

Chemistry Department

Saint Louis University

Handbook

for

Master's in Chemistry Program

Updated in 2016

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For all general policy pertaining to graduate education at SLU, please consult the Graduate Education Catalog at <http://www.slu.edu/graduate-education/current-students>.

A. General Program Overview

Degree Programs

The master's degree is the program that all students first enter, even ones that want to eventually work towards the Ph.D. The Chemistry Department has two master's degree programs. We have a **thesis-based M.S. degree** that is designed for full-time students who will be doing research in the department as well as writing and defending a thesis. In general, the thesis-based M.S. program is for full-time research students who want to finish with a master's degree.

Our second program is a **M.A. in Chemistry** (generally referred to as the non-thesis Master's program) that is intended for either 1) research students who want to eventually transition into the Ph.D. program or 2) part-time students who want a coursework masters (**M.A. degree**), which can be completed at night. The M.A. program does not require thesis research or the writing of a thesis. If a student enters the department knowing they want to eventually transition into the Ph.D. program, the M.A. is the best option for the student; however, the student should be performing research as if they were in the thesis-based M.S. program. Because students transition into the Ph.D. program prior to completion of all the M.A. requirements, they are NOT awarded Master's degrees. The detailed procedure for transitioning from the master's program to the Ph.D. program can be found in the Ph.D. handbook.

B. Admission Details

(1) Procedure

Applicants for either Master's degree must submit a formal application through Graduate Admissions. The admission requirements and procedures are detailed in the Graduate Education Catalog. The Office of Graduate Education will forward the application materials to the Graduate Program Director. The Director will then call a meeting of the Department Admissions Committee to review the application and make a recommendation to the Associate Vice President for Graduate Education about acceptance and a recommendation to the Director about whether the candidate should be eligible for an assistantship.

(2) Application Requirements

Admissions to either Master's degree program will be on a rolling basis. The application must include:

1. an application form with application fee
2. official transcripts from all colleges and universities attended (if the college or university is located outside of the US, an external equivalency evaluation from a company like ECE (www.ece.org) will be required)
3. three (3) letters of recommendation
4. a curriculum vitae
5. a professional goals statement
6. GRE scores
7. TOEFL scores (for international applicants)

(3) Prerequisites for Admission

The Admissions Committee will ensure that the applicant possesses a minimum of a baccalaureate degree from an accredited, recognized college or university in chemistry or a chemistry-related discipline, along with a passing score on the TOEFL (for international applicants).

(4) Program Admission Requirements

The Admissions Committee will ensure that the applicant's previous academic record indicates the ability needed to pursue advanced studies. The Admissions Committee will then make an admissions recommendation to the Office of Graduate Education, but the Office of Graduate Education is responsible for making the final decision and communicating that decision to both Graduate Program Director and the applicant.

Student's admission can come in three types. Classified admissions are regular admissions to the department. There may or may not be additional pre-requisite courses that need to be completed once they are in the program. Students can also be admitted on probationary status. Probationary status will include a list of requirements that the student must meet in order to get re-classified (typically, successful completion of certain courses or an overall GPA). Students just wanting to take a course or two, but not wanting to work toward a degree can apply for unclassified admission.

C. Graduate Student Advising

It is expected that all new students will identify their research mentor during the first month of their admission to the program. Part-time M.A. students and students without a mentor will be advised by the Graduate Program Director. However, students with a research mentor will be advised by the research mentor. Students will choose a research mentor by interviewing at least 4 research active faculty from both sub-disciplines (Synthesis & Materials Chemistry and Analytical & Physical Methods). After meeting with at least 4 of the research active faculty, they will contact the Graduate Program Director and notify him/her of their top 3 choices for a research mentor. The Graduate Program Director will meet with the faculty mentors to place the student and then notify the student of their assigned research mentor.

D. Definition of Full-time Graduate Students

- (a) All enrolled students holding fellowships, teaching, or research assistantships are defined as full time students regardless of hours registered.
- (b) Students who are not on an assistantship and have not yet passed their oral examinations must enroll in 6 or more hours during a regular semester (fall or spring) and 3 or more hours during the summer semester.

E. Continuous Registration

All graduate students who are pursuing a degree are required to register *every* semester (*including* the summer session). If no credit hours are needed you should still register for a course for zero hours.

F. Selection of Oral Exam Committee

During the first semester of the second year of their master's program, a **thesis-based M.S. student**, with the agreement of their faculty mentor, should choose the two additional members of their oral exam committee. The student will be responsible for scheduling the final oral examination and any other committee exams. They will also be responsible for ensuring that they provide copies of their thesis to their committee at least 10 days before the exam to ensure that the committee has sufficient time to review before the oral examination. The student is also responsible for contacting the Chemistry Administrative Secretary to have flyers advertising their thesis defense seminar posted. The student should sign up for CHEM 5950 in their final semester. This will trigger emails from the Office of Graduate Education with information about forms and deadlines that must be completed before graduation.

Part-time M.A. students will choose an Oral Exam Committee Chair and two additional Oral Exam Committee members during their final semester of courses. The Chair will be responsible for handling the graduate education paperwork. The student will be responsible for scheduling the final oral examination. The student should choose faculty members that the student has had for classes in the department. This exam will be focused on all coursework taken at Saint Louis University. The student should sign up for CHEM 5950 in their final semester. This will trigger emails from the Office of Graduate Education with information about forms and deadlines that must be completed before graduation.

Students wanting to petition into the Ph.D. program should see the Ph.D. handbook for the transitioning methodology. To ensure a smooth transition into the Ph.D. program, there are additional requirements that must take place during a student's time in the Master's program. **M.A. students** who plan to transition into the Ph.D. program will choose, with the agreement of their faculty mentor, two additional oral exam committee members during the first semester of their second year in the master's program. The student should sign up for CHEM 5950 the semester they will have their research progress exam (typically the 2nd semester of the 2nd year). This will trigger emails from the Office of Graduate Education with information about forms and deadlines related to graduation. Students do not need to worry about these forms if they successfully complete the transition to the Ph.D. program.

G. Review of Student Progress

Each student's progress will be rated annually by the Graduate Program Director in collaboration with the research mentor. In order to be "satisfactory", ALL requirements below must be met. Students deemed unsatisfactory will not be eligible for assistantships (covered in section H).

"Satisfactory"	<ul style="list-style-type: none">○ Maintained ≥ 3.0 GPA in lecture coursework (neither Intro to Research nor Research Topics count as lecture coursework).○ Have no more than 2 grades of B- or below.○ Maintained research effort expected in a 40 hr min. work week resulting in, or appearing to show promise in leading to:<ul style="list-style-type: none">○ Publication in a peer-reviewed journal and/or○ Public presentation of results at a professional scientific conference.○ Maintained cordial and constructive relationship with primary and
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	secondary mentors. ○ Fulfilled Teaching Assistant responsibilities (for those on a TA).
“Unsatisfactory”	○ Cumulative GPA <3.0 in lecture coursework. ○ More than 2 grades of B- or below. ○ Clear lack of research ability. ○ Lack of significant research progress. ○ Failure to fulfill Teaching Assistant responsibilities.

H. Assistantships and Fellowships

For more information, see the graduate catalog (<http://www.slu.edu/graduate-education/current-students>) and the "*Policies and Procedures Manual for Graduate Assistantships and Fellows*," available in the A&S graduate studies office.

(a) Teaching Assistantships

Persons holding a teaching assistantship may work with students in small groups, lead group discussions, monitor examinations and grade papers, help prepare lectures, conduct laboratory sessions, or even be responsible for a course as the primary instructor. Under the close supervision of the faculty, the teaching assistant concurrently develops teaching skills and a deeper understanding of the discipline.

An 11-month award includes a stipend, a health insurance package for the student (plus the option to purchase family coverage), and a tuition scholarship of 18 hours during the regular academic year and three hours during the summer session. (Summer attendance is also mandatory.) These awards begin on July 1, at which time the student is **required** to be in residence. Upon petition to the Graduate Program Director, under certain circumstances the start date may be delayed. The student is expected to begin preparing for laboratory/coursework duties during July and August. After the 1st year, a 12-month award is issued, with support for June coming in the form of research support (from the research advisor) or additional teaching duties over the summer.

(i) Length of Support

As required by the Office of Graduate Education, the maximum number of years that a graduate student may hold an assistantship is for not more than two years **total** (for the M.S. degree). Note that grant-based assistantships contribute to the total number of years of assistantship support allowed. A third year of funding is possible under extraordinary circumstances. Appeals for a third year of funding must be submitted by the Department during the spring semester of the second year of funding for the M.S. to the Associate Dean for Graduate Education for approval.

(ii) Applicant Qualification

Normally, students applying for admission are considered for Teaching Assistantships at the same time, if they so desire. The final decision on awarding an Assistantship rests with the Associate Vice President for Graduate Education. The appointment to a Teaching Assistantship will be by contract offered by the Associate Vice President for Graduate Education to the nominated individual.

(iii) *Criteria for Assignment of Teaching Assistantships*

The Graduate Affairs Committee uses the following criteria in nominating individuals for Teaching Assistantships:

For students currently holding an Assistantship:

Graduate students currently with an Assistantship (Teaching or Research) are normally awarded an assistantship the following year, provided the student has not exceeded the years of Teaching/Research Assistantship support described above in part "i" of this section. **However**, the student may fail to receive an assistantship for one of the following reasons:

- *Students with a GPA of less than 3.0 are not eligible for assistantships*
- *Poor teaching evaluations*
- *Inadequate research progress*

Continuation is dependent on good academic standing (minimum of 3.0 GPA). Adequate research progress is also a condition of continuing an assistantship. This includes maintaining research effort expected in a 40 hr. work week resulting in, or appearing to show promise in 1) a publication in a peer-reviewed journal and/or 2) public presentation of results at a professional scientific conference. Continuation is also dependent upon satisfactory performance of the assigned teaching responsibilities. Teaching evaluations provided by the classroom mentor and undergraduate students will play a primary role in determining whether a Teaching Assistantship is renewed. Based upon evaluations, the Graduate Program Director may recommend that the student not receive Teaching Assistantship the following year. Alternatively, the Graduate Program Director may recommend a course of action that may improve performance of the student as a TA (e.g., enrollment in the Certificate in University Teaching Skills (CUTS) program administered by the Center for Transformative Teaching and Learning (CTTL) or acquisition of a faculty teaching advisor).

- *"Unsatisfactory" rating on the student's progress*

Student progress will be rated each year. An "unsatisfactory" rating may preclude a student from receiving an assistantship renewal and may lead to termination from the program altogether. This includes research progress. It is expected that the student make significant research progress towards their degree. It is the expectation that by the end of the 2nd year, the student should have 1 published paper. An unsatisfactory rating may be given if this is not the case and the student's committee feels that the student has made inadequate research progress.

For incoming students and/or students without a prior Assistantship

1. English-speaking ability (as determined by the ESL Program). This aspect is required for effective teaching of undergraduate students as part of the Teaching Assistant's duties.
2. Academic standing. Includes undergraduate grade point average (GPA) and Graduate Record Examination (GRE) General Test scores.
3. Letters of reference and any additional materials (publications, presentations, etc.).
4. Students currently enrolled in the graduate program, but not supported by an assistantship,

are in competition with the current applicant pool for Teaching Assistantship awards. In other words, that student does not receive priority simply due to being enrolled in the graduate program. However, the committee will solicit a letter from the student's mentor and examine current academic standing to aid in the decision process.

(iv) Teaching Assistant Duties

Teaching Assistants will be assigned by the Graduate Program Director and Chairperson of the department to instructional duties in the courses, lectures, and laboratories offered by the department. The appointment is half-time, and teaching duties will not require more than 20 hours per week (thus allowing the student to spend substantial time in laboratory research). The duties will include instructional time in the classroom or laboratory, necessary preparation for class or lab, marking papers, and other instructional activities as required. Teaching Assistants must also arrange for reasonable "office hours" for meeting with undergraduate students, and inform their students of the time and place of office hours. The department will provide a suitable office or other place for Teaching Assistants to meet with their students.

Students who begin their assistantships/fellowships during the summer are required to begin their residence at this time. Students may be assigned teaching responsibilities. Students should contact the Graduate Program Director to arrange their summer schedule as soon as they are notified that they have received an assistantship.

(v) Teaching Assistantship evaluations

Semester evaluations are to be completed by both faculty instructors overseeing the Teaching Assistant as well as by students being taught by the Teaching Assistant. All evaluations will be turned in to the department office to be included in the graduate student's file.

(vi) Graduate Student Orientation

All new teaching assistants are required to attend the Graduate Assistants Orientation at the beginning of the fall semester. Announcements of the time and place will be sent to each new assistant in the summer preceding their first semester at Saint Louis University.

(b) Research Assistantships

A research assistant is assigned a range of duties such as library searches, field work, laboratory experiences, and preparation of research proposals and grants so as to gain professional skills in research which complement the student's graduate education.

Research assistantships (RAs) can be for a variety of time periods from 1 month to 12 months and can include a stipend, a health insurance package (plus the option to purchase family coverage), and a tuition scholarship. These RAs are usually assigned at the discretion of the research advisor, as the funding for the RAs come from individual research grants. There are normally no instructional duties associated with appointment to a Research Assistantship. Instead, the Research Assistant is assigned to a faculty sponsor responsible for directing research

duties of the student. Unless otherwise indicated, the terms of appointment (including GPA requirements), continuation, and maximum support are the same as for teaching assistantships. Normally, once appointed to a Research or Teaching Assistantship, a student will be eligible for reappointment for the maximum period permitted. However, that support may switch between a Research Assistantship and a Teaching Assistantship in any given semester.

I. Degree Requirements

The Master's degree requires a minimum of 30 hours of post-baccalaureate credit. At least one year must be completed in residence. Students in the M.A. program who transition into the Ph.D. program do so prior to completion of these requirements and are not awarded Master's degrees. These students complete a minimum of 39 hours of post-baccalaureate credit as part of their Ph.D. degree, 24 of which are completed during the M.A. program.

The requirements for the **thesis-based M.S. degree** include:

- A minimum of 24 hours of post-baccalaureate coursework (exclusive of thesis research)
- 6 hours of Thesis Research (CHEM 5990)
- A thesis
- A public oral presentation and a private oral examination

The requirements for the **M.A. degree** include:

- A minimum of 30 hours of post-baccalaureate coursework (exclusive of thesis research)
- A private oral examination

More details on each degree are given below. See the attached worksheets for the different Master's routes. It is highly suggested that students complete their appropriate worksheet each semester. In addition, a completed worksheet must be included with the student's annual evaluation by the research mentor.

Coursework

Both the thesis M.S. and non-thesis M.A. degrees offer specialization in analytical, inorganic, organic, physical, or biological chemistry, with cross-disciplinary activity encouraged. It is a 30 credit-hour program which includes a core curriculum of 12 hours consisting of two courses from each of two primary focus areas of advanced chemistry:

1. Synthesis & Materials Chemistry

We seek to educate students in synthetic methodology in the traditional areas of organic and inorganic chemistry, in addition to multidisciplinary materials synthesis and contemporary techniques of characterization. Courses that satisfy this requirement are:

- CHEM 5160 Advanced Synthetic Chemistry (3)
- CHEM 5400 Organic Spectroscopy (3)
- CHEM 5440 Bioorganic Chemistry (3)
- CHEM 5450 Advanced Organic Chemistry (3)
- CHEM 5460 Synthetic Organic Chemistry (3)
- CHEM 5470 Medicinal Chemistry (3)
- CHEM 5480 Heterocyclic Chemistry (3)
- CHEM 5500 Inorganic Chemistry (3)
- CHEM 5550 Organometallic Chemistry (3)
- CHEM 5560 Solid State Chemistry (3)
- CHEM 5590 Special Topics - Inorganic (3)
- CHEM 5800 Fundamentals & Design of Nanomaterials (3)
- CHEM 5850 Polymer Chemistry (3)

2. Analytical & Physical Methods

Most of our course offerings here deal with in-depth discussions of analytical techniques, spectroscopic analysis, and physical and theoretical probing of atomic and molecular structure and of chemical processes.

- CHEM 5150 Statistical Methods for Physical Scientists (3)
- CHEM 5170 Advances in Analysis and Modeling of Chemical Systems (3)
- CHEM 5200 Analytical Chemistry 2 (Instrumental Analysis) (3)
- CHEM 5230 Mass Spectrometry (3)
- CHEM 5250 Bioanalytical Methods Analysis (3)
- CHEM 5260 Analytical Separations (3)
- CHEM 5270 Electroanalytical Chemistry (3)
- CHEM 5280 Chemical Sensors (3)
- CHEM 5290 Special Topics - Analytical (3)
- CHEM 5330 Advanced Physical Chemistry (3)
- CHEM 5340 Advanced Thermodynamics (3)
- CHEM 5350 Elements of Surface/Colloid Science (3)
- CHEM 5370 Computational Chemistry (3)
- CHEM 5390 Special Topics - Physical (3)
- CHEM 5450 Advanced Organic Chemistry (3)
- CHEM 5570 Group Theory and Spectroscopy (3)
- CHEM 5620 Biophysical Chemistry (3)
- CHEM 5630 Introduction to Chemical Biology and Biotechnology (3)
- CHEM 5700 Environmental Chemistry (3)
- CHEM 5800 Fundamentals & Design of Nanomaterials (3)

M.A. program for students wanting to transition to Ph.D. program

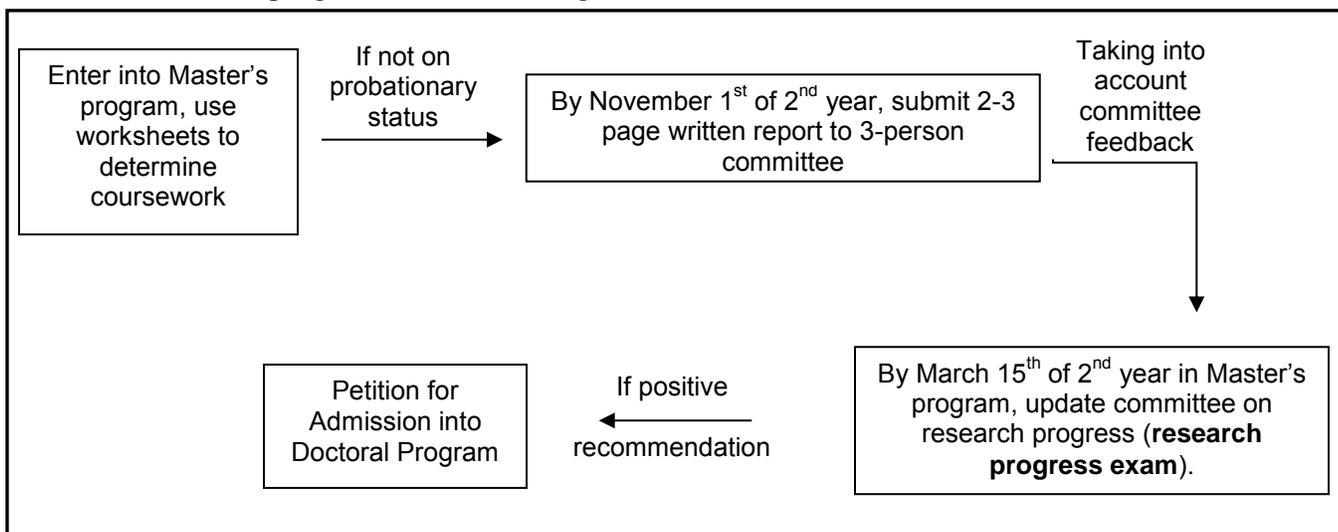
This program is intended for research students who want to eventually transition into the Ph.D. program. This program does not require thesis research or the writing of a thesis. Students in this program transition into the Ph.D. program prior to completing the 30 hours required for a Master's degree and are NOT awarded a Master's degree. Below is an overview of the program. Also see the corresponding worksheet.

<u>Description</u>	<u>Hours</u>
<i>4 in-class courses of 5000-level or higher (2 must come from synthesis/materials area and 2 from analytical/physical area)</i>	12
<i>2 additional in-class courses (If taken in chemistry department must be 5000-level or higher. Can also be fulfilled by taking 4000-level or higher courses in other disciplines such as biology, math/computer science, and engineering. This needs to be approved by the students committee.)</i>	6
<i>Intro to Research</i>	3
<i>Research Topics</i>	3
<i>Total</i>	24

The majority of the students doing this program usually want to transfer into the Ph.D. program at the end of their 2nd year. The procedure for doing this is briefly outlined below. A more detailed description, along with a flow chart, is outlined below and in the Ph.D. handbook.

1. By Nov. 1 of their 2nd year in the program, the student should form a 3-person committee and submit a 2-3 page written document that outlines the student's research project. The student's name, committee, and desired degree should be clearly denoted, as well as if the student is interested in transitioning to the Ph.D. program. This update should include an introduction and an overview of the results obtained to date. Figures may also be included. Any submitted papers (or soon to be submitted papers) should be clearly denoted, as well as any presentations (completed or scheduled). The student's committee will review the document and give the mentor feedback on the student's progress by Nov. 15th. The mentor will communicate these findings to the student both verbally and by email, with the entire committee being copied on the email. The purpose of this update is to give the student feedback on their research and academic standing before the research progress exam in March (see next point).
2. By March 15th of their 2nd year, the student will convene a meeting of their Master's faculty committee (research advisor and two other faculty) to give an oral presentation (minimum 20 minutes) of their research performance to date. The faculty committee will evaluate the student's aptitude and their research performance for the Ph.D. program. This meeting should occur before March 15th for all 2nd year Master's candidates wishing to transfer. The Master's committee will then submit a written recommendation to the Graduate Program Director as to whether or not they recommend the Master's candidate transfer to the Ph.D. Program. There is a possibility that the committee will not recommend that the student be allowed to transition into the Ph.D. program. This exam is explained in more detail in Section J of the Ph.D. handbook (page 11).
3. If the recommendation is positive, the student should then fill out a Petition to Amend Program. The Graduate Program Director will provide the form, as well as verify satisfactory graduate student status and sign the Petition.
4. If the recommendation is negative, the student may choose to write and defend a M.S. thesis or may schedule an oral exam to receive an M.A. degree.

Overview of M.A. program for transitioning to Ph.D.:



Thesis-based M.S. degree

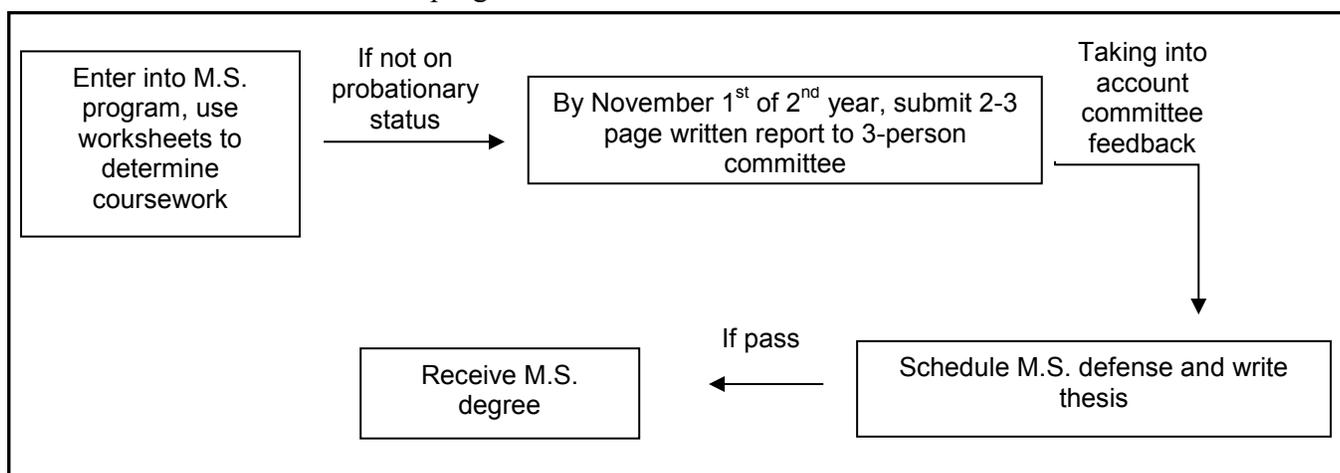
We have a thesis-based M.S. program that is designed for full-time students who will be doing research in the department as well as writing and defending a thesis. In general, the thesis-based M.S. program is for full-time research students who want to finish with a master's degree. Below is an overview for the thesis-based M.S. degree requirements. Also see the corresponding worksheet.

<u>Description</u>	<u>Hours</u>
<i>4 in-class courses of 5000-level or higher (2 must come from synthesis/materials area and 2 from analytical/physical area)</i>	12
<i>2 additional in-class courses (If taken in chemistry department must be 5000-level or higher. Can also be fulfilled by taking 4000-level or higher courses in other disciplines such as biology, math/computer science, and engineering. This needs to be approved by the students committee)</i>	6
<i>Intro to Research</i>	3
<i>Research Topics</i>	3
<i>Thesis-Research</i>	6
<i>Total</i>	30

Additionally, by Nov. 1 of their 2nd year in the program, the student should form a 3-person committee and submit a 2-3 page written document that outlines the student's research project. The student's name, committee, and desired degree should be clearly denoted. This update should include an introduction and an overview of the results obtained to dates. Figures may also

be included. Any submitted papers (or soon to be submitted papers) should be clearly denoted, as well as any presentations (completed or scheduled). The student's committee will review the document and give the mentor feedback on the student's progress by Nov. 15th. The mentor will communicate these findings to the student both verbally and by email, with the entire committee being copied on the email. The purpose of this update is to give the student feedback on their research and academic standing well before their M.S. defense in the spring.

Overview of thesis-based M.S. program:



Part-time M.A. degree (industry students)

This program is intended for part-time students, usually from industry, who want a coursework M.A. degree, which can be completed at night.

<u>Description</u>	<u>Hours</u>
<i>8 in-class courses of 5000-level or higher</i> (2 must come from synthesis/materials area and 2 from analytical/physical area. The remaining 4 courses should come from either area and be 5000-level or higher. In special cases, with the approval of the student's committee and graduate program director, a course can be taken from a different discipline, such as math or engineering, at least 4000-level or higher. In most cases, this is limited to 1 course.)	24
<i>Graduate Reading Course</i>	3
<i>Research Topics</i>	3
<i>Total</i>	30

Transfer of Credit

If a student wishes to receive credit for graduate coursework at another institution, a "Petition for Transfer of Credit" form must be submitted, accompanied by a transcript showing the work,

for approval by the mentor or advisor, Graduate Program Director, and Arts and Sciences Associate Dean of the Graduate Education. The grade received must be B or better. Students can transfer a maximum of 6 credit hours of graduate credit to Saint Louis University. It is up to the Graduate Program Director whether the transfer is allowed.

J. Procedures for Academic Appeals

If a graduate student wishes to appeal any academic decision in the College of Arts and Sciences (CAS), that appeal should first be made to the faculty member or faculty involved and, if necessary thereafter, to the department chairperson or program director if the program has no chair. The initial appeal must be made within 30 days after the academic decision was communicated or made available to the student. If the appeal is carried forward to the department chairperson or program director, this must be done within 30 days of the faculty's decision. The department chair or program director reviews the materials and either supports the instructor's recommendation or determines an appropriate outcome.

Should the student wish to continue the appeal process, the next step involves the Board of Graduate Education (BGE) of the College of Arts and Sciences. An appeal to the BGE must be made in writing and submitted to the Associate Dean for Graduate Education within 30 days of the decision by the department chairperson or program director. The Associate Dean will notify all parties involved of the appeal and will provide both parties an opportunity to submit any supporting documentation they believe the BGE should review. Written submissions will be limited to 10 pages, with additional appendices if necessary, from each side in the dispute. The appeal may be heard as an agenda item at one of the regularly scheduled BGE meetings, or a special meeting may be called. A quorum of the BGE, excluding ex-officio members, must be in attendance. When the BGE sits as appeals board, a graduate student selected by the Graduate Student Association will be appointed to the board as a voting member. This student must be a graduate student in the College of Arts and Science but not from any departments involved in the appeal. Since this is an internal and not a legal procedure, students involved in the appeals process may be accompanied by someone who is not acting as an attorney or representing the student in his/her capacity as an attorney. If a member of the BGE is a member of the department or program involved in the appeal, that BGE member will abstain from active participation in the appeals process. The Associate Dean for Graduate Education shall be present throughout the entire process, but shall not be allowed to propose or second any motion, or to cast a vote on any motion related to the appeal.

The BGE will hear the case presented by the student and others supporting the student's appeal and will also hear the presentations of the other parties involved. Then, the BGE will conduct a discussion. If the BGE finds that insufficient information has been presented, it may request a period of not longer than 30 days to obtain the information, meet again, and reach a decision. The BGE will consider the merits of the student's appeal and the adequacy of procedures followed in the department. The BGE may support the decision being appealed, overturn it, or change the penalty imposed. The Associate Dean will inform the student in writing of the BGE's decision.

Should the student wish to appeal the decision beyond CAS, a written appeal may be submitted to the Associate Vice President for Graduate Education. This must occur within 30 days of the decision by the BGE. The AVP will review the documents as submitted to the BGE and may request additional information to determine whether or not the process as outlined in this section was appropriately followed. The AVP cannot overturn a decision but can remand the decision back to CAS for further investigation if the process was not followed.

Worksheets

Worksheet for M.A. students wanting to transition into Ph.D. Program

This particular worksheet is for those Master's students that are doing research and want to transition into the Ph.D. This course of study requires a total of 24 hours prior to transitioning to the Ph.D. program. See the departmental website for more description on the required courses. The core curriculum involves 12 hours consisting of two courses from each of two primary focus areas of advanced chemistry. The remaining hours can come from other graduate chemistry courses or from advanced courses in other disciplines.

Core curriculum (12 hrs)

A core curriculum (12 hrs total) consisting of 2 courses from each of the 2 primary focus areas (6 hrs from each area)

1. Synthesis & Materials Chemistry

CHEM 5160 Advanced Synthetic Chemistry (3)
CHEM 5400 Organic Spectroscopy (3)
CHEM 5440 Bioorganic Chemistry (3)
CHEM 5450 Advanced Organic Chemistry (3)
CHEM 5460 Synthetic Organic Chemistry (3)
CHEM 5470 Medicinal Chemistry (3)
CHEM 5480 Heterocyclic Chemistry (3)
CHEM 5500 Inorganic Chemistry (3)
CHEM 5550 Organometallic Chemistry (3)
CHEM 5560 Solid State Chemistry (3)
CHEM 5590 Special Topics - Inorganic (3)
CHEM 5800 Nanomaterials (3)
CHEM 5850 Polymer Chemistry (3)

2. Analytical & Physical Methods.

CHEM 5150 Statistics for Chemical Research (3)
CHEM 5170 Advances in Analysis and Modeling of Chemical Systems (3)
CHEM 5200 Analytical Chemistry 2 (3)
CHEM 5230 Mass Spectrometry (3)
CHEM 5250 Bioanalytical Methods (3)
CHEM 5260 Analytical Separations (3)
CHEM 5270 Electroanalytical Chemistry (3)
CHEM 5280 Chemical Sensors (3)
CHEM 5290 Special Topics - Analytical (3)
CHEM 5330 Advanced Physical Chemistry (3)
CHEM 5340 Advanced Thermodynamics (3)
CHEM 5350 Colloids and Interfacial Chem (3)
CHEM 5370 Computational Chemistry (3)
CHEM 5390 Special Topics - Physical (3)
CHEM 5450 Advanced Organic Chemistry (3)
CHEM 5570 Group Theory and Spectroscopy (3)
CHEM 5620 Biophysical Chemistry (3)
CHEM 5630 Chemical Biology and Biotechnology (3)
CHEM 5700 Environmental Chemistry (3)
CHEM 5800 Nanomaterials (3)

List 2 of the courses (course #) you have taken from in the synthesis/materials core:

1) _____ 2) _____ (6 hrs)

List 2 of the courses (course #) you have taken from in the analytical/physical methods core:

1) _____ 2) _____ (6 hrs)

Chemistry Electives: must be 6 hrs or more. List the other chemistry courses you have taken along with the total # of hrs. Most students will take chemistry courses and these must be 5000-level or higher. The electives can also be fulfilled by taking 4000-level or higher courses in other disciplines such as biology, math/computer science, and engineering. This needs to be approved by the student's committee.

1) _____ 2) _____ 3) _____ (other classes, if needed)

of chemistry elective hrs _____ (should be 6 or more hrs)

Introduction to Research. You must take an introductory to research course (3 hrs). Note that this can only be taken once (choose one). It is recommended this course be taken during the first year of graduate studies.

CHEM 5299: Introduction to Analytical Research (3 hrs)

CHEM 5399: Introduction to Physical Research (3 hrs)

CHEM 5499: Introduction to Organic Research (3 hrs)

CHEM 5599: Introduction to Inorganic Research (3 hrs)

List the course you have taken: 1) _____ (can't be more than 3 hrs)

Research Topics: A research topics course must be taken during the summer between the 1st and 2nd year in the program for 3 credit hours.

CHEM 5970 Research Topics (3 hrs) _____ (can't be more than 3 hrs)

Special Study for Examinations. You should sign up for CHEM 5950 for 0 credit hours in your last semester (the semester you wish to transition, typically Spring of the 2nd year).

Semester that CHEM 5950 was taken _____ # hrs _____ (must be 0)

Total # of hrs _____ (should be 24 or more)

Worksheet for thesis-based M.S. in chemistry (research-based)

The M.S. degree offers specialization in analytical, inorganic, organic, physical, or biological chemistry, with cross-disciplinary activity encouraged. It is a 30 credit-hour program. See the departmental website for more description on the required courses. The core curriculum involves 12 hours consisting of two courses from each of two primary focus areas of advanced chemistry. The remaining hours can come from other graduate chemistry courses or from advanced courses in other disciplines. Thesis research (6 hours) is also required.

Core curriculum (12 hrs)

A core curriculum (12 hrs total) consisting of 2 courses from each of the 2 primary focus areas (6 hrs from each area)

1. Synthesis & Materials Chemistry

CHEM 5160 Advanced Synthetic Chemistry (3)
CHEM 5400 Organic Spectroscopy (3)
CHEM 5440 Bioorganic Chemistry (3)
CHEM 5450 Advanced Organic Chemistry (3)
CHEM 5460 Synthetic Organic Chemistry (3)
CHEM 5470 Medicinal Chemistry (3)
CHEM 5480 Heterocyclic Chemistry (3)
CHEM 5500 Inorganic Chemistry (3)
CHEM 5550 Organometallic Chemistry (3)
CHEM 5560 Solid State Chemistry (3)
CHEM 5590 Special Topics - Inorganic (3)
CHEM 5800 Nanomaterials (3)
CHEM 5850 Polymer Chemistry (3)

2. Analytical & Physical Methods

CHEM 5150 Statistics for Chemical Research (3)
CHEM 5170 Advances in Analysis and Modeling of Chemical Systems (3)
CHEM 5200 Analytical Chemistry 2 (3)
CHEM 5230 Mass Spectrometry (3)
CHEM 5250 Bioanalytical Methods (3)
CHEM 5260 Analytical Separations (3)
CHEM 5270 Electroanalytical Chemistry (3)
CHEM 5280 Chemical Sensors (3)
CHEM 5290 Special Topics - Analytical (3)
CHEM 5330 Advanced Physical Chemistry (3)
CHEM 5340 Advanced Thermodynamics (3)
CHEM 5350 Colloids and Interfacial Chem (3)
CHEM 5370 Computational Chemistry (3)
CHEM 5390 Special Topics - Physical (3)
CHEM 5450 Advanced Organic Chemistry (3)
CHEM 5570 Group Theory and Spectroscopy (3)
CHEM 5620 Biophysical Chemistry (3)
CHEM 5630 Chemical Biology and Biotechnology (3)
CHEM 5700 Environmental Chemistry (3)
CHEM 5800 Nanomaterials (3)

List 2 of the courses (course #) you have taken from in the synthesis/materials core:

1) _____ 2) _____ (6 hrs)

List 2 of the courses (course #) you have taken from in the analytical/physical methods core:

1) _____ 2) _____ (6 hrs)

Chemistry Electives: must be 6 hrs or more. List the other chemistry courses you have taken along with the total # of hrs. Most students will take chemistry courses and these must be 5000-level or higher. The electives can also be fulfilled by taking 4000-level or higher courses in other disciplines such as biology, math/computer science, and engineering. This needs to be approved by the student's committee.

1) _____ 2) _____ 3) _____ (other classes, if needed)

of chemistry elective hrs _____ (should be 6 or more hrs)

Introduction to Research. You must take an introductory to research course (3 hrs). Note that this can only be taken once (choose one). It is recommended this course be taken during the first year of graduate studies.

CHEM 5299: Introduction to Analytical Research (3 hrs)

CHEM 5399: Introduction to Physical Research (3 hrs)

CHEM 5499: Introduction to Organic Research (3 hrs)

CHEM 5599: Introduction to Inorganic Research (3 hrs)

List the course you have taken: 1) _____ (can't be more than 3 hrs)

Research Topics: A research topics course must be taken during the summer between the 1st and 2nd year in the program for 3 credit hours.

CHEM 5970 Research Topics (3 hrs) _____ (can't be more than 3 hrs)

Thesis Research. You should take 6 hrs of thesis research (CHEM 5990). This is usually done in 3 hr increments over the course of 1 year. This should only be taken if you are finishing our program with a thesis-based M.S. degree. Do NOT take this if you want to transition into the Ph.D. program. These are graded IP (in progress) until your last semester, where an S or U grade is assigned.

Semester(s) that CHEM 5990 was taken: 1) _____ 2) _____

hrs _____ (should = 6 hrs)

Special Study for Examinations. You should sign up for CHEM 5950 for 0 credit hours in your last semester (the semester you wish to graduate).

Semester that CHEM 5950 was taken _____ # hrs _____ (must be 0)

Total # of hrs _____ (should be 30 or more)

Worksheet for M.A. in chemistry, industry students not doing research

The Department offers a broadly based non-research M.A. degree. This particular worksheet pertains to part-time students (not doing research) who are usually from industry and interested in a coursework-based M.A. degree. This course of study requires a total of 30 hours of graduate credit. See the departmental website for more description on the required courses. The core curriculum involves 12 hours consisting of two courses from each of two primary focus areas of advanced chemistry. The remaining hours can come from other graduate chemistry courses or from advanced courses in other disciplines.

Core curriculum (12 hrs)

A core curriculum (12 hrs total) consisting of 2 courses from each of the 2 primary focus areas (6 hrs from each area)

1. Synthesis & Materials Chemistry

CHEM 5160 Advanced Synthetic Chemistry (3)
CHEM 5400 Organic Spectroscopy (3)
CHEM 5440 Bioorganic Chemistry (3)
CHEM 5450 Advanced Organic Chemistry (3)
CHEM 5460 Synthetic Organic Chemistry (3)
CHEM 5470 Medicinal Chemistry (3)
CHEM 5480 Heterocyclic Chemistry (3)
CHEM 5500 Inorganic Chemistry (3)
CHEM 5550 Organometallic Chemistry (3)
CHEM 5560 Solid State Chemistry (3)
CHEM 5590 Special Topics - Inorganic (3)
CHEM 5800 Nanomaterials (3)
CHEM 5850 Polymer Chemistry (3)

2. Analytical & Physical Methods

CHEM 5150 Statistics for Chemical Research (3)
CHEM 5170 Advances in Analysis and Modeling of Chemical Systems (3)
CHEM 5200 Analytical Chemistry 2 (3)
CHEM 5230 Mass Spectrometry (3)
CHEM 5250 Bioanalytical Methods (3)
CHEM 5260 Analytical Separations (3)
CHEM 5270 Electroanalytical Chemistry (3)
CHEM 5280 Chemical Sensors (3)
CHEM 5290 Special Topics - Analytical (3)
CHEM 5330 Advanced Physical Chemistry (3)
CHEM 5340 Advanced Thermodynamics (3)
CHEM 5350 Colloids and Interfacial Chem (3)
CHEM 5370 Computational Chemistry (3)
CHEM 5390 Special Topics - Physical (3)
CHEM 5450 Advanced Organic Chemistry (3)
CHEM 5570 Group Theory and Spectroscopy (3)
CHEM 5620 Biophysical Chemistry (3)
CHEM 5630 Chemical Biology and Biotechnology (3)
CHEM 5700 Environmental Chemistry (3)
CHEM 5800 Nanomaterials (3)

List 2 of the courses (course #) you have taken from in the synthesis/materials core:

1) _____ 2) _____ (6 hrs)

List 2 of the courses (course #) you have taken from in the analytical/physical methods core:

1) _____ 2) _____ (6 hrs)

Chemistry Electives: must be 12 hrs or more. List the other chemistry courses you have taken along with the total # of hrs. The remaining 4 courses should come from either area listed above and be 5000-level or higher. In special cases, with the approval of the student's committee and graduate program director, a course can be taken from a different discipline, such as math or engineering, at least 4000-level or higher. In most cases, this is limited to 1 course.

1) _____ 2) _____ 3) _____ 4) _____

of elective hrs _____ (Should be at least 12 hrs)

Research Topics: A research topics course must be taken during the summer for 3 credit hours. Contact the graduate program director for more details.

CHEM 5970 Research Topics (3 hrs) _____ (can't be more than 3 hrs)

Graduate Reading Course: A graduate reading course must be taken during the summer for 3 credit hours. Contact the graduate program director for more details.

CHEM 5980 Graduate Reading Course (3 hrs) _____ (can't be more than 3 hrs)

Special Study for Examinations. You should sign up for CHEM 5950 for 0 credit hours in your last semester (the semester you wish to graduate).

Semester that CHEM 5950 was taken _____ # hrs _____ (must be 0)

Total # of hrs _____ (should be 30 or more)