

## Earning a MS Degree in Chemistry

### General Comments

The closest thing to a legally binding document related to your degree is the Bulletin of the Graduate Division (<http://coursecat.sdsu.edu/bulletin/>). Additional details can be found in this document as well as on the Graduate Division web page. The following is a sequential summary of the requirements for earning a Master of Science degree. The MS degree requires two or more years of research under the supervision of a faculty advisor. Choose your research advisor by the area(s) of your interests. This is perhaps one of the most important professional decisions that you will make. Quoting the 2005-2006 Bulletin of the Graduate Division, page 28: **Graduate students are individually responsible for complying with the procedures, regulations, and deadlines as set forth in the General Catalog of the university and in the Bulletin of the Graduate Division. Questions concerning graduate study at San Diego State University should be referred to the Graduate Division.** The Graduate Division office is located in Centennial Hall 3320. Although the Chemistry Department Graduate Advisor and the Graduate Division will do their best to keep you informed of procedures, etc., ultimately, you are responsible for your schedule and academic progress. Be sure to read the "Regulations of the Graduate Division" starting on page 28 and the Basic Requirements for Master's Degree which begins on page 38. Rules may change, but in general you should follow the latest edition of the Graduate Division's documents. However, the requirements governing your "Official Program for the Master's Degree" will be those specified in the Graduate Bulletin which are in effect at the time your program is approved by the Graduate Division. Many of the forms that you might need are available on-line at: <http://gra.sdsu.edu/Graduate/Studentsvcs/forms.html>.

1. **Interview all research faculty in your area(s) of interest** You should begin the interview process early in your first semester. The **Faculty Interview** form will be given to you during orientation week or can be obtained from the departmental office. Make an appointment to talk to each of the faculty in the area(s) of your research interests. The faculty will sign this sheet during your interview. It is possible that your research interests may require you to talk to faculty in more than one of the five areas of chemistry. You may wish to talk with some of them more than once in order to choose a research advisor. Also, talk to other graduate students throughout your division and make an informed decision about your choice of research advisor and research group. Take time to make a good decision, but you must complete this step and begin research by December 1<sup>st</sup> of your first semester of graduate study. Return this signed interview sheet to Dustine Cox in the Chemistry Department Office before you can proceed with the **Agreement of Research Advisor and Preliminary Program of Study**.

2. **Agreement of Research Advisor and Preliminary Program of Study** After you have returned the Faculty Interview form, you will be given two additional forms. The first one, **Agreement of Research Advisor** is the mutual agreement between you and your research advisor to carry out thesis or dissertation research. The second form, **Preliminary Program of Study** form, is also completed at this time. Your research advisor will suggest courses that you should take and indicate required courses for your MS degree. This form also establishes a tentative graduation date and if necessary begins the application process for human subject or animal care or use (see below). These two forms also need to be returned to the Graduate Advisor by December 1<sup>st</sup> in your first semester of graduate study.

If your research involves human subjects, or analyzes existing or secondary data sets, (such as human tissues or samples) and these results are intended for publication in a thesis, dissertation or journals, you are required to submit an application to the Institutional Review Board (IRB) before beginning research. The IRB website provides review application materials and guidance (<http://gra.sdsu.edu/IRB>). If you have questions, email [IRB@mail.sdsu.edu](mailto:IRB@mail.sdsu.edu) or call 594-6622. **Allow 4-6 weeks for completion of the IRB review process once application materials are submitted.**

**Research involving animals must also be approved by the Institutional Animal Care and Use Committee (IACUC) prior to any research.** IACUC regulations and procedures may be obtained in the Office of Laboratory Animal Care (OLAC). They can also be contacted by phone at 594-5421, via the IACUC website, or by email, [OLAC@sunstroke.sdsu.edu](mailto:OLAC@sunstroke.sdsu.edu).

3. **Attain Classified Graduate Standing** If you began your graduate education as a Conditionally Classified Student or as a Classified Graduate Student, you must satisfy the following requirements before you can advance to Classified Graduate Standing and attain Advancement to Candidacy:

A. **Orientation/Qualifier Exams or Courses** You must pass 3 of the 5 divisional Orientation/Qualifier Exams, at the 50<sup>th</sup> percentile or higher level. These exams are given the week before the beginning of the Fall and Spring semesters. You have three opportunities to pass these exams before beginning your third semester of study, otherwise you **must** take one of the approved courses listed below, earning a B or higher grade to satisfy this requirement. These courses can also be taken during your first year of study. The approved courses are listed by the 5 divisions:

Analytical	550, 551, 751, 752, 753, 754	Organic	432, 530, 531 any 73X
Biochemistry	560A, 560B, 562, 563, 564	Physical	410A, 410B, 510, any 71X
Inorganic	520A, 520B		

B. **Other requirements** You may be required to meet other requirements as a stipulation of your admission into this program. It is important that you be aware of these requirements and complete them prior to the deadline date. See Dustin Cox in the Department of Chemistry office for your specific requirements of your admission into our graduate program.

The Graduate Advisor will automatically change your status to Classified Graduate Standing shortly after you have met the above requirements.

4. **Annual Progress Report** MS, as well as Ph.D., graduate students are required to write annual progress reports in the format of a full paper to the journal where this will be submitted. This draft version of the paper is due June 1<sup>st</sup> to your research advisor for review and approval. Your research advisor will forward their evaluation and a copy of your progress report to the Graduate Advisor.

5. **Chem 791 Research Seminar** By the third semester of study, you should have a well established research project. At this time you will present a Chem 791 Research Seminar which details the goals of your

research, reviews the background literature, summarizes progress to date and finally outlines proposed future research to conclude this project. If significant problems on your research are encountered, it may be possible to postpone this to the fourth semester. It is highly recommended that you invite tentative thesis committee members to attend your seminar. Your research advisor can suggest potential committee members, one from within the Department of Chemistry and the other outside the Department. Non-faculty or faculty outside the university can be chosen as a 4<sup>th</sup> committee member. As usual, these seminars are announced well in advance and are open to the general public.

6. **Official Program of Study** After you have passed the qualifier exam requirements and attained a Classified Graduate Standing, you can submit an **Official Program of Study and Advancement to Candidacy for an Advanced Degree**. Generally the Official Program of Study is submitted after 18 hours of course work has been completed. This document lists all courses that you have taken or plan to take to meet your MS degree. Your preliminary program of study is a good starting point for the Official Program of Study.

Any deviation from the specific master's degree requirements listed in the Graduate Bulletin must be requested on a **Petition for Adjustment of Academic Requirements**. Discuss any changes with the Graduate Advisor prior to submission of your **Official Program of Study and Advancement to Candidacy for an Advanced Degree**.

The basic requirements are:

The student must complete a graduate program of 30 units which includes a major consisting of at least 24 units in chemistry from courses listed in the graduate catalog as acceptable on the master's degree programs. At least 15 of these units must be in 600- and 700-numbered courses. Chemistry 790, 791, 792 and 799A are required. A student must pass a final oral examination on their thesis. Up to 6 units of classes outside the Department of Chemistry can be included in the program of study. These courses must be at the 500 or higher level. In addition, a maximum of 9 units can be transferred from other universities or as open university classes, providing they meet the basic requirements for the master's degree. Quarter credit hours are transferred at one-half the value of semester credit hours. All classes taken outside the Department of Chemistry require prior approval by the Graduate Advisor before submission of your program of study.

Your grade point average must be at least 3.0 (B) in the following:

- The courses listed in the **Official Program of Study**.
- Courses required to complete undergraduate deficiencies.
- All courses taken at the 300-level and above concurrently to the earliest course listed in the **Official Program of Study**, including courses accepted for transfer credit.

Transfer or extension courses may not be used to improve the grade point average of units completed at San Diego State University. None of your program courses can have a grade less than 2.0 (C).

The set of requirements specified in the Graduate Bulletin at the time your **Official Program of Study** is approved will be in effect for your degree.

Any change to your **Official Program of Study** after it has been approved must be made on a **Request for Change of Official Program** form. If the change affects a specific degree requirement, Chem 790, 791, 792 or 799A, versus an elective option, it must be made using a **Petition for Adjustment of Academic Requirements**.

At a minimum, your **Official Program of Study** must be approved at least one semester before your anticipated graduation date. Approval of your program of study may require 2-4 weeks.

7. **Advancement to Candidacy** Generally you will be advanced to candidacy at the same time that your **Official Program of Study** is approved. Any deficiencies that prevent advancement to candidacy at this point will result in the review of your status at the end of each semester by the Graduate Division.

You must be advanced to candidacy before you will be allowed to officially form your thesis committee.

**Note** Well before the beginning of the semester that you intend to graduate, you need to begin writing your MS thesis. The annual progress report and the Chem 791 research seminar will greatly assist you in organizing and writing the thesis. Regardless, it may take 3-4 months to write, edit and have a final version approved by your research advisor. **Plan accordingly!** It is a requirement of Thesis 799A that you purchase and use an SDSU Dissertation & Thesis Manual. The manual is available from Aztec Shops Bookstore. It is also highly recommended that you use this manual. Also, attend one of the free thesis Template Workshops conducted through BATS, url, <http://www-rohan.sdsu.edu/%7Ebats/>. Discuss organization and details with your research advisor and if necessary, contact the Dissertation and Thesis Reviewer with questions about specific formatting problems encountered as you write your thesis.

8. **Chemistry 792 Bibliography** Register for Chemistry 792, bibliography the semester that you file your Program of Study or the semester that you plan to graduate, whichever fits your schedule best.

9. **Submit Thesis Committee Form** After you have been advanced to candidacy, obtain the **Appointment of Thesis/Project Committee** form from the Graduate Division. This form is available only through the Graduate Division and may be mailed on request. This form lists the three committee members. The chair of the committee is your research advisor, with the second member from this department. A third committee member is from any department outside of Chemistry. All three members should be full-time faculty, although one adjunct or emeritus member is allowed. It is possible to have a fourth committee member as a non-faculty supervisor or faculty outside the SDSU upon approval by the Chemistry Department Chair. The Graduate Division can make exceptions for non-tenured faculty to serve as second or third committee members, including lectures when the situation warrants it.

The Appointment of Thesis/Project Committee also requires a signature verifying that research involving humans or animals has been pre-approved by the appropriate committees. Students conducting research involving human subjects are required to apply for review through the Institutional Review Board (IRB) and animals through the Institutional Animal Care and Use Committee (IACUC) **prior** to any research.

Also, complete the Rights to Thesis/Dissertation Data and Publication Authorship portion on the second page of this form.

Lastly, the Graduate Advisor must approve and sign this form before return it to the Graduate Division for approval. Approval may require up to 2 weeks.

**Note** The important deadlines vary slightly each semester. These dates may be found at the Graduate Division, in the Academic Calendar of the Graduate Bulletin or on the Dissertations & Thesis Review web site at <http://gra.sdsu.edu/graduate/Thesis/>. In order to graduate at your planned date, you must meet the deadlines for items 9-13.

10. **Register for Chem 799A** You can only register for Chem 799A after you have completed the above requirements and the Graduate Division has approved your Thesis Committee. This is done the semester that you plan to graduate. At this point, your thesis should be in a fairly advanced stage of preparation. Typically a MS thesis takes 3-4 months to complete. Chem 799A must be registered through SDSU during all semesters, including the Summer Term. Chem 799B, thesis extension, can be taken through Extended Studies for less cost than through SDSU. In either case, you must be enrolled in 799A or 799B the semester that your thesis is submitted to Thesis Review and during all semesters that you are consulting with faculty or using campus facilities.

Contact the Graduate Division to obtain the schedule number for Chem 799A or 799B, even if you plan on enrolling through Extended Studies. You must enroll on or before the 15<sup>th</sup> day of the semester. Chem 799A is a 3-unit class, while Chem 799B has 0-units.

11. **File Application for Graduation** You must apply for graduation, since this is not automatic. It is recommended that you submit your application for graduation at the beginning of the semester that you plan to graduate. The deadline for this is listed in the Academic Calendar of the Graduate Bulletin or on the Dissertations & Thesis Review web site. This deadline is generally the third week of the semester. This form is available at the Graduate Division office or through their website, <http://gra.sdsu.edu/graduate/Studentsvcs/forms.html>. The completed application must be filed with the appropriate fee at the Cashier's Office. Late applications are not accepted! Students who do not complete all degree requirements during the semester they apply for graduation are required to reapply and pay the application fee again. You will receive an Evaluation for Graduation from the Graduate Division as a result of the Application for Graduation form. This mid-semester evaluation lists the deadlines and requirements not yet completed. It is imperative that you take immediate action to complete these in order to graduate that semester.

12. **Oral Defense of Thesis** An oral presentation of your thesis work must be presented after you have finished writing your thesis and your research advisor has approved it. This oral presentation must be announced a week in advance and is open to all. Before your defense can be scheduled, check with all committee members for their dates of availability. They should be given a copy of your thesis approximately two weeks in advance of the defense date. See the Department of Chemistry Graduate Student Handbook for guidelines on your oral defense. It is a good idea to have several copies of the signature page prepared for signature after a

successful defense. You will need this signed page later and it will save you much time and aggravation doing it at this time. After a successful oral defense, minor editing may be required per suggestions of your committee. This must be completed before your thesis can be submitted for Thesis Review. It is important that your thesis be as error free as possible.

13. **Thesis Clearance Sheet** After your thesis is in its final form, insert the signature page. Take your completed thesis to the Graduate Division Office. Your enrollment in Chem 799A or 799B will be verified, and a comparison of signatures to the Appointment of Thesis Committee Form will be made. You will then be given a **Thesis Clearance Sheet** to take to the Thesis reviewer along with your boxed unbound thesis. This procedure only takes a couple of minutes.

14. **Submit Final Version of Thesis to Thesis Review** The Graduate Division Thesis Reviewer reviews each thesis for formatting and style errors during a 5-10 minute prescreening when first submitted to this office. If the thesis is error free, it will be approved immediately. If it is in good condition, it will be placed in a queue for expedited review (fast track). If there are moderate departmental or university formatting errors, the thesis will be placed into a queue for full review. The theses in this queue will only be reviewed after the expedited review queue is empty. Major errors in formatting will cause the thesis to be rejected and returned to the student. Additional details can be found in Appendix B of the Chemistry Graduate Student Handbook and in the SDSU Dissertation & Thesis Manual. Students are encouraged to contact Thesis Review at any point while writing the thesis with questions about formatting. You must be enrolled in Chem 799A or 799B when you submit the thesis for review. Also, be aware of deadlines. These dates are also printed on the application for graduation. If you submit your thesis before "at risk" begins (approximately 10<sup>th</sup> week of the semester) you should be able to graduate that semester. It is important that you submit your thesis to Thesis Review before the last day of the semester error free or at worse case with only moderate errors. This will result in you not needing to register for Chem 799 A or B again, but you will need to file another application for graduation and pay the fee again. If your thesis is returned because of major errors and you do not get these fixed before the last day, you will need to register for Chem 799 B and file an application for graduation the following semester. The quality of your thesis and when it is submitted for review will determine how long the review and approval takes.