each signature. The committee as listed on this page must include all the names indicated as being committee members on the exam announcement for the defense.

Particular points to note are:

- n The title is typed with initial capital letters, single-spaced (if more than one line on length), and centered within the margins of the paper.
- n There is no page number on the approval page (though it is considered to be page ii).

- n Your full legal name, without initials and without designation of profession, military rank, or marriage is listed as shown.
- n If your committee has co-chairpersons, then each is listed by position as "Committee Co-chairperson".
- n If the Department Head serves also as a member or as Chairperson or Co-chairperson of your advisory committee, add a second identifying line under the signature.
- n Degrees are awarded only in May and December. The appropriate month and year must be shown at the bottom of the Approval page.

Abstract. Your dissertation must contain an Abstract placed immediately after the Approval page. Three hundred fifty (350) words is the maximum length of the Abstract for University Microfilms International. Abstracts of dissertations must be double-spaced (for microfilm clarity).

The Abstract should contain the following:

- n A clear statement of the problem you researched and its significance.
- n A brief description of the method of investigation.
- n An explanation of data analysis.
- n A statement of conclusions and how they relate to the original research problem.

A heading following the style of the example in Fig. 3 must appear on the Abstract of your dissertation.

Particular points to note are:

- n Numbering of pages starts with the Abstract page ('iii').
- n The word ABSTRACT is centered at the top of the page within the margins and is typed in capital letters.
- n The title of the dissertation is typed exactly as on the Title page with initial capital letters (and single spaced if more than one line in length) a triple space below the word ABSTRACT.
- n Your full legal name is listed beneath the last line designating the title.
- n Your advisory chairperson is listed below the line designating your name. NOTE: When there are co-chairpersons on your advisory committee, both are listed on the Abstract page.  
EXAMPLE:  
Major Advisors: Dr. Amy Wilson  
                            Dr. Walt Smith
- n The text of the Abstract starts a triple space beneath the heading with a five-space (1/2-inch) indentation. The Abstract text is typed double-spaced, and is consistent with the spacing style followed in the text.

Table of Contents. The Table of Contents indicates the major divisions and principal (or first-order) subheadings of the manuscript. It should provide an analytical presentation of the materials in the study and page numbers on which the sections start.

Preliminary page listings in the Table of Contents start with the Abstract (iii) and must include all preliminary pages (inclusion of the Table of Contents page itself is optional).

All divisions of the text (i.e., chapters or sections) and subheadings within each chapter or section must be listed in the Table of Contents. The subordination of the subheadings should be shown by the appropriate spacing, indentation's, and capitalization

All supplementary pages (References and Appendices, if any) must be listed in the Table of Contents.

The numbering, wording, and pagination of titles and headings must be exactly the same in the Table of Contents as they are on the pages of the manuscript.

Title of Dissertation  
in Initial Capitals Only

by

Your Complete Name

Bachelor of Science, University of Florida  
Master of Science, Miami University

A dissertation  
submitted to the Department of Chemistry and  
Florida Institute of Technology  
in partial fulfillment of the requirements  
for the degree of

Doctor of Philosophy  
in  
Chemistry

Melbourne, Florida  
May 2016

Figure 1. Title Page

Title of Dissertation  
in Initial Capitals Only  
a dissertation by  
Your Complete Name

Approved as to style and content

---

(Name), Ph.D., Committee Chairperson  
Associate Professor, Department of Chemistry

---

(Name), Ph.D.  
Assistant Professor, Department of Chemistry

---

(Name), Ph.D.  
Associate Professor, Department of Chemistry

---

(Name), Ph.D.  
Associate Professor, Department of (Name)

---

M. W. Babich, Ph.D.  
Professor and Head, Department of Chemistry  
(A separate block is not provided if the Department Head is a member of the Committee.)

Figure 2. Dissertation committee approval page

ABSTRACT

A Study of the Philosophy of Research from the Nineteenth  
Century to the Present Time

by

Donald Jay Lee

Major Advisor: Joseph Guy, Ph.D.

The text of the Abstract starts on this line with a 1/2 inch (5 spaces) indentation.

Figure 3. Abstract page

**Acknowledgments.** It is important and appropriate that you always acknowledge those people and organizations that provided significant contributions to your research and dissertation. Also, be sure to acknowledge any financial support that you received for your project. The acknowledgment page should be a separate page with "Acknowledgement" in bold letters centered at the top of the page and the page number shown as a roman numeral centered at the bottom of the page.

**Dedication.** A dedication (to parents, spouse, etc.) is optional. If included, it should be on a separate page, untitled, single spaced, with the page number shown as a roman numeral centered at the bottom.

**Text.** Chapters are designated by Arabic numerals used consecutively throughout the narrative. The chapter designation (e.g., Chapter 1) in bold letters should be centered within the margins at the top of the page. The chapter title also is in bold and is centered below the chapter designation. Each chapter begins on a new page. Chapter titles are separated from the text by either three or four lines.

Each chapter begins on a new page. Subdivisions within these chapters do not begin on a new page.

Space and economic considerations of journals used as patterns for style and format often demand brevity in articles. The more expanded presentation of a dissertation may require a more elaborate system for development and division than a journal employs. If this is necessary, you could use a system of subdivisions within the chapters.

**Tables and Figures.** Tables and figures must be able to stand alone without benefit of the text. The table titles, figure captions, legends, and symbols must be sufficiently complete so that a reader can understand the data without the need to refer to the text for explanation. However, avoid excessively long captions; interpretation of the data belongs in the text. No part of a table or figure can encroach into a margin, including captions, labels, etc. . If two or more titles or captions would otherwise be identically worded, then you should incorporate some differentiating word or phrase into each. The title usually is above the table while the caption is below the figure.

Tables and figures should be placed as close as possible after the first reference made to them in the text. For a short table or small figure, this may be on the text page itself, in which case it should be separated from the text by triple spacing at the top and bottom. A full-page table or figure should be placed on the page following the first reference to it.

Each table or figure in the main body of the dissertation must have a number and a title. The numbering should be consecutive from the beginning through to the end of the dissertation. In this regard, you have two basic choices of format: (1) number the tables or figures consecutively (i.e., Table 1, Table 2, Table 3, etc.) throughout the entire document; or (2) use a dual number system in which tables are numbered consecutively within each chapter and in which each number is preceded by the chapter number (i.e., Table 1.1, Table 1.2, Table 1.3, etc. in Chapter 1, and then Table 2.1, Table 2.2, Table 2.3, etc. for Chapter 2). When there are tables and figures in the appendix, they should be numbered Table A-1, Table A-2, etc. in Appendix A and Table B-1, Table B-2, etc. in Appendix B.

If tables (or illustrations) must be placed sideways on the page, then the top of the table (or illustration) should be at the binding side of the paper.

Tables longer than one page should repeat at the top of the following page(s): the table number, the complete title, and the word (**continued**), and the necessary column headings for ease in reading the table. Likewise, for figures that extend over more than one page, the caption should be on each page.

**List of Tables and List of Figures.** The titles of all tables and figures must be transcribed exactly (with their numbers) and in order on the List of Tables and List of Figures, respectively. When a title is exceptionally long, you may transcribe only the first line in the List of Tables or Figures providing that the first line clearly indicates the content of the table or figure and adequately differentiates between it and other tables or figures.

A List of Figures or List of Tables page is not necessary when the paper contains only one table or figure.

**Figures.** Care and some forethought should be given to preparing the illustrations for your dissertation. If necessary, color may be used, but unless absolutely necessary, its use is discouraged since the colors will not be duplicated by most copiers. Different line styles and/or symbols can be more effective at distinguishing data.

Computer graphics are encouraged if they are of sufficiently high quality and fonts and styles are the same as the rest of the dissertation. Most chemical structures look better and can be drawn more quickly using a computer instead of templates.

To make your figures as effective as possible, try to refrain from packing too much information into one graph. Usually only about nine symbols for different curves can be distinguished (X's, and open and closed circles, squares, triangles, and inverted triangles) on one graph.

If a figure is too large to fit within the margins, it may be photographically reduced. Be wary of using a copier to make successive reductions of a draft graph from which to draw a final figure. Each time a graph is copied, it becomes progressively distorted until the axes are at anything but a 90° angle!

Ideally, figure legends should be on the same page as the figures. Legend orientation must agree with the orientation (portrait or landscape) of the figure. The page on which the figure appears is numbered consecutively, with the page number placed in its usual position. On the List of Figures page, the number of the page on which the figure appears is the page number that is to be recorded opposite the figure number and title.

Reduced tables, charts, and figures must be large enough to read easily (minimum size for legibility is 1.5 mm for numbers and capital letters).

References. The system of referencing the sources of information used in the dissertation must follow the method used by the American Chemical Society journals. Bibliographical entries should include only those sources of materials cited directly in the text of the dissertation.

If you wish to list general references consulted and used as background study, then these may be listed as a subdivision to the References section. Some subheading title such as "Supplemental Sources Consulted" should be added at the conclusion of the sources cited directly, and the background materials may be listed alphabetically by author and should include the pertinent information for proper documentation.

EDITING YOUR MANUSCRIPT. At the risk of overstating the obvious, if you are at all unsure of the spelling of a word, USE A DICTIONARY or a spelling checker on a computer/word processor. Also, be careful to use words correctly. An excellent source book in this regard is Morton S. Freeman's A Treasury for Word Lovers, ISI Press, Philadelphia, 1983.

In editing your manuscript, you should check especially that your spelling is consistent (standard American) in all words that have alternative spellings; in geographical, trade, and people's names; in abbreviations; and in units. The same holds true with regard to spacing.

In proof-reading your dissertation, many mistakes may be caught if, after reading it front to back, you read your dissertation from back to front. Too often the tendency is to read what should be there rather than what is there.

References. References require careful, albeit tedious, checking. Some aspects to check in particular are:

- n Similar references should be cited in the same way with respect to information given, capitalization, and spacing.
- n The dates should agree with those given in the text.
- n The spelling and order of names (when there is more than one author) should agree with those cited in the text.
- n When more than one reference is cited, the order of citations should be done consistently (i.e., by date, alphabetically, or whatever).
- n The references in the reference section(s) should be in a consistent alphabetical style.
- n The reference must include the complete abbreviated title and beginning and ending pages.

Figures. Figures also should be standardized. Some aspects to check in particular are:

- n Similar figures should be set up in the same format, especially with regard to axis labels, capitalization, and symbols.
- n Maps must have latitude and longitude indications or, if the area under consideration is small (less than a few square kilometers), they should have a north arrow and a scale.
- n All symbols should be defined.



Table of Contents, Figure Legends, and Tables. Again, consistency is of key importance. Some aspects to check in particular are:

- n All headings, table titles, and figure legends should correspond exactly to those indicated in the Table of Contents, List of Figures, and List of Tables (exceptions: if symbols are defined or if a scale is given in a figure legend, they need not be included in the List of Figures).
- n A table or figure number cited in the text should correspond to the correct table or figure.
- n All tables should have the same format as far as capitalization, both in the table titles and table bodies.
- n All footnotes in tables and references in both tables and figures should be formatted consistently. For example, if one table references T. Doe as "Doe (1984)", then all tables use the same format, as opposed to "Doe, 1984" or "Source: Doe (1984)".

Acronyms and Abbreviations. All acronyms and abbreviations (except for standard units) should be defined the first time that they are used in the Abstract and then again the first time that they are used in the text.

Units. Units should be displayed in a consistent manner (only one system is used, e.g., mg/L and mm/hr or mg L<sup>-1</sup> and mm hr<sup>-1</sup>, not mg/L and mm hr<sup>-1</sup>) according to the style used by the ACS journals. If metric units are used, then all measurements should be metric, unless special custom dictates otherwise. This applies to all parts of the dissertation - text, tables, and figures. One space should separate the unit from the number.

Statistics. Consideration of accuracy and precision in measured or calculated values is most important. Without such information, your results will have limited application. Be sure that you use the appropriate number of significant figures consistently. Likewise, you should always state the number of replicates, means, and standard deviations, if applicable.

The use of advanced statistics has enabled scientists to uncover a wide range of correlation's and to test for significance. Each statistical test cited in your dissertation should be fully referenced and conform to standard nomenclature and procedure.

There are many textbooks and reference books available providing discussions of error and uncertainty in the measurement of properties.

SUGGESTED STYLE MANUALS. No one should assume that these pages answer the many questions of style arising during the course of preparing a dissertation. Again, refer to the Florida Tech Thesis Manual and Style Guide, available in the Department and at the campus bookstore. The ACS Style Guide (Washington, 1988) is another useful resource.

## DEADLINES

At least seven weeks prior to anticipated graduation, you should present your dissertation to your advisor for review. The dissertation must be successfully defended before the final examination week (one week prior to commencement). You must turn at least five copies of your dissertation into the Office of Graduate Programs no later than the Monday before commencement.

All other university deadlines are listed online <http://www.fit.edu/grad-programs/deadlines.php> . In addition, you should coordinate closely with your advisor on deadlines that they may require.

## COPYING AND BINDING

The current Thesis/Dissertation Binding Instructions describe the details, costs and deadlines. These are sent to graduate students registered for dissertation. Students can obtain additional copies at the Office of Graduate Programs.

In addition to the copies of your dissertation, several other forms must be turned into the Office of Graduate Programs. You must bring along your copy of the completed [Petition to Graduate form](#), showing that the binding fee has been paid, or a separate receipt for the paid binding charges (especially if you wish to have more than five copies bound).

As a Ph.D. candidate, you must also attach a completed [Survey of Earned Doctorate form](#) (available at the Office of Graduate Programs) and, in a separate envelope, a copy of your abstract with a completed [ProQuest Publishing Agreement form](#) (also available at Graduate Programs). If you wish to copyright your abstract, you must also enclose the necessary fee in the form of a certified check.

Plan to spend at least 15 minutes in the Office of Graduate Programs while all of the paperwork is being completed. You will receive a receipt from the Graduate Office vouching that you have turned in an acceptable dissertation. This will be your only proof that you did indeed turn in your dissertation, so keep it until you receive your bound copy.

## CHM 5900: Chemistry Seminar

### Guidelines and Policies on Seminars:

All graduate students (MS and PhD) must register for CHM 5900 every semester until they graduate

All must attend the seminars that are scheduled on **Thursdays at 5 pm.**

Occasionally there will be no seminars on Thursdays and at other times there will be seminars on Tuesdays at 5 pm. Please check the department's webpage for details:

<http://cos.fit.edu/chemistry/seminars.php>

Seminar Speakers include and are prioritized as follows:

- A. External Invited Speakers (highest priority)
- B. FIT Faculty (Chemistry or other departments)
- C. PhD Students in Chemistry
  - (i) Dissertation Research Proposal Seminar
  - (ii) Original Research Proposal Seminar
  - (iii) Dissertation Final Seminar

Therefore PhD students give **3 Seminars (highlighted in yellow in PhD flowcharts)** in the duration of the doctoral program. While all 3 seminars have corresponding defenses, only C(ii) and C(iii) are actually **Exams** officiated via Office of Graduate Programs and **must be announced 2 weeks prior (see PhD flowcharts)**

Although preferable, defenses do not need to be scheduled directly after seminar.

**Committee members need to be present only at defenses** (seminar is optional for them to attend although highly preferable)

Students must therefore schedule their seminars **with the seminar coordinator** on:

**Thursday at 5 pm or, if not available, choose the second option of Tuesday at 5 pm**

Defenses can be scheduled using Doodle polls to include all committee members. Please remember that the time you must include on the **announcement form** for these exams is the *defense time* and **not the seminar time**. Also include the room where the defense occurs.

Students should not wait to present their seminars at the end semesters. If students are not ready to defend, they can still give their seminars earlier in the semester, and simply brief the committee with the latest updates prior to the defense with a few slides, which could occur anytime the committee can be present up until the deadline provided by the Office of Graduate Programs (Check first).

## Suggested Times:

### Dissertation Research Proposal C(i)

**Seminar:** 45 min + up to 10 min questions

**Defense:** schedule 1 hour (ideally directly afterward but not a requirement)

### Original Research Proposal C(ii)

**Seminar:** 45 min + up to 10 min questions

**Defense:** schedule 1 hour (ideally directly afterward but not a requirement)

### Dissertation Research Defense C(iii)

**Seminar:** 45 min + up to 10 min questions

**Defense:** schedule 2 hours (ideally directly afterward but not a requirement)

## Seminar Etiquette:

Although these things should not have to be spelled out, they are included here for emphasis of *serious importance*, not just for your degree, but also for your entire career ahead.

1. **Attend between 4:50 – 4:55 pm** (not at 5:00 pm).

Seminar speakers are already anxious about giving their lectures and keeping their diverse audience engaged while also making sure they cover all aspects clearly. For many students, it is often their first talk in a foreign language. Do not interrupt their train of thought by walking in late accompanied with door slams. It is embarrassing and disrespectful to our external speakers, our faculty, and your fellow student colleagues. Once you give your first talk, you will know how it feels to be interrupted. So respect others if you wish to receive the same in return. Walking in late during the introduction by the host is equally disruptive and disrespectful

2. Unless you have been preapproved to leave before 6 pm, no one should leave before 6:00 pm
3. Turn off or completely silence your mobile/cell phones/electronic devices
4. Do not speak or whisper to one another **between 5:00 – 6:00 pm**
5. Do not ignore the speaker by looking at your phones – taking notes on electronic devices is acceptable, however, keep in mind that speakers and others around you can tell the difference between being attentive while taking notes versus web surfing/texting
6. Pay attention – A lot goes into arranging these events for the sake of broadening your scientific knowledge and connecting you to the outside world
7. Be engaged in the event and participate by asking questions (to the speaker and not to one another). Ask in a clear and loud voice and only after the speaker completes their lecture

# PhD FlowChart (for students without a prior MS degree in Chemistry/biochemistry)<sup>a</sup>

4/19/2017

These are the minimum required courses, credits, and degree exams. Successful completion does not guarantee PhD degree. See complete guidelines for details.

TERM	YEAR 1	cr	YEAR 2	cr	YEAR 3	cr	YEAR 4	cr	YEAR 5	cr	NOTES
FALL	2 courses	6	3 courses	9	CHM 6095	3	CHM 6999	3	CHM 6999	3	* do not, under any circumstance, register without discussing your program with your advisor  ** if 6 points are not earned then register for CHM 5095 for MS terminal degree
	CHM 5900	0	CHM 5900	0	CHM 6095	3	CHM 6999	3	CHM 5900	0	
	CHM 6095	0	CHM 5900	0	CHM 6095	3	CHM 5900	0	CHM 5900	0	
	<b>total</b>	<b>6</b>	<b>total</b>	<b>9</b>	<b>total</b>	<b>9</b>	<b>total</b>	<b>6</b>	<b>total</b>	<b>3</b>	
	<ul style="list-style-type: none"> <li>• selection of Research Advisor*</li> <li>• Program Plan</li> <li>• Selection of Committee (by Nov 15)</li> </ul>		CUMEs (4)		present and defend Original Research Proposal		ADMITTED TO CANDIDACY  MS degree earned		Petition to graduate (by 1st wk Sept.)		
SPRING	3 courses	9	3 courses	9	CHM 6999	3	CHM 6999	3	CHM 6999	3	→ can be merged with year 4 in an accelerated degree program  ↪ to committee 1 week prior to defense  ↪ outline due to committee 1 month prior
	CHM 5900	0	CHM 5900	0	CHM 5900	0	CHM 5900	0	CHM 5900	0	
	<b>total</b>	<b>9</b>	<b>total</b>	<b>9</b>	<b>total</b>	<b>3</b>	<b>total</b>	<b>3</b>	<b>total</b>	<b>3</b>	
	CUMEs (4) first one optional		CUMEs (4)**								
	schedule 1st mtg with committee (by March 31)		schedule meeting with committee (discuss progress)		schedule meeting with committee (discuss progress)		schedule meeting with committee (discuss progress)		schedule meeting with committee (discuss Dissertation)		
	Present and Defend Research Proposal		If an MS degree is desired, petition to graduate for next Fall (by 2nd wk in March)						present and defend Research Dissertation		
SUMMER	CHM 6095	3	CHM 6095	3	CHM 6999	3	CHM 6999	3			announce to Graduate prog. 2 weeks prior
	Start of lab research										
<b>Yearly</b>	<b>Total Credits</b>	<b>18</b>	<b>Total Credits</b>	<b>21</b>	<b>Total Credits</b>	<b>15</b>	<b>Total Credits</b>	<b>12</b>	<b>Total Credits</b>	<b>6</b>	
							University Terms		CHM Dept Terms		
							Comprehensive Exams Written Oral		CUMEs Original Research Proposal		need 2 exam forms (MS, PhD)
							Dissertation Proposal Conference		Research Proposal		due to committee
							Dissertation Defense		Dissertation Defense		1 month prior
	<b>PhD total Cr. 72</b>										

SUMMARY OF CREDITS: (every course is 3 credits)

<sup>a</sup> any deviation from this must be discussed with research advisor

11 formal courses† 33

33



† at least 8 CHM courses;  
 maximum of 2 courses can be 3000 or 4000  
 (CHM courses cannot be lower than 4000)  
 4 core CHM courses required for MS in Chem  
 2 core CHM courses required for MS in Biochem

5 CHM 6095  
 8 CHM 6999

15 or 3 CHM 6095 9  
 24 10 CHM 6999 30

range	
(15-9 cr.)	
(24-30 cr.)	

**TOTAL 72**

**72**

prepared by Professor Nasri Nesnas

# PhD FlowChart (for students with an approved MS degree in Chemistry/biochemistry)<sup>a</sup> 4/19/2017

These are the minimum required courses, credits, and degree exams. Successful completion does not guarantee PhD degree. See complete guidelines for details.

TERM	YEAR 1	cr	YEAR 2	cr	YEAR 3	cr	YEAR 4→	cr	NOTES
FALL	2 courses (or 3 courses and 1 course in SP)	6	CHM 6095	3	CHM 6999	3	CHM 6999	3	* do not, under any circumstance, register without discussing your program with your advisor  ** if 6 points are not earned then register for CHM 5095 for MS terminal degree
	CHM 5900	0	CHM 5900	0	CHM 5900	0	CHM 5900	0	
	<b>total</b>	<b>6</b>	<b>total</b>	<b>3</b>	<b>total</b>	<b>3</b>	<b>total</b>	<b>3</b>	
	<ul style="list-style-type: none"> <li>• selection of Research Advisor*</li> <li>• Program Plan</li> <li>• Selection of Committee (by Oct 31)</li> </ul>		CUMEs (4)		present and defend Original Research Proposal		<b>Petition to graduate (by 1st wk Sept.)</b>		
SPRING	2 courses CHM 6095	6 3	CHM 6095	3	CHM 6999	3	CHM 6999	3	→ can be merged with year 3 in an accelerated degree program  to committee 1 week prior to defense  outline due to committee  1 month prior  announce to Graduate prog. 2 weeks prior  due to committee 1 month prior
	CHM 5900	0	CHM 5900	0	CHM 5900	0	CHM 5900	0	
	<b>total</b>	<b>9</b>	<b>total</b>	<b>3</b>	<b>total</b>	<b>3</b>	<b>total</b>	<b>3</b>	
	CUMEs (4) first one optional		CUMEs (4)**						
	<i>schedule 1st mtg with committee (by March 31)</i> Present and Defend Research Proposal Start of lab research		<i>schedule meeting with committee (discuss progress)</i> or CHM 6999 if ORP is done see lower right		<i>schedule meeting with committee (discuss progress)</i>		<i>schedule meeting with committee (discuss Dissertation)</i> present and defend Research Dissertation		
SUMMER	CHM 6095	3	CHM 6095	3	CHM 6999	3			
<b>Yearly</b>	<b>Total Credits</b>	<b>18</b>		<b>9</b>		<b>9</b>		<b>6</b>	
							<b>University Terms</b>	<b>CHM Dept Terms</b>	
							Comprehensive Exams Written Oral	CUMEs Original Research Proposal	due to committee
	<b>PhD total Cr. 72</b> incl. 30 Cr. for MS						Dissertation Proposal Conference	Research Proposal	1 month prior
							Dissertation Defense	Dissertation Defense	

SUMMARY OF CREDITS: (every course is 3 credits)

<sup>a</sup> any deviation from this must be discussed with research advisor

MS degree credits	30
4 formal courses	12
5 CHM 6095	15
5 CHM 6999	15
<b>TOTAL</b>	<b>72</b>



maximum of 2 courses can be 3000 or 4000 (CHM courses cannot be lower than 4000)
or 9 crdts CHM 6095 + 21 credits of CHM 6999 (minimum of 15 credits of CHM 6999 required)

prepared by Professor Nasri Nesnas