Marquette University
Department of Chemistry

Graduate Student Handbook
INTRODUCTION

This handbook has been prepared by the Department of Chemistry's Graduate Committee (GC) with the intent of providing each graduate student with the necessary information in the pursuance of his/her graduate degree. The handbook is divided into two sections. The first section gives the general and specific requirements leading to the Ph.D. and M.S. degrees. Here you will find the various courses, exams and annual reviews required to complete your graduate degree. The latter section, the Appendix, lists the forms and procedures which each student must follow for both the Ph.D. and M.S. degrees.

Additional regulations, requirements and procedures may be found in the Graduate Bulletin.

Should you have any questions regarding any of the items given herein, please consult with the Chairperson of the Chemistry Department or the Director of Graduate Studies (DGS).

DGS
03/2016

STATEMENT OF HONESTY AND TRUST IN RESEARCH

Research achievement is the heart of the Ph.D. and M.S. programs. Progress in research is entirely dependent upon the honesty of the worker. Any form of falsification of data is counterproductive to progress and victimizes all who depend upon that data.

The crucial nature of the role played by honesty in the research enterprise cannot be overstated. For that reason, any evidence of dishonesty in any aspect of our program must be regarded as a grave violation of our tenets. One should expect, therefore, that any incident of cheating in a course or any other part of our program will be grounds for dismissal.

The trust that will develop between you and your research advisor is a great treasure. Many such relationships grow into lifelong friendships and are mutually rewarding to both parties. The establishment and maintenance of this trust is an honorable goal for both the faculty advisor and the graduate student.

03/2016
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General Requirements for all Chemistry Graduate Students (M.S. or Ph.D.)

All students must complete the general requirements in the time allotted. These requirements are as follows.

I. Proficiency Exams

Proficiency exams are given at the time the student enters the program. Exams will normally be the ACS exam in each subject area (Analytical, Inorganic, Organic and Physical Chemistry) with a minimum passing grade to be in the 65th percentile rank. The student must pass three out of the four proficiency exams.

Students enrolled in the Chemical Physics program must pass three exams: Physical Chemistry, Chemical Physics (parts A: Electricity & Magnetism; B: Classical Mechanics) and Quantum Mechanics.

To prepare for the proficiency examinations in a given subject, the student should study from the following texts:

- **Analytical Chemistry**: Daniel C. Harris, "Quantitative Chemical Analysis," 6th ed. (W. H. Freeman, San Francisco). This examination emphasizes chemical equilibrium, volumetric methods, and basic concepts of electrochemical and spectroscopic methods.
- **Quantum Mechanics**: Engel and Reid, "Quantum Chemistry and Spectroscopy" 3rd ed. (Pearson, 2013). This examination emphasizes Quantum mechanics, spectroscopy and statistical mechanics.

Each deficiency can be made up by either:

1. Retaking the exam. Exams will normally be given in August, January and May. A maximum of two additional chances are allowed for a given exam.

2. Passing one or more of the following courses:
   a. Inorganic – CHEM 5330 (offered fall term)
   b. Physical – CHEM 4433 (offered fall term)
   c. Analytical – CHEM 3201 (offered spring term)
   d. Organic – CHEM 2112/2114 (spring term, CHEM 2114 preferred)
   e. Physics – PHYS 4031 or EECE 3110
   f. Quantum – CHEM 4434 or PHYS 4012

If option 2 is chosen, the student must take and pass the course at the "BC" or better grade level. NOTE: All deficiencies must be removed by the end of the student's 2nd semester in the program.
II. Course Selection

New graduate students should select their courses in consultation with the GC. Usually, this is done in August, right after the proficiency tests. A list of offered graduate courses will also be available from the department’s secretary. After students have been placed into a research group, students should consult their research advisor regarding course selection. Note that specific course requirements are different in the M.S. degree (30 hours) and Ph.D. degree (36 hours) programs.

III. End-of-Semester Review

The GC reviews the progress of each student at the end of each semester, and gives each student a written evaluation of his/her progress. The GC will consider course work, advisor's comments, teaching evaluation, seminar, and all other requirements of the program in its review. Continuation in the program is contingent upon a satisfactory evaluation by GC. Particular attention will be paid to 3rd semester students, to ensure their success in reaching the GPA=3.0 (or better) in 15 hours of the formal (non-6995) course work by the end of the 4th semester.

IV. Literature Seminar

The student will present a literature seminar to the department, which should be given during the 4th semester of study, and must be completed by the end of the 5th semester of graduate study. The topic must be drawn from the recent literature and can be given on any subject, including the exhaustive literature background regarding the research the student is planning to carry out for his/her Master’s thesis or Doctoral dissertation. In the latter case, explicit connections between their research and the seminar must be given, and the seminar will be graded by the dissertation/thesis committee. Each committee member will use the Seminar Scoring Rubric found in Sec. 11-A. A pass or fail grade for the seminar will be assigned based on these scores and the discussion between the committee members. The guidelines for seminar preparation are given in Sec. 7-A

NOTE: All graduate students must register for CHEM 6960 (Seminar) for each semester in which they are in residence. Attendance at all Tuesday, Friday and specially announced seminars is mandatory and will be monitored.

V. Other

It is the responsibility of the student and his/her advisor to make sure that all graduate school requirements are satisfied for the M.S. and Ph.D. degrees. Additional regulations, requirements, and procedures are found in the Graduate Bulletin, available on the Graduate School website.
Specific Requirements for the Ph.D. in Chemistry or Chemical Physics

In addition to the general requirements listed above, the following Specific Requirements must be met for Ph.D. students:

I. Course Work
   At least twenty-four (24) hours of formal coursework is required, which may include up to a maximum of six (6) hours of Chem 6995 (Independent Study). In addition, twelve (12) hours of Chem 8999 are required by the Graduate School.

II. Doctoral Program Planning Form (DPPF)
   At the end of the student’s 2nd semester of study, it is necessary to complete and file a Doctoral Program Planning Form. This includes formation of the Dissertation Committee.

III. Dissertation Committee
   The dissertation committee will normally consist of four faculty members, including the advisor as Committee Chairperson. Student and advisor will select two of the members, one of which can be external (this is encouraged). One more committee member will be assigned by the GC.

IV. Research Meeting
   In the 5th semester, a public research meeting will be conducted by the Dissertation Committee, usually held in TWC 121. A notice giving the student’s name, date, and members of the Dissertation Committee shall be posted in the Chemistry Building at the beginning of semester; notice must also be given in the Weekly Bulletin of the department.

   Procedures: The student should be directed to give a 40 minute oral presentation, followed by 10 min for questions; questions from the public may precede those by the committee members. The examination by the committee will follow the oral presentation and will normally be carried out in a closed meeting. The advisor is not required to be present during the post-presentation meeting with the committee. If the advisor chooses to remain, he/she is not permitted to answer any question for the student or to ask leading questions thereby facilitating the student responses. The advisor has the right to discuss the evaluation of the student after the student has been dismissed from the room and any Committee member will have the right to direct questions about the student to the advisor.

   Written Document: The student will submit to the Committee, at least one (1) week in advance, a written document which includes an adequately informative Introduction to the field, a thorough description of the Research Methodology, and a Results and Discussion section(s). It is required that the student will write at least the Introduction and Research Methodology sections with minimal input from the advisor; although the primary research advisor might wish to suggest broad outlines and recommend points to be emphasized. Failure to submit the research meeting document on time will result in automatic failure. The document will be read by each Committee member and the student will be expected to make any reasonable changes suggested by any Committee member in compiling a final version of the document, which will be placed in the student’s file. This must be finished within 7 days following the meeting date.
Evaluation: Each committee member will fill out the Research Meeting Scoring Rubric, evaluating separately the written document, the presentation, and the closed examination. This rubric can be found in Sec. 12-A. In addition, the advisor will submit prior to the research meeting a formal (one-page) written assessment of the student. In an attempt to define reasonable expectations for student performance at this meeting, the following performance parameters are most important. (1) The student must demonstrate a reasonable grasp of the general field of knowledge, being able to clarify the significance of their ongoing and planned research projects. (2) The student must provide evidence that they are making good progress in mastering the research methodologies that are needed to conduct their planned research. (3) The student must provide evidence that they have completed a significant amount of experimental or computational work that has generated new knowledge.

Paperwork: A report of the meeting, including the Committee’s recommendation regarding continuation in the Ph.D. program, using the forms provided in Appendix 5-A. must be completed by the Dissertation Committee Chairperson as soon as possible, certainly within 1 week of the Research Meeting and submitted to the DGS, who will immediately relay the decision to the student. Copies of these documents, along with the student’s written report, will be placed in his/her file.

V. Advancement to Candidacy

Following successful completion of the Research Meeting, a student is considered to be "advanced to candidacy" upon completion of the following requirements:

1. Satisfying the residency requirement,
2. Completing all required courses with non-6995 GPA=3.0 or better, and
3. Satisfactorily completing the Research Meeting.

When these requirements are satisfied, the department will file the appropriate form ("Doctoral Qualifying Examination Committee Chairperson's Summary") with the graduate school. The student will then become a Ph.D. candidate.

VI. Annual Reviews

Annual reviews of research progress with the Dissertation Committee must be held during the 7th semester before the beginning of finals week (see p. A7). The format of the student's report to the committee will be at the discretion of the Dissertation Committee Chairperson (examples include: slides of the oral presentation, preliminary version of the thesis, or a shorter document outlining new developments and/or publications). The Dissertation Committee shall evaluate the student's progress using the Annual Review Report form, which shall be forwarded to the Chairperson of the GC. A copy of each review report should be placed in the student's file.

VII. Dissertation Defense

Upon completion of research, the student shall present the results to the Dissertation Committee in a public defense, followed by a nonpublic oral examination. (See A-12) Each committee member will fill out the Thesis/Dissertation Scoring Rubric, evaluating separately the written document, the presentation, and the closed examination. This
rubric can be found in Sec. 13-A. In addition, the advisor will submit prior to the defense a formal (one-page) written assessment of the student.

VIII. **Other**

A. Beyond the 10th semester, the student is not normally eligible for university financial aid.

B. The student should consult the Graduate School Bulletin for special requirements for the Ph.D. such as filing of Dissertation Outline, submission of Ph.D. dissertation for graduation, deadlines and procedures for filing for graduation, etc. Deadlines for a given year are posted in the official MU Academic Calendar.

C. All copies of letters, reports, etc. must be placed in the student's file.

**Specific Requirements for the M.S. (Plan A or B) in Chemistry or Chemical Physics**

All M.S. students must complete the General Requirements in the time frame allotted. In addition, the following specific requirements must be met:

I. **Course Work and Thesis**

A. **Plan A - (Thesis)**

A total of twenty four (24) hours of course work are required, of which at least 6, but not more than 9 credit hours may be Chem 6995 (Independent Study). In addition, six (6) hours of Chem 6999 are required.

B. **Plan B - (Essay)**

A total of twenty four (24) hours of course work are required, of which six (6) are Chem 6995 (Independent Study). In addition, six (6) hours of Chem 6999 are required.

**Departmental Policy on the Plan B Option:**

*RResearch is at the heart of graduate education in chemistry. Therefore, the Plan B option is not normally permitted, except for secondary school teachers seeking to advance their standing in their school districts. Those wishing to pursue this program should apply for permission to the GC.*

II. **Thesis or Essay Committee and Thesis Outline**

The Chair of the GC may choose one of the three members of the Thesis or Essay Committee, in consultation with the student's advisor. The committee will be selected by the end of the 2nd semester. The Committee will consist of three members of the scientific faculty of Marquette University, two of whom must be members of the Chemistry Department. The committee may also consist of one more member outside of the Marquette Faculty, at the discretion of the advisor and GC. NOTE: The Thesis Outline should be filed with the Graduate School by the end of the 3rd semester of graduate study.
III. **Research Meeting (Plan A only)**

Some evidence of research progress must be demonstrated to his/her thesis committee by the end of the 3rd semester. A concise written report should be prepared and a copy given to each committee member, and placed in the student's file. The research director will also place a copy of the committee's report in the student's file.

IV. **Essay (Plan B)**

An Essay Committee (usually the chair of the committee) will ask the student for a literature review of some area in chemistry. The essay must include not only a review of the literature but also a section on how the student will propose an extension of some problem or initiation of some research pertinent to the essay's content.

V. **Thesis or Essay Defense**

The student will defend his/her thesis or essay in public. A successful defense is equivalent to passing the comprehensive examination discussed in the graduate bulletin. Copies of the thesis must be filed in the Graduate School office. Each committee member will fill out the Thesis/Dissertation Scoring Rubric, evaluating separately the written document, the presentation, and the closed examination. This rubric can be found in Sec. 13-A. In addition, the advisor will submit prior to the defense a formal (one-page) written assessment of the student.

VI. **Right of the M.S. Student to Petition for Admission to the Ph.D. Program**

All M.S. degree students who wish to be considered for admission to the Ph.D. degree program must: (1) have completed the General Requirements; (2) petition, in writing, the GC by the end of the student's 4th semester of graduate study, the reasons why admission into the Ph.D. program should be attained. The GC will consider the student's overall progress and he/she must show the potential for independent research, which is characteristic of the Ph.D. student.

VII. **Other**

A. A M.S. student is not normally eligible for university financial aid after the 4th semester.

B. See Graduate School Bulletin for time limitation and any special requirements.

C. All copies of letters, reports, etc. must be placed in the student's file.
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Choosing a Research Director

Students who are admitted under our direct recruiting policy are placed into a group immediately upon matriculation. Students admitted as open (non-directed) must adhere to the following process for selecting a research advisor.

To aid in choosing a research director, faculty research seminars will be given early in the Fall semester; **first-year students must attend all faculty seminars.** Each student is required to discuss research opportunities with all faculty listed on the Research Conference Form, a list of all faculty members who are accepting new graduate students into their group, which will be distributed early in the Fall semester. Further private discussion with the faculty is strongly encouraged. Part-time students are required to interview only three faculty members. For an overview of faculty research interests, please consult the department website.

The Research Conference Form must be returned by the date specified to the Director of Graduate Studies before the student begins his/her research activities. **Please have at least two faculty with whom you have had extensive discussion sign the form.** Indicate on this form your first and second choices for the research director. The first and second choices will be forwarded to the faculty listed who will make their choices of students. Problems will be resolved by convening the DGS, RAC, chair and department chair. NOTE: It is the right of each faculty member not to accept any given student into her/his research group.

Under certain very specific circumstances, it may be possible to bypass the normal selection procedure. Please consult with the Director of Graduate Studies for details.
Transfer of Credits

A total of six (6) credit hours of course work may be transferred from another institution. Students wishing to transfer a course from another institution should submit a course description to the DGS. This might be lecture notes, a page from the course catalog of the other institution, a letter from the instructor at the institution, or other reasonable evidence.

The GC will examine the evidence submitted by the student and will, after consulting with other faculty members as appropriate, make a decision. If the decision is favorable, then the following actions can be taken:

M.S. students: A memo describing the course and its Marquette equivalent will be attached to the planning form.

Ph.D. students: The equivalent MU course(s) will be entered on the Doctoral Program Planning Form (at the end of the 2nd semester), and a course description of the course(s) taken at the other institution will be attached to the planning form.

The Graduate Bulletin must be consulted for more information.
THESIS OR DISSERTATION COMMITTEE APPROVAL FORM

To: _________________________________________   Date ______________
   (Student's name)

The following thesis/dissertation committee is hereby approved by the Graduate Committee:

______________________________________________________ Chair

______________________________________________________

______________________________________________________

cc: Committee chair and members and student file 11/05
RESEARCH MEETING REPORT
and
RECOMMENDATION TO THE GRADUATE CURRICULUM COMMITTEE

To: (Student's Name): ______________________  No. of Semesters at MU: ________
Copy to: Graduate Curriculum Committee    Date: ______________________________

Evaluation of the written research report:

The written report is satisfactory.
The written report requires revision.

Comments by the committee on the written report:

Evaluation of the overall progress and quality of the research:

Excellent    Very Good    Good    Fair    Poor

Comments by the committee:

Recommendation to the GC:    Progress is satisfactory, continue in program
Other: ______________________________

Signatures of committee members:

_________________  ___________________  ___________________
(Chairperson)

_________________  ___________________

7/93
Program Transfer
(Ph.D. to M.S., or M.S. to Ph.D.)

M.S. students must file an application for admission to the Ph.D. degree program with the Graduate School.
Graduate Student Literature Seminar

Below are summarized the requirements for preparation and presentation of the seminar. The basis for grading the seminars is also set forth. Please read these carefully.

1. A graduate student can choose a general seminar topic, not directly relevant to his/her research project. In this case the Graduate Seminar Committee will be assigned by the GC, which will consist of three faculty members, including the Seminar Director. Alternatively, a graduate student can present the exhaustive literature background regarding the research topic on which the student is planning to carry out research for his/her Master’s thesis or Doctoral dissertation, putting their planned work into perspective. In this case the seminar will be graded by the student’s dissertation/thesis committee (formed at the end of 2nd semester). The student should inform the Seminar Director of his topic/committee choice no later than the first week of classes.

2. The seminar should be a professional level presentation. It should be well-organized and clearly presented with specific chemical details and arguments. The scientific level should parallel that of recent (last 5 years) specialized journal articles (e.g., J. Am. Chem. Soc., Inorg. Chem., J. Org. Chem., J. Phys. Chem., J. Chem. Phys, etc.). NOTE: Topics directly taken from the review-type journals (such as Acc. Chem. Res., Chem. Rev., etc.) will not be allowed.

3. The talk should make primary use of Power Point or similar computer software.

4. Students are advised to give a practice seminar at least one week before their seminar presentation. The presence of their research advisor is appropriate. It is the student's responsibility to request help from other faculty, if necessary, to present a professional level seminar. It is recommended that the student prepare an outline of the talk prior to the practice of the seminar.

5. A one-to-two page abstract with a complete bibliography, following current J. Am. Chem. Soc. Style, should be submitted to the department secretary no later than Friday of the week before the seminar. At the top of the first page and in the upper right hand corner, put your name and date of the seminar. Three spaces below that put the title of your seminar in capital letters. Leave a double space, type the word ABSTRACT in capital letters and underscored. Leave a space and start the body of the abstract. After the abstract, leave a double space and type the word REFERENCES in capital letters and underscored, followed by two spaces, then list your references.

6. A seminar schedule giving the student's name, date, and members of the committee shall be posted in the Chemistry Building at the beginning of semester; notice must also be given in the Weekly Bulletin of the department. Seminar should start promptly at 12:00 noon and last about 40 minutes, leaving about 10 minutes for questions.

7. The seminar will be evaluated based on the Seminar Scoring Rubric filled by each committee member (see Sec. 11-A). It is recommended that you read this rubric prior to the seminar to be aware of all requirements. The grade will be pass or fail. The comments and scores of each grader, as well as the final recommendations of the committee, will be made available to the student.

4/2013
Dissertation Submission and Oral Defense (Ph.D.)

1. At the beginning of the semester prior to your planned graduation the student shall complete the on-line Graduation Application available at the Graduate School website.

2. Insure that the Doctoral Planning Form and Outline for Dissertation, Thesis, or Professional Project have been filed with the graduate school. Forms are available at the Graduate School website.

3. Consult the Dissertation Directives available at the Graduate School website for procedures for preparing the dissertation, scheduling an oral defense, and submitting the dissertation.

4. At least one month prior to the scheduled oral defense, the student shall submit five copies of the dissertation to the members of the Dissertation Committee and inform the department secretary of the impending defense. The dissertation must have been read and approved by the research advisor before distribution to the committee.

5. At least one month prior to the scheduled oral defense, the student shall present copies of the "Request for Announcement of Final Public Examination for Doctoral Degree" and the "Dissertation Defense Program" to the Departmental Chair's secretary. These two items are due in the Graduate School one month prior to the scheduled defense. The "Dissertation Defense Program" can be typed by the Chair's secretary if submitted to the office one week before it is due at the Graduate School. The Chair’s secretary shall be notified to reserve a room for the defense.

6. The forms required for the defense, namely the "Confidential Report on Dissertation for the Degree of Doctor of Philosophy" and the "Report of the Final Examination for the Doctor of Philosophy Degree" will be prepared by the Chair’s secretary and placed with the copy of the dissertation to be given to the research advisor.

7. The forms mentioned in item 3 above should be signed and returned to the Chair's secretary after the oral defense. These forms will then be sent to the Graduate School.

8. The original copy of the dissertation complete with the signed dissertation approval page should be submitted to the departmental office by the student. The dissertation will then be delivered by a member of the office staff to the Graduate School. If the dissertation needs revision, it will be the student's responsibility to submit it to the Graduate School when it has been revised and approved.
Thesis Submission and Oral Defense (M.S.)

1. At the beginning of the semester prior to your planned graduation the student shall complete the on-line Graduation Application available at the Graduate School website.

2. Insure that the Outline for Dissertation, Thesis, or Professional Project has been filed with the graduate school. Forms are available at the Graduate School website.


4. At least two weeks prior to the scheduled oral defense, the student shall submit one copy of the thesis to each of the three thesis committee members. The thesis must have been read and approved by the research advisor for distribution.

5. The time and date for the defense must be agreed upon by the Thesis Committee before the thesis may be submitted to the committee.

6. The Departmental Chair's secretary shall be notified two weeks prior to the defense to (1) reserve a room for the defense, (2) notify the Graduate School of the date of the defense, and (3) prepare and distribute the public announcement of the defense.

7. The forms required for the defense, namely, the "Confidential Report on Thesis for the Master's Degree" and the "Departmental Report on Comprehensive Examination for Master's Degree" will be prepared by the Chair's secretary and forwarded to the student's research advisor.

8. The forms mentioned in item 4 should be signed and returned to the Chair's secretary after the oral defense. The forms will then be sent to the Graduate School.

9. The three copies of the thesis complete with the signed thesis approval page should be submitted to the departmental office by the student. The thesis will then be delivered by a member of the office staff to the Graduate School. If the thesis needs revision, it will be the student's responsibility to submit it to the Graduate School when it has been revised and approved by the entire Thesis Committee.
Responsibilities of Teaching Assistants

This appendix outlines the responsibilities of graduate students who are paid by the University to be teaching assistants. Most teaching assistants work in teaching laboratories and in lecture sections when examinations are being given and graded. In General Chemistry your immediate supervisor for your laboratory duties is the General Chemistry Coordinator. Your supervisor for assisting with examinations (proctoring and grading) is the lecturer.

Laboratory Duties for Teaching Assistants
- TA’s are responsible for up to three laboratory sections.
- Normally, TA’s will hold one or two office hours each week, as directed by your supervisor. Office hours will be held on 2nd floor of the Chemistry Building, not in research laboratories. The primary goal is to help students develop problem solving skills and to learn to use course materials such as the syllabus or the textbook to find answers to their questions. Help any student who asks for help, being kind and courteous.
- TA’s are expected to attend all meetings called by your supervisor and to be on time. You will be directed to practice the next experiment and/or given directions on what to say about it to your students.
- Take attendance at every meeting of every laboratory section. Good attendance records are required.
- Be available, and be helpful. Move around the room during the laboratory period, watching for and correcting improper procedures.
- Students are responsible for cleaning up their work areas and returning any equipment to the proper place. Using student helpers to restore the room set-up is encouraged, but when messes are left behind by students, the cleanup becomes your responsibility. At the end of the laboratory period, refill bottles, close all water and gas valves, clean all balances, and return all pieces of equipment to their proper locations (e.g., the stockroom and communal lockers). Return keys to the stockroom. Turn off the lights. Close windows and doors.
- Grade student laboratory reports promptly and carefully, following established grading guidelines. Be fair but have high expectations. Put helpful suggestions on reports. A class average which is lower or higher than normal suggests that either you have an exceptional section, or you are not following the guidelines, and your section average will be adjusted.
- If asked, make solutions to be used in your laboratory sections.
- Record and report your grades promptly, as directed by your supervisor.

REMEMBER: You are there to establish a safe environment and to teach chemistry. You are not there to use harsh discipline or entertain. Do not hesitate to seek help from your supervisor if something unexpected happens which you don't know how to deal with during a laboratory period.

Lecture Duties for Teaching Assistants
- Unless excused by the lecturer, attend all lectures given. When asked by the lecturer, distribute or collect materials, erase the chalk board, assist with demonstrations, etc.
- Assist the lecturer in giving examinations. Attend all exam session, arriving at least 15 minutes before the exam starts. Be aware that the students may have a legitimate question about the examination, or a legitimate problem might arise (e.g., illness, dead calculator batteries, no eraser, etc.). Cheating will not be tolerated in any exam, and will be subject to penalty. Report suspected cases of cheating to the instructor who will make the final judgment. Do not take action yourself. Remember: Your main job as a proctor is to help provide a good atmosphere for the students to take the examination.
• Assist the lecturer in grading examinations. This includes grading the assigned problem(s) and entering grades accurately onto a recording sheet and computerized record keeping program.

**Procedures for Dealing with TA Issues**
October 30, 2012

The following procedures are set forth for dealing with TAs who are negligent in performing the requirements of their assistantship. Such issues of an important nature should normally be dealt with at the time of offense.

**First Offense:** Verbal Warning (from lab director)

**Second Offense:** Warning letter (from lab director), copied to student file, GC, advisor

**Third Offense:** Meeting with student, lab director, GC chair (and Dept. Chair, as required) to discuss the issue. A second letter is written from the GC chair, copied to student file, department chair, and advisor. This letter should stipulate the action that will be taken following another offense.

**Fourth Offense:** Action taken.

The “action” above usually means suspension of TA assistantship, including the stipend. After 2nd and 3rd offence student can submit a letter to GC, outlining how he/she is intended to improve in order to remove the issue.
Graduate Seminar Scoring Sheet  
MU Department of Chemistry  
Faculty Reviewer: _____________________

<table>
<thead>
<tr>
<th>Area of Scoring</th>
<th>Does not meet expectations</th>
<th>Meets Expectations</th>
<th>Exceeds Expectations</th>
<th>Area Score</th>
</tr>
</thead>
</table>
| Organization    | □ Main idea is not focused or developed, talk is poorly organized  
                    □ Introduction is poorly developed  
                    □ Main points are difficult to identify  
                    □ Conclusions unclear  | □ Main idea is evident, organization needs to be strengthened  
                    □ Introduction is adequately developed  
                    □ Main points can be identified, perhaps not fully developed  
                    □ Conclusions are clearly stated  | □ Main idea is well developed, talk is well organized  
                    □ Introduction states purpose clearly  
                    □ Main points are clear and fully developed  
                    □ Conclusions are clearly stated and tie back to introduction  | Score = 9.5  
|                  | □ Score = 6.8  
                    □ Score = 9.10  |
| Topic Knowledge | □ Poor grasp of subject  
                    □ Questions cannot be answered  
                    □ Few sources cited: inappropriate supporting material  
                    □ Over dependence on notes  | □ Adequate grasp of subject  
                    □ Questions are answered, but student may fail to elaborate  
                    □ Citations are mostly appropriate and accurate  
                    □ Student may depend too heavily on notes  | □ Firm grasp of subject  
                    □ Questions are answered clearly with explanations and elaboration  
                    □ Citations are introduced appropriately and accurately  
                    □ Notes used for reference only  | Score = 9.5  
|                  | □ Score = 6.8  
                    □ Score = 9.10  |
| Presentation    | □ Language choices are limited, too complex, or too dull  
                    □ Audience has difficulty hearing  
                    □ Number of and/or content of slides inappropriate, detracts from talk  
                    □ Delivery detracts from message, is hesitant  | □ Language used is mostly respectful and appropriate  
                    □ Most audience members can hear  
                    □ Number of and content of slides is adequate  
                    □ Delivery is generally effective, little hesitation  | □ Language is familiar to audience and appropriate  
                    □ All audience members can hear  
                    □ Number of and content of slides is appropriate and enhances talk  
                    □ Delivery is natural and confident, no hesitation  | Score = 9.5  
|                  | □ Score = 6.8  
                    □ Score = 9.10  |

TOTAL SCORE (0-30)

Comments:

Overall Scoring Breakdown:
- 26-30 Exceeds Expectations (PASS)
- 16-25 Meets Expectations (PASS)
- 0-15 Does Not Meet Expectations (FAIL)
<table>
<thead>
<tr>
<th>Area of scoring</th>
<th>Does not meet expectations Score = 0-5</th>
<th>Meets expectations Score=6-8</th>
<th>Exceeds Expections Score=9-10</th>
<th>Area Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written document</td>
<td>• Significant areas of the literature were missing</td>
<td>• Current literature was summarized</td>
<td>• Current literature summarized</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Experimental procedures or methodology were missing or hard to follow</td>
<td>• Experimental procedures or methodology was described in sufficient detail</td>
<td>• Well written experimental procedures or methodology</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Data poorly presented</td>
<td>• Data presented in an organized manner</td>
<td>• Data very clearly organized</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Results are unclear</td>
<td>• Results are described in an understandable manner</td>
<td>• Details analysis of results</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Conclusions not supported by data</td>
<td>• Conclusions supported by data</td>
<td>• Very clear connections between the data and conclusions</td>
<td></td>
</tr>
<tr>
<td>Oral presentation</td>
<td>• Presentation was not organized</td>
<td>• Presentation was organized</td>
<td>• Very clear presentation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Had difficulty answering questions at the expected level</td>
<td>• Questions were answered at a level expected</td>
<td>• Detailed and very knowledgeable answers to questions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Does not understand the propose of the research</td>
<td>• Purpose of research was described</td>
<td>• Understands well the purpose of the research</td>
<td></td>
</tr>
<tr>
<td>Research productivity</td>
<td>• Student is not mastered the essential techniques, procedures and/or methodology needed to do original research</td>
<td>• Student has mastered the required techniques, procedures and/or methodology needs in his/her research</td>
<td>• Student has gone beyond mastering required techniques, procedures and/or methodology</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Student has not shown consistent research effort</td>
<td>• Student has shown consistent research effort</td>
<td>• Student’s research effort exceeds expectations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Little or no original research has been obtained</td>
<td>• Student has begun to obtain original research</td>
<td>• Student has presented significant amount of original research</td>
<td></td>
</tr>
<tr>
<td>Understanding of future plans</td>
<td>• Student’s plan has little detail or is impractical</td>
<td>• Student has a plan to complete his/her project</td>
<td>• Student’s plan to complete his/her project detailed and practical</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Plan lacks the originality required for a doctoral dissertation</td>
<td>• This plan has sufficient originality to constitute a doctoral dissertation</td>
<td>• This plan is quite original, and represents significant student input</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Significant unaddressed barriers are present in the design or resources are present in the plan</td>
<td>• The projected plan is achievable given the resources available to the student</td>
<td>• The student has considered in reasonable detail the barriers to completing his/her research</td>
<td></td>
</tr>
<tr>
<td>Area of Scoring</td>
<td>Does not meet expectations Score = 0-5</td>
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<td>Exceeds expectations Score = 9-10</td>
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</tr>
<tr>
<td>--------------------------</td>
<td>----------------------------------------</td>
<td>--------------------------------</td>
<td>-----------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>General Structure</td>
<td>Chapters are too large or too small. Hard to navigate through the document.</td>
<td>Chapters are mostly appropriate. Some merging or splitting is suggested.</td>
<td>Subdivision onto Chapters is used efficiently, helps to understand the material.</td>
<td>Score</td>
</tr>
<tr>
<td></td>
<td>Introduction is poorly developed. The background is not appropriately explained.</td>
<td>Introduction could benefit from some expansion, or Introduction is somewhat too detailed, hard to understand to non-experts.</td>
<td>Both the length and level of the Introduction are appropriate. The purpose of work is clear.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Few sources cited, inappropriate supporting material.</td>
<td>Citations are mostly appropriate.</td>
<td>Citations are used extensively and efficiently.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Conclusions are not clear.</td>
<td>Conclusions are mostly appropriate.</td>
<td>Conclusions are clearly stated for each Chapter and for the thesis as a whole.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Future research directions are discussed.</td>
<td></td>
</tr>
<tr>
<td>Equations, Illustrations and Tables</td>
<td>Equations are poorly formatted, hard to understand.</td>
<td>Formatting of equations is mostly appropriate.</td>
<td>All equations are easy to read, same style is used through the entire thesis.</td>
<td>Score</td>
</tr>
<tr>
<td></td>
<td>Figures are too messy, too much information.</td>
<td>Figures are appropriately composed, but some figures can be combined.</td>
<td>Figures are both effective and easy to understand.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Poor resolution in figures.</td>
<td>Resolution and color are mostly appropriate.</td>
<td>Excellent use of color, resolution and computer graphics.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Excessive use of color.</td>
<td>Tables are used, but some of them are too bulky.</td>
<td>Data tables are used efficiently and are easy to read.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Too many data are presented without Tables.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scientific Language</td>
<td>Too many problems with grammar, spelling and punctuation.</td>
<td>Grammar, spelling and punctuation are mostly appropriate.</td>
<td>No problems with grammar, spelling and punctuation. The text is easy to read.</td>
<td>Score</td>
</tr>
<tr>
<td></td>
<td>Ineffective use of words and sentences.</td>
<td>Words and sentences are mostly appropriate.</td>
<td>Effective use of words and sentences.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Paragraphs should be used more frequently.</td>
<td>Adequate paragraphs.</td>
<td>Effective paragraphs.</td>
<td></td>
</tr>
</tbody>
</table>

Recommendation: 

- (26-30) No further editing is needed, the thesis can be submitted to the graduate school as is.
- (16-25) Only minor editing is needed, can be done by the student and the research advisor;
- (0 -15) Major changes are needed; the thesis document should be re-evaluated by the committee.

Total Score (0-30):
## Thesis/Dissertation Defense Scoring Rubric

**MU Department of Chemistry**

Must be filled at the defense.

<table>
<thead>
<tr>
<th>Area of Scoring</th>
<th>Does not meet expectations</th>
<th>Meets expectations</th>
<th>Exceeds expectations</th>
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</tr>
</thead>
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<tr>
<td></td>
<td>Score = 0-5</td>
<td>Score = 6-8</td>
<td>Score = 9-10</td>
<td></td>
</tr>
<tr>
<td><strong>Organization</strong></td>
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<td>Delivery detracts from message, is hesitant</td>
<td>Delivery is generally effective, little hesitation</td>
<td>Delivery is natural and confident, no hesitation</td>
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</table>

Score = 0-5 | Score = 6-8 | Score = 9-10 |

**Total Score (0-20):**

<table>
<thead>
<tr>
<th>Area of Scoring</th>
<th>Does not meet expectations</th>
<th>Meets expectations for M.S.</th>
<th>Meets expectations for Ph.D.</th>
<th>Area Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Score = 0-5</td>
<td>Score = 6-8</td>
<td>Score = 9-10</td>
<td></td>
</tr>
<tr>
<td><strong>Originality of the contribution, importance of results, and maturity of the candidate</strong></td>
<td>The knowledge is weak, questions of the committee cannot be answered.</td>
<td>Questions are answered, but student may fail to elaborate</td>
<td>Questions are answered clearly with explanations and elaboration</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The work is an incremental, straightforward extension of what was done by others.</td>
<td>The work is original but still relies heavily on advisor or collaborators.</td>
<td>The work represents an original and independent research project.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The results are relatively easy to achieve.</td>
<td>Some of results are interesting, but the project could be better developed.</td>
<td>The results represent a significant contribution to the field.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The work is not yet publishable.</td>
<td>The work is publishable or has already been published.</td>
<td>Quality and quantity of publications is convincing.</td>
<td></td>
</tr>
</tbody>
</table>

Score = 0-5 | Score = 6-8 | Score = 9-10 |

**Total Score (0-10):**
Thesis/Dissertation Scoring Summary
MU Department of Chemistry

<table>
<thead>
<tr>
<th></th>
<th>Raw Score</th>
<th>Weighting Factor</th>
<th>Weighted Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dissertation Document</td>
<td></td>
<td>x 1</td>
<td>Score = 0-30</td>
</tr>
<tr>
<td>Oral Presentation</td>
<td></td>
<td>x 1</td>
<td>Score = 0-20</td>
</tr>
<tr>
<td>Scientific Contribution</td>
<td></td>
<td>x 5</td>
<td>Score = 0-50</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Score = 0-100</td>
</tr>
</tbody>
</table>

The Overall Score:

Recommendation at the M.S. Thesis Defense:
- ☐ (36-100) Grant the MS degree.
- ☐ (0 - 35) Don’t grant the MS degree now, re-evaluate next semester.

Recommendation at the Ph.D. Dissertation Defense:
- ☐ (91-100) Grant the PhD degree and recommend for an award.
- ☐ (61 - 90) Grant the PhD degree.
- ☐ (0 - 60) Don’t grant the PhD degree now, re-evaluate next semester.

Comments by the Committee Member: