

Rice University
Department of Chemistry

Graduate Student Handbook
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2023-2024

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Rice University

Department of Chemistry

I. Welcome and Overview

Welcome to the Rice University Department of Chemistry! The department is comprised of students and faculty who investigate the composition, properties, structure, reactivity, and mechanisms of transformations of matter. Included are theorists and experimentalists, organic and inorganic chemists, physical and biological chemists, scientists and engineers. Rice is known for groundbreaking research in chemistry. Underlying the development of Rice chemists is a strong, dynamic, interdisciplinary faculty which included Nobel Laureates, six members of the National Academy of Sciences, and two members of the National Academy of Engineering.

For decades, Rice culture has promoted interdisciplinary research. Most Rice chemistry professors have additional appointments elsewhere, including four of the five science departments and four of the eight engineering departments on campus. We have particularly strong programs in nanoscale science, theoretical chemistry, inorganic materials, experimental physical chemistry, biological chemistry, supramolecular chemistry, biophysics and environmental chemistry. Rice University is a member of the Texas Medical Center, which is the largest medical center in the world, and the Department of Chemistry is at the center of important breakthroughs in nanomedicine.

Our graduate program is sharply focused on promoting the highest level of achievement for each Rice doctoral student. Rice graduate students have exceptional access to faculty time, instrumentation and other resources. As a result, chemistry graduate students at Rice develop remarkably strong publication records.



Department of Chemistry Vision: Inspire curiosity, pioneer chemical innovation, and educate the next generation of scientific leaders.

Department of Chemistry Mission: Through cutting edge research and transformational education, we advance discovery across the realm of fundamental and applied chemical sciences and empower a diverse and inclusive scientific community to address the challenges of our complex world

Tips: How to be a good researcher:

- Throughout your time at Rice, you are learning how to conduct research, not just how to perform experiments or calculations. You are a junior research colleague, not a lab assistant or technical support.
- Aim to become a creative, independent researcher, and strive to perform novel, creative research in the process.
- Think critically; always question yourself, your advisor, your colleagues, and the literature.
- Read the literature: first, capture the essence of articles, not the details; then, go back to the most relevant articles and look for details where appropriate. The amount of the scientific literature on all subjects in chemistry is huge, and you have to be able to separate the important things from the less relevant.
- Set long-term research goals: what do you want to achieve? Why is it important? What will you and others learn from your research?
- Set short-term objectives accordingly. Mountains are climbed one step at the time. How can you break the long-term goals into shorter-term objectives? How can you achieve the first few objectives? If you can't see a clear path, can you break down your objectives further?
- Don't take shortcuts. Often, there is a right way and an easy way to solve a problem; they rarely coincide. Choose the right way over the easy way. Build each step of your research on sound foundations.
- Think creatively, not just when working in the lab. Think about your problem while you shower, while you cook, while you drive, before going to sleep. If you're too tired to think creatively, take a break with your friends or family, and then get back at your problem!
- Work hard and persistently: A good doctoral dissertation requires four plus years of dedicated hard work.
- You, your advisor, and your colleagues are entering into uncharted territory. Making mistakes and meeting dead-ends are normal. Overcome frustration, learn from mistakes, and improve!
- Once you've thought hard about a problem, challenge your thinking with your colleagues, advisor, and other professors. Explain to them what you're trying to do and how, in both formal and informal settings. Listen critically to your colleagues for thoughtful and useful advice. Can they point you in a direction that you may have overlooked? Do they know of methods, materials, theories, etc., that you can bring to support your problem?
- Set high standards for yourself first, and then for your collaborators.
- Stay open-minded. Try to learn as many different scientific topics as possible, not just focused on your research. Frequently, new things are discovered on the border between different fields and subjects.
- Being a team player is important in the laboratory, so that lab members can learn from each other's experiences. A collaborative learning environment leads to personal growth and skill development.

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II. ADMINISTRATIVE

A. Administrative Staff

Chemistry graduate students are welcome to ask staff for assistance at any time.

NAME	TITLE	PHONE EXT.	LOCATION	EMAIL (@rice.edu)
Vicky Armstrong	<i>Executive Administrator</i>	2895	SS 111	vstrong
Nancy Adler	<i>Academic Program Administrator</i>	2906	SS 111	nbn2
Javier Chavez	<i>Chemistry Storeroom Manager</i>	3255	SS 113	jjchavez
Susan Cudnik	<i>Materials Management Clerk</i>	3275	SS 113	scudnik
Ruxin Feng	<i>Teaching Stockroom Manager</i>	3488	DBH 278	ruxin.feng
Tammy Martin	<i>Department Coordinator</i>	3277	SS 111	tm46
Stacie Millas	<i>Seminar & Event Coordinator</i>	4082	SS 111	sm185
Pedro R. Prado	<i>Lead Financial Administrator</i>	3868	SS 111	prprado
Israel Ramirez Jr.	<i>Shipping and Receiving Coordinator</i>	3257	SS 101	ir28
Kari Stein	Graduate Program Administrator	5820	SS 111	ks127
Abby Vacek	<i>Facilities/Purchasing Administrator</i>	5402	SS 111	akv1
Anita Walker	<i>Chemistry Courses Administrator</i>	4027	DBH 243	aawalker
Selena Zermeno	<i>Program Administrator</i>	2233	SS 111	selena

B. Graduate Stipend

Graduate students are typically paid as Fellows and Teaching Assistants (TAs) for the first year. Once affiliated with a research group, students are paid as Research Assistants (RAs) and Teaching Assistants (if applicable). TA's and RA's are considered employees, while Fellows are not considered employees. Please review the following link for further information regarding payment types and tax implications: <https://graduate.rice.edu/tax-status-scholarships-fellowships-grants-and-stipends>

Employee and Fellow pay schedules are bi-weekly (26 pay-periods in the calendar year).

Graduate student payments (via direct deposits) are issued on the previous business day if the pay date falls on a holiday or weekend. For questions regarding graduate student pay, contact the Graduate Program Administrator, Kari Stein (ks127@rice.edu).

C. Mail & Packages

Graduate Student mailboxes can be found in SST 111 and BRC near the freight elevator on the 1st floor. Please see Kari Stein (ks127@rice.edu) if the student does not have a mailbox. Students who are assigned to labs in the BRC should contact Camy Noelck for mail-related questions: 713-348-8415 or camy@rice.edu. FedEx and UPS Packages are received at the Space Science & Technology receiving dock, SS 101.

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D. ESTHER (Employee and Student Tools, Help, and Electronic Resources) & imagineOne (iO)
ESTHER is the Rice University web application for students, faculty, and staff. Students will use this application to register for classes, retrieve data such as grades, and access account information. iO is the centralized business platform for HR and finance.

For information about how to use ESTHER and iO, visit:

http://registrar.rice.edu/students/ESTHER_FAQs/ & <https://io.rice.edu>

Resources in ESTHER:

- ✓ Register
- ✓ Add and drop courses
- ✓ View course schedules
- ✓ Access final grades
- ✓ View unofficial transcripts
- ✓ Obtain enrollment verifications
- ✓ Print the student degree application
- ✓ View course & instructor evaluation comments from previous semesters
- ✓ Identify student account holds
- ✓ View financial aid information
- ✓ Review charges and payments
- ✓ Pay the student's account online
- ✓ Changes to forms (W4 & direct deposit information)

Resources in iO:

- ✓ View student employment information, such as pay stubs
- ✓ Update student contact information

E. Student Health Insurance

Student Health Insurance: Rice University requires all degree-seeking students to have health insurance. Students electing to enroll in the Rice Student Health Plan may opt to be billed annually or semi-annually. Contact the Bursar's Office for payment options (713-348-4946). The student must complete an insurance waiver form to waive the student's enrollment in the Rice Student Health Plan.

Health Data Form (HDF): ALL new undergraduate students and graduate students are required to submit a properly completed Health Data Form (HDF) to Rice University Student Health. All students under the age of 30 years, regardless of classification, must provide formal documentation of vaccination against meningococcal disease. (<https://health.rice.edu/>)

F. Title IX

Title IX protects people from discrimination based on sex in education programs or activities that receive federal financial assistance. Title IX coordinators at Rice are available to discuss options, provide support, explain University policies and procedures, and provide education on relevant issues.

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If the student is in need of assistance or simply would like to talk to someone, contact **Rice Wellbeing and Counseling Center**, which includes Title IX Support at (713) 348-3311 or titleix@rice.edu. Policies, including the Sexual Misconduct Policy, the Code of Student Conduct, and additional information regarding Title IX can be found at safe.rice.edu, <https://sjp.rice.edu/code-of-student-conduct> and <https://titleix.rice.edu/>.

G. Applying for a Social Security Number

Generally, international students are eligible to apply for a social security number (SSN) or an Individual Tax Payer Identification Number (ITIN) after 10 days in the US. For more information, please visit <https://www.ssa.gov/ssnumber/> or the employment section on OISS website <http://oiss.rice.edu/forms/>

It is advised to obtain a Social Security Number as soon as possible in order to decrease tax withholdings from graduate stipends.

To be eligible, the student must meet *all* of the following requirements:

- ✓ Student is on F-1 visa status.
- ✓ Student is currently enrolled full-time.
- ✓ Student has secured employment, i.e. on-campus job, off-campus CPT/OPT, research assistant or teaching assistant in an academic department (*fellowships are **not** considered employment*).
- ✓ Student has been in the United States for more than 10 days.
- ✓ Student has been registered as a full-time student in SEVIS.

If all requirements have been met, please follow these procedures:

- ✓ Request the Graduate Program Administrator, **Kari Stein** (ks127@rice.edu) to complete the “Employer Verification Form”, available in the Office of International Students & Scholars or online at <http://oiss.rice.edu/forms/>.
- ✓ Take the completed form to OISS to complete the SSA Letter of Support.
- ✓ Once the student receive their Social Security Number, go to Payroll to submit the student’s information.

H. CGSA & ChemPals

Chemistry Graduate Student Association (CGSA) is a group dedicated to the service of Rice chemistry graduate students. They act as a liaison between graduate students and the department as well as plan for speakers, monthly happy hours, and outings. Through CGSA, the ChemPals program was developed. ChemPals are current graduate students in the Chemistry Department who are matched up with a 1st year student to help with the transition into Grad/Rice life. Each incoming student receives a ChemPal. Students can contact the CGSA President or the Chem Grad Admin for additional information.

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2024 - 2025 CGSA (Chemistry Graduate Student Association) Board Members

Position	Name	Rice Email
President	Andrés Sánchez	abs22@rice.edu
Vice President	AnaVi Benavides	anavibenavides@rice.edu
Treasurer	Nickie Nunez	nickie.nunez@rice.edu
Secretary	Dinora Rodriguez	dr44@rice.edu
Inventory	Santiago Hendrichs	santiago.hendrichs@rice.edu
GSA Rep	Lixin Zhou	lixin.zhou@rice.edu
Academic Speaker Coord.	Saxton Fisher	fishers@rice.edu
Career Speaker Coord.	Aliyu Ahmad	aaa35@rice.edu
Social Co-chair	Charlotte Randolph	cjr5@rice.edu
Social Co-chair	Kaitlyn Birkhoff	kaitlyn.m.birkhoff@rice.edu

CGSA Webpage: <https://chemistry.rice.edu/chemistry-graduate-student-association>

III. GENERAL ANNOUNCEMENTS

Rice University publishes "General Announcements" (GA) each year. These are official guidelines of the university and can be found at <http://ga.rice.edu/>. The section titled "Graduate Students" outlines basic rules and expectations for graduate students at Rice University. Students must abide by the General Announcements. More information regarding the Honor Code and Code of Conduct can be found in the Program Protocol section.

While students are bound by the minimum requirements, the Ph.D. in chemistry, has additional requirements. The second portion of the General Announcements is specific to the Department of Chemistry, which can be found at <https://chemistry.rice.edu>. This details all of the requirements for earning a Ph.D. in chemistry.

If conflicting information is stated, university-wide regulations take precedence over department-wide regulations, which take precedence over research group-wide regulations.

When in doubt, students should seek help first at the department level (Graduate Program Administrator, Chair of Graduate Studies Committee, Department Chair, or their advisor) and then at the Central Administration level (Office of Graduate and Postdoctoral Studies). It is important and useful to follow this order and not to contact all sources at the same time.

IV. GRADUATE AND POSTDOC STUDIES FORMS AND RESOURCES

[The Office of Graduate & Postdoctoral Studies](http://graduate.rice.edu/forms/) (GPS) maintains a library of commonly needed forms for everything from leave of absence to candidacy petition to thesis submission. Forms are located: <http://graduate.rice.edu/forms/>. Specific forms include:

- ✓ Enrollment
- ✓ Leave of absence
- ✓ Short term medical release and parental release
- ✓ Registration and transferring credit
- ✓ Candidacy petitions
- ✓ Thesis defense instructions for submission
- ✓ Degree conferral
- ✓ Commencement

V. REQUIREMENTS FOR THE PH.D. IN CHEMISTRY

A. Research

The Ph.D. in chemistry is awarded for original research in chemistry. During the first semester, students will go through a process of selecting a research advisor. In some cases, students may choose research advisors outside of the department. Approval of the Department Chair is required to formalize these advising relationships. The research advisor will guide the student in the choice of an appropriate research topic and in the detailed training required to complete that project. Students must successfully complete CHEM 800 graduate research and CHEM 600 chemistry seminars each semester. Candidates earn a Ph.D. after successfully completing at least 90 semester hours of advanced study in chemistry and related fields, culminating in a thesis that describes an original and significant investigation in chemistry. The thesis must be satisfactorily defended in a public oral examination. The student must pass the thesis defense before the end of the 16th semester of residency.

B. Coursework

Within the first two years, the student must complete six 3-credit lecture courses at Rice University, or their approved equivalent. In order to satisfy this requirement, each of these courses must satisfy all following criteria:

- The courses must be approved by the department's Graduate Studies Committee.
- Chemistry graduate courses must be at the 500 level or higher. Certain 300- and 400-level courses in other departments may be acceptable with **prior** approval by the department's Graduate Studies Committee. A maximum of three lower-level courses in other departments can count towards the six-class requirement, and these do not count towards the University-wide requirement of 90 credits at the 500 level. Courses must be in technical subjects in science or engineering. Courses in teaching, presentation, or management will not be counted toward the six-class requirement.

- Each course must be *passed with a grade of B- or higher*. It is possible to repeat or replace a maximum of 2 courses, upon approval of the department's Graduate Studies Committee.
- Students who pursue both the B.S. and the Ph.D. at Rice need not duplicate course work for the two degrees. However, teaching as an undergraduate does not substitute for the teaching requirements in the Ph.D. program.

C. Responsible Conduct of Research

Each graduate student must successfully complete the ethics course UNIV 594.

D. Teaching

Each graduate student must participate in teaching (CHEM 700) for the equivalent of **three (3)** semesters. An average of at least B- in all 3 courses is required. Assignments are determined by departmental needs.

E. Qualifying Examination

The qualifying exam has written and oral components (the expectations are available in the department office). The committee will be composed of three faculty members, excluding the research advisor. The written document must be submitted to the committee at least one (1) week before the date of the oral examination. The examination must be taken by the last day of class at the end of the student's 4th semester, unless there is a special circumstance approved by the Graduate Studies Committee. Any follow-up work required by the committee must be completed by the assigned date, and the exam must be passed by the end of the 6th semester. For detailed information, see "Appendix I - Qualifying Examination Guidelines".

F. Advancement to Candidacy for the Ph.D.

After completing the required coursework, teaching, and qualifying examination each student must petition to Advance to Candidacy for the Ph.D. degree. Upon advancement, a student chooses a Thesis Committee with the guidance and approval of their research advisor and Department Chair. The Thesis Committee must be a minimum of three faculty members:

1. The student's advisor.
2. Two members of the student's Qualifying Exam Committee.
3. One faculty member whose primary appointment is in a department outside of chemistry (*If one of the members of the student's QE Committee is outside the Chemistry Department they will qualify as an outside committee member*).
4. Optional - The student and Ph.D. advisor may also include one additional faculty.

Detailed information regarding choosing a Thesis Committee can be found in the GA at <https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-doctoral-degrees/>

G. Satisfactory Performance

To remain in good standing, a student must:

- Enroll full-time in a departmental-approved research group, beginning the second semester, and each semester thereafter.
- Upper Level Lecture Courses
 - Maintain an overall GPA of 3.0 (B) or higher in upper level lecture courses
- CHEM 600 - Chemistry Seminars
 - Receive a semester grade of 3.0 (B) or higher
 - A grade of 2.67 (B-) or below will place the student on probation
- CHEM 700 - Teaching Practicum
 - Receive a semester grade of 3.0 (B) or higher
 - A grade of 2.67 (B-) or below will place the student on probation
- CHEM 800 - Graduate Research

Failure to maintain satisfactory grades and sufficient progress in research will result in probation and possible dismissal.

 - Receive a semester grade of 3.0 (B) or higher
 - A grade of 2.67 (B-) or below will place the student on probation

Graduate students are evaluated annually to ensure the student is making appropriate progress towards the degree (see "Section XI - Example of Online Student Evaluation"). The student, advisor, or department may request a meeting between the student and a faculty committee at any time to evaluate progress or to determine a course of action. *If progress is unsatisfactory, the committee may recommend a semester of probation. This could result in dismissal from the program, should progress remain unsatisfactory in the probationary period or thereafter. A second probation may lead to dismissal.*

H. Requirements for the M.A. in Chemistry

Although students are not normally admitted to study for a Master's degree, graduate students may earn the M.A. after obtaining Approval of Candidacy for the Ph.D. The M.A. may also be earned by students who do not achieve Ph.D. candidacy by satisfying all following requirements:

- Completing six one-semester courses (18 credits) required for Ph.D. candidacy.
- Producing a Master's thesis that presents the results of a program of research approved by the department.
- Passing a final Master's thesis defense and submitting the thesis to the Office of Graduate and Postdoctoral Studies.
- Following the university requirements for the thesis Master's degree.
<https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-thesis-masters-degrees/#text>

I. Appeal

Students may petition the Chemistry Graduate Studies Committee for variances on these academic regulations. Contact the student's Graduate Program Administrator to obtain more information on *Academic Petitions*.

VI. PROGRAM PROTOCOL

A. Changing Laboratories

Students will be placed in a lab before the end of the first semester. In the event that a student or the advisor determines the match not suitable, other options can be explored. Before taking any actions, students should first discuss the situation with the current PI and explore all possible solutions (e.g., changing the project, receiving more supervision). If the student decides to change labs, approval of the Graduate Studies Committee and Department Chair is required. Be mindful that changing laboratories is likely to set the research timeline back several months.

A student is required to find a new research advisor to continue in the program if:

- The student has been asked to leave the lab by the student's advisor.
- A student may *elect* to leave the research group based on research area, perceived mismatch in student/advisor personality, or other irreconcilable difference.

Regardless of the reasons the original student/advisor relationship has ended, the case is referred to the Graduate Studies Committee as soon as possible.

B. Advisor's Responsibilities

If an advisor determines that a student's research performance is not adequate for timely progress toward a Ph.D., the advisor must discuss and establish expectations with the student. In addition, the expectations, reasons, and timeline should be followed-up in writing and given to the student. A minimum timeline of 1-2 months (half a semester) is recommended by the Graduate Studies Committee. The written evaluation must be shared with the student and the Graduate Studies Committee Chair. If the student fails to meet the expectations set by the deadline, the advisor can ask the student to leave the group after documenting in writing how the student has continued to fail. Two written statements are therefore requested before an advisor can ask a student to leave the group.

In addition, for letter grades of B (not a failing grade) and below (B- and lower triggering an automatic probation) in CHEM 800, a written evaluation by the advisor is required. The evaluation needs to document the reasons for the grade, how performance issues can be addressed moving forward, and a timeline for the expectations expressed, assuming that the student is not asked to leave the group immediately (i.e. it is the first written evaluation documenting lack of performance). This evaluation needs to be sent to the student as well as the Chair of Graduate Studies. Note that this requirement is in addition to the yearly evaluations and it is triggered based on CHEM 800 research grades each semester.

C. Student Responsibilities

Students who are considering changing advisors should consult with the Graduate Studies Committee Chair or the Department Chair. To avoid potential conflicts that may result in a change of labs, students are encouraged to communicate often with their advisors and, in case of any issues, ask for written feedback and a suggested path forward including deadlines.

It is, furthermore, the right of every student to ask for the student's Thesis Committee to meet anytime and to provide feedback in order to resolve potential conflicts. If the Thesis Committee has not been established, the Graduate Studies Committee will assign an appropriate committee.

After changing the lab, it is the student's responsibility to call a meeting of their Thesis Committee to evaluate the success of the transfer and if the student is making reasonable progress in a new group. This must be done at the end of the first semester after transferring to a new group.

D. Graduate Studies Committee Responsibilities

1. Determine whether it is appropriate for a student to try to find a new lab and stay in the program, or if the student should depart from the program.
2. If the student is approved to look for another lab, the committee must decide how long the student has to find a new advisor and recommend whether it would be appropriate to provide any bridge resources to support the student while the student is not affiliated with a lab. The Department Chair will formally be the student's advisor during any time the student is between labs, and will submit grades and other evaluations of the student.
3. If the student finds an advisor willing to support them, the committee will determine if the particular student/advisor match has sufficient promise to go forward. The committee may solicit letters from: the student, the previous advisor, and any potential new advisor(s). The committee may also ask the student to make a presentation on items such as: research achievements with the previous advisor, likely research projects with the proposed advisor, reasons for moving, or anything else relevant to the case in question. If the committee does not gain adequate confidence that changing advisors will lead to a positive outcome, the student will not be allowed to continue in the program. Generally speaking, the fewer years that the student has been with the original advisor the more favorable the outlook of the committee will be. Transfers during a student's 1st year are relatively common and usually due to student/advisor mismatch. Transfers after advancement to candidacy can create a major setback in the timeline to graduation.
4. If a student changes advisors prior to achieving candidacy, the committee, in consultation with the new advisor, will determine a reasonable timeline for the qualifying exam to be completed. In some circumstances it may be more suitable to have the student defend a Master's thesis.
5. A student who changes advisors after achieving candidacy will join the new lab on research probation (regardless of the student's previous status). This probation must be resolved by a meeting with the Thesis Committee at the end of the first semester in the new lab, in which the

student must convince the committee that the transfer has been successful. If a student changes advisors early in graduate school, the qualifying exam will serve as the evaluation for whether the transfer has been successful.

E. Primary Appointment Outside the Chemistry Department

The Department of Chemistry has many faculty members whose primary appointment is in another Rice department but who have a joint appointment in chemistry (faculty are listed on the chemistry department webpage). Students are permitted to choose these faculty members as their primary research advisor with approval. Students must get approval from both the Graduate Studies Chair and the Department Chair for rotations outside of chemistry.

F. Course Requirements

1. Lecture Courses

To Advance Candidacy a student must successfully complete a minimum of six (6) lecture course equivalents (3 credit courses count as 1 equivalent; 1.5 credit lecture courses in chemistry count as 1/2 of an equivalent) in upper level chemistry, math, science or engineering courses. The cumulative course grade point average (GPA) for all courses must be 3.0 (B) or greater. However, an individual course grade of 2.33 (C+) or below during a given semester will require the course to be retaken or replaced with another course.

It is also possible to repeat or replace a maximum of 2 courses, upon approval of the Department's Graduate Studies Committee.

Recently, the Department of Chemistry has offered half semester courses. Two of these courses, and some select half semester courses from other departments, can be combined to count towards the six-lecture course requirement.

Some students may come to Rice having already completed advanced work at another institution and may qualify to have one course of the 6 lecture courses requirement waived (see course waivers below). The department allows a great deal of flexibility in what courses fulfill this requirement. However, to qualify, courses in chemistry must be of the 500 level. In some instances, courses outside the Department of Chemistry at the 300 or 400 level may count toward the six lecture courses requirement.

All 300 or 400 courses taken outside of the Department of Chemistry require the written approval of the Chair of Graduate Studies and the student's Ph.D. advisor to qualify for the 6 lecture courses requirement.

Courses that **do not** qualify towards the six-course requirement include: courses in management, administration, writing and presentations (including thesis preparation), seminars, and teaching courses. This does not mean that the student cannot or should not take these courses, only that they do not count towards the requirement. There are many instances in which it may be important and desirable to take such courses and, with agreement from his or her research advisor, the student is encouraged to take these classes. *If the student has any*

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doubt about whether a particular course counts towards the student's degree or not, please contact Hans Renata, of the Graduate Studies Committee for clarification.

2. CHEM 600 - Chemistry Seminars

Chemistry graduate students are required to register for a section of CHEM 600 each semester (including the semester the thesis is defended). There are 3 components that make up CHEM 600:

- a. **Presentation Seminar** – The student must present a seminar annually according to the following schedules:

FALL MATRICULANT

Year	Fall Semester	Spring Semester
1 st	N/A	Background and Preliminary Results
2 nd	Practice Qualifying Exam	Qualifying Exam
3 rd	N/A	Research Progress
4 th and higher	Research Progress	N/A

SPRING MATRICULANT

Year	Spring Semester	Fall Semester
1 st	N/A	Background and Preliminary Results
2 nd	N/A	Practice QE & Qualifying Exam
3 rd	N/A	Research Progress
4 th and higher	Research Progress	N/A

- b. **Student Seminars** – Attend a minimum of SIX (6) one-hour student seminar sessions in any CHEM 600 section.

This required minimum might be adjusted (due to qualifying exams), and the graduate students will be informed if there is a change. CHEM 600 seminars typically have two speakers, but sessions with only one speaker due to scheduling problems also count.

Attendance at student seminars will be verified by the speaker rubrics submitted at the conclusion of the seminar. **Failure to submit a rubric(s) will be counted as absent.** The evaluator's name will be removed from the rubric and they will be returned to the speaker as feedback. The rubric must be filled out by the student attending the seminar. Submitting a rubric filled out for another student will be considered an honor code violation.

Contact **Anita Walker** (aawalker@rice.edu) for related questions. Late attendance policy: After 5 minutes from the start of the seminar, any remaining empty rubrics sheets will be picked up from the seminar room and your attendance will not be counted if you are not

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present in the room by then. We appreciate your effort to be on time and respectful of the speaker and the audience in the room, as well as fulfilling your requirements. This policy applies to department seminars as well.

Attendance can be tracked here: <https://docs.google.com/spreadsheets/d/1sr6tB9-ERlaCOTIXf18fEPJ7RwESmGT1EnPcXQCFN6E/edit#gid=0>

- c. **Chemistry Department Seminars** - Attend a minimum of **EIGHT (8)** Chemistry Department seminars of the student's choice. The seminars that qualify are compiled in the public "CHEM seminars" Google calendar. It is recommended that students subscribe to this calendar:

<https://calendar.google.com/calendar/u/0/r?cid=cmljZWNoZW02MDBAZ21haWwuY29t>

- d. **CHEM 600 Grades** - Grades for CHEM 600 are determined by two factors:

1) Presentation Seminar (see above schedule)

The quality of the presentation. If the student has presented during a given semester the instructor for the section will assign an initial **CHEM 600 grade**, based on their presentation. Each presentation will be approximately 20 minutes long followed by 5 minutes of questions.

The Qualifying Exam presentation may be 30-45 minutes long followed by questions. Concentrate on the experimental design, theoretical models, and results that the student obtained. The 1st year talk may be largely from literature, but for other talks only ~5 minutes of the talk should be of an introductory nature.

2) Attendance at Six (6) Student Seminars and Eight (8) Department Seminars

If the student has presented during a given semester, the instructor for the section will assign an initial grade based on their presentation. This initial grade is then used to determine the final grade by the student's attendance at both student seminars and department seminars. Each seminar is worth one point but the Turner and Franklin lectures are worth two points. Students must have at least eight attendance points each semester. One of the eight may also include attending SynthX or Nanoscale Imaging. For each shortfall of the eight mandatory attendances for the student seminars and departmental seminars the student will be penalized two fractional letter grades (e.g., A to B+).

If the student is not required to present during a given semester the student's initial base grade will be an "A".

Substitutions between student and department seminars are not allowed, *unless arranged with the Graduate Studies Committee Chair before the semester begins.*

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Examples:

Presentation Grade Starting Point	Student Seminars Attendance	Department Seminars Attendance	Penalization for <6/8 Student and Dept Seminars (# fractional letter grades)	Final CHEM 600 Grade
A	6	8	0	A
A	6	7	2	B+
A	6	6	4	B-
A	5	7	4	B-
A	5	8	2	B+

☆ *If the student fulfills the required attendance, the student's presentation grade will be the student's final CHEM 600 grade.*

The grade of B or higher is necessary to maintain good standing in the department. A grade of B- or below will place the student on probation. **Two** probationary events over the course of the student's Ph.D. may result in the student's expulsion from the program.

Exceptions/Alternative Arrangements to Student and Department Seminars: Expected attendance of student talks and department seminars may need to be prorated for students in certain circumstances (see examples below). Arrangements must be made with the Graduate Studies Chair before the semester begins. ***No negotiations on grading and attendance proration will be made at the end of the semester.***

Exceptions for **prorated** student and department seminars may include:

- If a student graduates during the semester.
- The student's thesis defense can count for the CHEM 600 talk if it's presented in the semester that the student is scheduled to present. If the student has a **defense date set**, they may cancel their regular CHEM 600 talk that semester. However, in the event that the student postpones defending to the next semester, the student will have skipped their presentation and will not pass CHEM 600 that semester.
- Research demands at an off-campus location. It is possible that during a particular semester the student will be unable to attend CHEM 600 due to research demands at another location (for example, an internship) or other interruptions of the student's normal schedule.
- If a student has a TA assignment during the department seminars.

Each semester, the faculty member running the student's section of CHEM 600 may **add** requirements which the student will be obligated to follow, but will never reduce the above requirements. Any additional requirements will be communicated to the student during the first session section.

Please show appropriate respect to the speakers. During CHEM 600 and departmental seminars, laptops may be used only to take notes of the talk. The user should alert the speaker(s) ahead of

the presentation that they will be using a laptop to take notes and should sit in the first or second row so that the audience can see that the computer is being used for an appropriate purpose. Please alert the Graduate Studies Committee Chair, Dr. Hans Renata if the student become aware of any incidents in which this policy is not sufficiently effective. The use of cell phones is strongly discouraged. Arriving late is disruptive and **late arrivals will not be counted toward the student's CHEM 600 attendance requirements.**

3. CHEM 700 - Teaching Practicum

All graduate students are required to complete an equivalent of three teaching units through the CHEM 700 Teaching Practicum course. This course focuses on providing the tools necessary to effectively teach chemical concepts to undergraduate students, primarily in a teaching lab setting.

Outside of lab-specific responsibilities (given by the lab instructor), additional formal teaching training will be used to provide useful tips and techniques that can be employed while teaching, as well as to assist students in oral and written communication. The time commitment for CHEM 700 is 8-10 hours/week over a 16-week period (the week before classes formally begin to the week after the last class, 128-160 hours total). Because CHEM 700 is always taken for 2 credit hours whether a full or half course is taught, the number of CHEM 700 credit hours is not indicative of the number of teaching units the student has taught. The tally of teaching units is kept by the department office and is distributed annually.

4. CHEM 800 - Graduate Research

For the first semester at Rice the student's grade in CHEM 800 will be determined by the student's participation in the faculty introductory talks and the student's three lab summaries (see Section VII-E, "Joining a Lab" for detailed information). The student can still receive an A in CHEM 800 if the student misses one faculty presentation; however, every presentation the student miss after this will reduce the student's grade by two fractions of a letter grade (e.g. A to B+). Additionally, the student's grade will be reduced by two fractions for every day the student's lab summaries are late. In short, everyone should receive an "A" in CHEM 800 their first semester, if they are diligently researching their options for research.

After the student has joined a lab, the student's advisor will assign the letter grade based on the progress in research for the remainder of the time at Rice. A grade of B- or worse will result in being placed on a probation. Please note that any grade below an "A" should be concerning and the student should discuss this matter as soon as possible with their advisor. Students should find out why they received a lower grade and learn the best methods of improvement. Two semesters of poor performance (B- or below) will likely result in the student being removed from the Ph.D. program.

☆ The student must register for CHEM 800 for fall, spring, and summer semesters and remain a full-time student to receive a stipend.

G. Course Waivers

Students are normally required to successfully complete 6 lecture courses (or their equivalent) in chemistry or courses which are pertinent to their thesis objectives (chemical engineering, biochemistry, physics, etc.). In some cases, students start their Ph.D. program after having already completed substantial graduate course work, i.e. a Master's degree from another university. If a student has a Master's degree with all "A" grades in their first semester, they may be eligible to have one (1) course waived. If the student qualifies for a course waiver, the student is asked to check in with **Kari Stein** (ks127@rice.edu) at the beginning of the second semester to establish an official record of the student's course waiver.

H. Annual Evaluation

Students are evaluated each year. First year students are evaluated based on success in joining a laboratory, completion of coursework and TA assignments. This evaluation is carried out by the Graduate Committee and no written document is required from the student or provided to the student unless deficiencies are noted.

Second year students are evaluated based on their performance on their Qualifying Exam by a committee of three faculty members. A written evaluation is provided to the student by the chair of the committee.

Third year and greater students are evaluated via an annual web evaluation form sent by the graduate administrator each year, in May.

Sixth year students and above, in addition to the annual evaluation form, need to have an annual meeting with their Thesis Committee. It is the student's responsibility to contact the Thesis Committee and arrange a room and meeting time. This meeting needs to occur during the first semester of the academic year. It is also the responsibility of the student to communicate to the Chemistry Graduate Studies Committee the conclusions of the meeting.

I. Time Away

The Weiss School of Natural Sciences Policy regarding Graduate Student Time Off is found on page 41, APPENDIX XII.

Graduate school is a full-time, 12 months per year commitment. Graduate students are expected to coordinate and obtain approval for time away with their research advisors sufficiently far ahead of time to avoid any conflicts.

J. Probation and Dismissal

Students may be put on probation for reasons including, but not limited to, the following:

- 1) Overall GPA of lecture courses being below 3.0 (B)
- 2) Earning a grade of B- or less in CHEM 600, 700, or 800
- 3) Failing the Qualifying Exam

Upon being placed on probation, the student will receive an email stating the reason for being placed on probation, which will be copied to the student's research advisor and placed in a permanent file. The student's first offense is only a warning. However, if the student is placed on probation a second time, the student will be dismissed from the chemistry Ph.D. program unless the student's research advisor petitions the department to request the student to be allowed to continue in the program. If the student's advisor makes this request, a full faculty vote is required as to whether to keep the student in the program.

☆ Please note: If the student does particularly poorly in one semester of lecture courses it might be extremely difficult to improve the student's GPA back to an acceptable 3.0 or better in the following semesters. Even if the student's second semester grades are better than 3.0, if the total GPA is below 3.0 this would qualify as a probationary event. Because of this, the student is strongly urged to consider the student's course selection and load carefully at the beginning of the semester as well as before the drop deadline to avoid impossible situations. This especially applies to first year graduate students.

K. Conflict Resolution

During the course of the student's Ph.D., it is possible that the student may have a conflict with the student's research advisor over issues concerning the student's rate of progress, time to complete the student's degree, graduation or other scientific issues. While it is best to resolve these problems independently, there are many instances in which it is beneficial to have additional input. A student, their advisor, or a Thesis Committee member can call a meeting to help resolve whatever the conflict might be. In such a meeting the student will make a brief presentation of research progress to their committee consisting of the research advisor plus two additional faculty members. Students are furthermore strongly encouraged to talk to any member of the Graduate Studies Committee for input and best course of action. If a conflict cannot be resolved and it is determined that a change of labs is the only solution, the Graduate Studies Committee will work with the student to find a new advisor, as long as the student is otherwise in good academic standing. Please see section VI Program Protocol for additional information.

L. Reduction or Termination of Financial Support

Students who are not making adequate progress in research or who have been placed on probation for other reasons may have their financial support removed and may also be removed from the chemistry Ph.D. program.

M. Graduate and Postdoctoral Studies Guidelines for Academic Probation, Dismissal, Petitions, and Grievances

Please refer to the Graduate and Postdoctoral Studies [website](#) for university guidelines for academic probation and dismissal, petitions and appeals, and grievances and problems located in the General Announcements in the Graduate Student Academic Policies and Procedures section.

N. The Rice Honor System and Code of Student Conduct

The Honor Council is one of the cornerstones of Rice, and the Honor Code provides the foundation for Rice's academic expectations of students. More information can be found on the website: <https://honor.rice.edu/>

All students are expected to conduct themselves in a manner compatible with the University's function as an educational institution and with the rights of all members of the University community to attend, make use of, and enjoy the facilities and benefits of the University without undue interruption or disruption. There are many details surrounding The Code of Student Conduct, please visit: <https://sjp.rice.edu/code-of-student-conduct>

O. Achievement Awards

The departmental graduate student **Achievement Awards** are presented to qualified students each year based on merit. Please see Appendix III for chemistry awards details.

VII. TIMELINE FOR A PH.D. STUDENT

Year 1

The most important objective of the 1st year is to secure placement into a laboratory (typically done near the end of November).

First year students typically complete the following:

- 6 lecture courses (or equivalent) in Advanced Chemistry or other math, science or engineering discipline. *It is recommended that in the fall semester no more than 9 credit hours of lecture should be taken to allow time for lab rotation and selection.*
- 3 lab rotations in the first semester
- 1 or 2 units of teaching.
- Give a CHEM 600 presentation during the second semester.

Year 2

The primary objective of the 2nd year is to complete the Qualifying Exam and advance to candidacy.

- Any required lecture courses not completed in year 1 must be completed before the end of year 2.
- 3 Units of teaching must be completed by the end of year 2.
- CHEM 600 presentations are made both semesters in year 2. The presentation in the 2nd semester of year 2 is the Qualifying Exam. Students should have made significant progress towards their research goal.

Year 3 and Beyond

With most of the requirements of the Ph.D. behind the student, almost all of the student's energy should now be focused on research towards the student's Ph.D. defense.

While the rate of publication varies by discipline and lab, the best way to measure progress is by the quality and quantity of publications.

- Graduate students in the third year and higher **must** continue to participate in CHEM 600 each semester while enrolled as a student in the chemistry Ph.D. program.
- The student must give an oral presentation in the spring semester (3rd year) or fall semester (4th year and above). See CHEM 600 guidelines for details.

Graduation

Rice chemistry students typically graduate with a Ph.D. in 4-6 years.

The last hurdle the student faces will be to write a thesis and publicly defend it in front of a committee of at least three faculty members, one of whom must be the student's Ph.D. advisor and one of whom must be a Rice faculty member who has a primary appointment outside the Department of Chemistry.

More detailed information can be found on the GPS website. <https://graduate.rice.edu/>

VIII. FIRST YEAR OF GRADUATE PROGRAM

A. Early Matriculant

Some students may come to Houston as an early matriculant, to work in a lab over the summer. This is a way to get a head start on choosing an advisor during a time when the student does not have the distractions of course work and teaching assignments. During this time the student will be paid at the existing stipend rate. The student will need an agreement with the particular faculty member that they are willing and able to support the student during this time. The chair of Graduate Studies Committee or Department Chair can help the student find a suitable match if the student asks before coming.

It is important to know that working with this faculty member during the summer is only temporary and not a commitment for the duration of the PhD career. The student may find that the science, lab atmosphere, and personality of the professor are a great fit. Or, the student may determine that the lab is unsuitable for their research interests or otherwise. Similarly, the professor may find that the student is exactly the kind of intelligent, hard-working student that they hope to recruit, or they may not. If it works out for both parties, the student is on their way to choosing a lab. If it doesn't work, the student gained valuable experience and will have time in the first semester to select an advisor. The summer rotation counts toward the 1st lab rotation.

B. Orientation Week and Registering for Courses

The first semester at Rice begins with a mandatory Orientation Week (O-week) during which the student will learn the basics about Rice and the Department of Chemistry. The major events of O-week include presentations by faculty interested in recruiting students. This is a good way to make the student's first contact with faculty if the student did not participate in summer research.

Faculty advisors are available to review the student's background and assist in selecting courses. Most students will select three 3-credit advanced chemistry or other science lecture courses in addition to UNIV 594 (Responsible Conduct of Research), CHEM 600 (1 credit, the *Chemistry Seminars*), and CHEM 800 (variable number of credits, *Graduate Research*).

The majority of incoming students will also teach their first semester and therefore be enrolled in CHEM 700 (2 credits, the *Teaching Practicum*). There will be an information session regarding the student's teaching assignment during orientation.

- **Registering for Courses:**

To be a full-time student and receive a stipend, the student **must** be enrolled in a minimum of 12 credit hours every semester (9 credit hours during summer session). To ensure a student is with full-time status, a student should be enrolled in at least **15** credit hours each semester. It is suggested to have at least 15 credits in case a course needs to be dropped. A variable number of credit hours of CHEM 800 (*Graduate Research*) should be added such that the total credit hours equal at least 15.

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Example schedules for the student's first semester are shown below:

3 Lectures & TA			3 Lectures & No TA		
CHEM 501*	3	This is the most common schedule for a first semester graduate student.	CHEM 501*	3	This is the second most common schedule for a first semester graduate student.
CHEM 547*	3		CHEM 547*	3	
CHEM 542*	3		CHEM 542*	3	
UNIV 594	1		UNIV 594	1	
CHEM 600	1		CHEM 600	1	
CHEM 700	2		CHEM 800	4	
CHEM 800	2		Total Credits	15	
Total Credits	15				
2 Lectures & TA			2 Lectures & No TA		
CHEM 501*	3	Students who feel they may be especially challenged in the 1 st semester or who feel that the offered courses are particularly unsuited to their needs may elect to take only 2 lecture courses.	CHEM 501*	3	Students who feel they may be especially challenged in the 1 st semester or who feel that the offered courses are particularly unsuited to their needs may elect to take only two lecture courses.
CHEM 542*	3		CHEM 542*	3	
UNIV 594	1		UNIV 594	1	
CHEM 600	1		CHEM 600	1	
CHEM 700	2		CHEM 800	7	
CHEM 800	5		Total Credits	15	
Total Credits	15				

☆ Note: the 500 level courses shown on this table are arbitrary and utilized for example only.

Registering for Courses (Summer Session & Last Semester)

- The student must also register for CHEM 800 for the summer session to remain a full-time student.
- In the student's 5th and later semesters a student's schedule might look like this:

Course	Credits
CHEM 600	1
CHEM 800	14

The changing number of credits of CHEM 800 is indicative of the transition from a mixed emphasis on coursework and research towards total dedication to the student's research.

C. UNIV 594 - Responsible Conduct of Research Requirement

Students are required to register for UNIV 594 “Responsible Conduct of Research” during the first semester. Responsible conduct of research (RCR) is defined as the practice of scientific investigation with integrity. It involves the awareness and application of established professional norms and ethical principles in the performance of all activities related to scientific research.

D. Adding/Dropping Courses

Adding and dropping courses near the beginning of the first semester requires the signature of the Graduate Studies Committee Chair, Hans Renata. Dropping courses after the drop deadline (typically the 10th week of the semester) is usually **not** permitted.

E. Joining a Lab

The department is ultimately responsible for each student's education, and faculty members cannot unilaterally admit students into their labs. Students join labs through a three-way agreement with a faculty member and the department. The Chemistry Department's policy is for graduate students to rotate and join labs with core and joint faculty members. Adjunct members do not qualify. Please view the [Department of Chemistry's](#) website for detailed information regarding core and joint faculty members. A list of core and joint faculty taking students will be provided.

Students are not committed to a lab during the evaluation period. It is essential that students learn as much as possible about many labs. To facilitate this process, each student must submit three (3) one-page summaries, each of which describes lab investigations. Each rotation will be 4 weeks, with due dates provided in the summary. Students should cover a paper from the lab, a group meeting, or an ongoing project discussed with the professor or a lab member. Students should also attend at least one group meeting (if this is not logistically possible, meet individually with lab members) and have a personal meeting with the professor. The student's CHEM 800 grade depends on the quality of the lab rotation reports. By 5:00p.m. of the due date, the document should be emailed to **Kari Stein** (ks127@rice.edu), **Hans Renata** (hr28@rice.edu), and the professor whose lab was reviewed. The final list of faculty choices, in order of preference should be sent by **November 18**. The list should be sent to **Kari Stein** (ks127@rice.edu).

While the nature of the rotation should be decided between the student and the PI, it is the responsibility of the student to ensure the PI is aware of their interest in the lab/group.

The faculty will be informed of the choices, and a faculty member listed as a student's first choice may then accept that student if the department approves. If necessary, similar processes will place students in their second choice (or in very rare cases, a lower choice lab). Other personal agreements are unofficial. If a student and faculty member make a private agreement to work together and one party then discovers an undesirable trait in the other before departmental approval, it would be best for everyone to seek other partners. If a student worked over the summer, this is irrelevant to the lab-joining process; neither student nor faculty member have any obligation to continue the relationship.

To summarize, the student should:

- ✓ Write **three (3)** one-page reports on different research groups.
- ✓ The three documents should be emailed to Hans Renata, Kari Stein, and the professor whose lab was reviewed by 5 p.m. on their respective due dates of:
 - Rotation 1 lab report due: September 20
 - Rotation 2 lab report due: October 18
 - Rotation 3 lab report due: November 15
- ✓ An ordered list of three prospective advisors should be emailed to **Kari Stein**, by **4:00 p.m. Monday, November 18**.

Students who applied to the Rice Chemistry Ph.D. program to continue a formal advising relationship may bypass this process and join a lab directly. Examples are:

- 1) A new graduate student who was previously a Rice undergraduate and who has performed undergraduate research can ask to be immediately affiliated with the undergraduate research advisor.
- 2) A new graduate student who worked as a visiting researcher *before applying* to the Rice Ph.D. program can also ask to be immediately affiliated with that lab. After this request has been made, the above-described departmental verifications still apply but the student need not complete the three lab investigations. This early request to bypass the normal system must be completed on or before the first lab report is due.

Students cannot bypass the lab reviews if their sole previous affiliation with a potential advisor is research the summer before matriculation.

If a student is unable to find an advisor at the end of the second semester, the student will be placed on probation. If a student is unable to find an advisor by the end of the 3rd semester, they will be dismissed from the chemistry program.

IX. SECOND YEAR OF GRADUATE PROGRAM

A. Advancement to Candidacy

A student's second year in the Rice Ph.D. program has one major goal: Advancement to Candidacy. A student who has Advanced to Candidacy has completed all the requirements for a Ph.D. with the exception of their Ph.D. thesis. As discussed below, a student who has Advanced to Candidacy must remain in good standing (including participation in CHEM 600 and adequate performance in CHEM 800). In order to Advance to Candidacy, a student must:

- Successfully complete 6 lecture courses (or their equivalent) as described above.
- Successfully complete 3 teaching units.
- Successfully complete (pass) their qualifying exam.

In addition to the above requirements, the Graduate Administrator (Kari Stein) will seek approval of the student's advisor to confirm that the student is making adequate progress toward a Ph.D, as well as request department chair approval for the student to proceed.

Transfer students: If the student has advanced candidacy at their previous institution, candidacy at Rice will be voted on for approval. If approved, the student will need to select a thesis committee and the grad admin will assist with processing paperwork.

B. Qualifying Exam

The other major challenge for a student's second year is the successful completion of their Qualifying Exam. Complete details are available in the *Qualifying Exam Guidelines*, which is revised annually and included as an appendix to this student handbook. In all cases, the student is required to write a proposal which describes:

- The research that the student had completed up until this point in their degree.
- The conclusions the student can draw from their work.
- The student's proposed work for the remaining Ph.D. (which, on average, is an additional three years of study).

In addition to this written document, the student presents their work in a public seminar where anyone may ask questions. After the question and answer session, the QE Committee will excuse the public and the student's exam will continue in private until the committee is satisfied that they can fully evaluate the student's work. Based on the student's written work, public presentation and ability to answer questions both in public and private, the QE Committee will give the student a numeric score in several categories, and detailed written feedback.

QE Result:

- 1) **Pass** - no further work required.
- 2) **Incomplete** - some portion of the exam requires revision which will be detailed by the QE Committee.
- 3) **Fail** - the student is required to leave the program unless their Ph.D. Advisor successfully petitions the full department to retake the QE to stay in the PhD program, or pursue a M.A. thesis degree.

Requirements for the Master's Thesis degree can be found at <https://chemistry.rice.edu/degree-requirements>.

★ The full and official details of the qualifying exam process are detailed in the *Qualifying Exam Guidelines* document found in Appendix I.

X. FROM ADVANCEMENT TO CANDIDACY THROUGH GRADUATION

A. Ongoing Requirements

After Advancement to Candidacy, a student's last major goal is to complete their Ph.D. thesis. While this is the focus, the student still has other obligations. In particular, all students are required to enroll and participate in CHEM 600 every semester they are a student. Failure to successfully complete the requirements of CHEM 600 (a grade of B- or lower) can lead to probation and/or expulsion from the program. Additionally, the student must make adequate research progress every semester as defined by their grade in CHEM 800. Any grade of B- or below in CHEM 800 results in a student being put on probation. Two semesters of bad performance in CHEM 600 or CHEM 800 typically result in a student being removed from the Ph.D. program.

The amount of time necessary for this and the actual composition of the thesis vary greatly with four to six years being typical. During this time a student typically publishes multiple peer-reviewed papers, which are critical milestones used to judge progress toward a Ph.D. Although the student's Ph.D. advisor usually has the best view of what qualifies as a sufficient body of work in the student's field when the student is ready to defend the student's Ph.D., the Ph.D. degree is conferred by the department and university.

The quality of the student's work must be of sufficient quality to pass the scrutiny of a Thesis Committee that (minimally) includes 3 faculty members:

1. The student's Ph.D. advisor.
2. Two members of the student's Qualifying Exam Committee.
3. One faculty member whose primary appointment is in a department outside of chemistry.
(If one of the members of the student's QE Committee is outside the Chemistry Department they will qualify as an outside committee member).
4. Optional - The student and Ph.D. advisor may also include additional faculty as they wish to more thoroughly evaluate the work.

B. Annual Evaluations

Students, third year and older, will be evaluated annually after advancing candidacy. These evaluations will serve a dual objective: (1) fulfill university requirements and (2) formalize and improve student-advisor communication channels in terms of progress and expectations. Evaluations will be performed electronically through a web evaluation. Take the time to fill this score sheet carefully and entirely. The student's advisor will fill a similar form evaluating the student's performance and the scores of the two forms will be compared. Differences of two points or more between the scores of the student and advisor forms in questions 1-3 will involve further evaluation by the Graduate Studies Committee, which could include calling for a meeting of the student with the Thesis Committee. Students are encouraged to maintain regular communication with their advisor regarding research and expectations, to avoid discrepancies in the evaluation, and thus further involvement from the Graduate Studies Committee. It is expected that both student and advisor will have access to both evaluations.

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Completing the evaluation is an annual departmental requirement and failing to complete it on time will have consequences that could include lowering the research grade for the semester, academic probation, and dismissal from the graduate program. The link to access the annual evaluation will be sent to the student by email from the Graduate Program Administrator, on behalf of the Graduate Studies Committee, by May 15 and needs to be completed by June 10.

Students who have defended their thesis by May of the current year do not need to fill the evaluation form. Students in their 6th year and older need to meet with their Thesis Committee once a year during the first semester of the academic year. It is the responsibility of the student to contact the Thesis Committee and set the meeting, as well as to inform the Graduate Studies Committee of the conclusions of that meeting. Failing to complete this requirement will have consequences that could include lowering the research grade for the semester, academic probation, and dismissal from the graduate program.

C. Thesis Defense

When the student and advisor conclude that the required work for a Ph.D. is complete or nearly complete, the time comes to write the definitive work. The student should check [the GPS website](#) for deadlines, checklists, and formatting requirements. In particular, examine the "Doctoral Thesis Submission" document, "Thesis Format" and "Thesis Template Library" documents.

Please update **Kari Stein** at ks127@rice.edu during this process as she can help make sure that the student is aware of all deadlines and administrative issues associated with defending the student's thesis.

When scheduling the student's thesis defense, please keep in mind that arranging a time that is suitable for the student and the three or more faculty members on the student's committee is often difficult. Do not try to schedule this at the last minute! The student will likely not get the date they want and may also unfavorably predispose the student's committee towards the student. In particular, defense dates in February, March and April are very popular as they are the last times the student can defend and still march in that year's graduation. Consequently, these dates are more difficult to reserve than others.

In addition to all the information provided on the above web page, please remember that the Thesis Committee must have adequate time to review the student's work. The student must submit their thesis to the committee **a minimum of two (2) weeks** prior to the thesis defense date. It is up to the student to find out whether the committee members prefer a hard copy or electronic. If the thesis is not turned in to the Thesis Committee two weeks before the oral presentation, the student's exam will be cancelled and rescheduled for a later date.

In addition, an electronic PDF copy of the student's thesis must be sent to the Chemistry Department Graduate Administrator, **Kari Stein** at ks127@rice.edu, a minimum of two weeks before the student's thesis defense.

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Finally, the student's thesis defense must be advertised on the Rice event web page **a minimum of two (2) weeks** prior to the student's defense. Thesis defense announcements may be submitted through GPS at <http://events.rice.edu/rgs/>.

☆ *The above is not meant to be an official or comprehensive list of all requirements and timelines for the thesis submission and defense. The official and comprehensive documentation of requirements can be found at <https://graduate.rice.edu/academics/candidacy-defense-thesis-submission/thesis-submission>. The student may also contact **Kari Stein** at ks127@rice.edu.*

APPENDIX I - Qualifying Exam Guidelines

The purpose of the qualifying examination is to establish the extent to which the student has achieved intellectual independence and has demonstrated the research accomplishments appropriate to become a Ph.D. candidate. The examination consists of (1) a written proposal which summarizes research achievements and describes future goals and (2) a public research seminar immediately followed by a closed oral defense in front of a faculty committee.

The written document must be submitted and defended before the end of the fourth semester of residence. In addition to the written and oral exam, the student must also request a letter of evaluation from their advisor and ensure that it is sent to all the members of the exam committee and Kari Stein (ks127@rice.edu). This letter is due at the same time as the written document.

Criteria

The student is evaluated on their ability to demonstrate:

- ✓ A mastery of relevant background material, recent literature, and chemical concepts relevant to the described work (mastery of chemical literature and mastery of scientific concepts).
- ✓ A clear research plan and understanding of the reasons why the research is being pursued at both a strategic level and day-to-day practical level that is sufficient and realistic for a 5-year Ph.D. (i.e., within the next 3 years).
- ✓ A track record of concrete, scientifically rigorous research achievement.
- ✓ The ability to make a clear, concise presentation of scientific information and to verbally answer questions from the committee related to the presented research and to general, fundamental chemical concepts.

Written Document: The written document is a combination of a research summary and research proposal. The ideal examination document should convey to the reader (1) that the student has identified a scientific problem or sub-discipline for study and has become an expert in this field, (2) that a careful research plan, appropriate for a single graduate career, has been developed that will create significant new scientific knowledge, and (3) that significant progress has already been made such that it appears likely that the student will complete the work necessary for the Ph.D. degree in an appropriate time frame.

Deadlines: Regardless of the student's oral presentation date, all students defending are required to submit their written proposal one week prior to the presentation. The text should be received both in electronic and hardcopy by all members of the exam committee. An electronic copy should also be sent to Kari Stein at ks127@rice.edu. It is the responsibility of the student to make sure the committee has received the document on time. Failure to turn in the written document on time will result in failure of the exam (see below).

In addition to the written and oral exam, the student must also request a letter of evaluation from their advisor and ensure that it is sent to all the members of the QE committee. A copy should also be sent to Kari Stein (ks127@rice.edu).

Length: The entire document, excluding Supporting Information and References, shall be 3500 - 7000 words. Supporting information and references may be of any appropriate length and do not count against the above word total. Documents that violate length restrictions will not be accepted.

Format: The document should be prepared in the *J. Am. Chem. Soc.* Template for Articles, which is accessible at http://pubs.acs.org/page/jacsat/submission/jacsat_templates.html. Note that there is a **word** limit rather than a **page** limit. It's important to develop expertise with templates, but the close spacing and small font makes it difficult to write comments. Please be willing to generate a version double-spaced in 12-point font on request.

Figures: Figures should be incorporated into the text as near as reasonable to the place where they are first mentioned. **IMPORTANT:** Figures must be properly referenced ("taken from ...", "adapted from ...", etc.). Figures not referenced will be assumed to be the sole creative work of the student.

Organization:

- ✓ **Abstract:** Concise (250-word maximum) summary of proposal goals and justifications.
- ✓ **Introduction and Background Literature:** Broadly, what is the student trying to do and why is it important? What is already known about this topic? What researchers are currently leading the field? What are the major problems or gaps in knowledge in this field? What has the student's chosen lab already done in this area?
- ✓ **Specific Aims:** Exactly what is the student trying to do? Each of the 2-5 aims should be described concisely in 1-3 sentences.
- ✓ **Timeline:** Describe the timeline in which the above Aims are expected to be accomplished (can be a graph).
- ✓ **Experimental Strategy:** Specifically, what experiments will be performed to address the Specific Aims? If synthesis is required, are the steps reasonable? What is the mechanism? If an analytical technique is used, how does it work? Can it accomplish what is proposed? Is the instrument available at Rice? Does the order of the experiments make sense? Are there alternative routes to accomplishing the student's goals if the student's primary approach fails?
- ✓ **Research Accomplishments:** Since coming to Rice, what has the student (not the people in the student's lab) accomplished related to this goal? If the student has already published or has a manuscript in review, the student should indicate that here and what the student's specific contribution to that work has been. This section should be written as a logical summary of experiments and their ramifications. Key figures, graphs or images which help summarize this work are useful. However, detailed experimental procedures and data should be included in the Supporting Information section sufficient to prove any claims described here. In some circumstances the student may have done a significant amount of work on a different project that has not worked out or is not related to the current proposal. Because one goal of the qualifying exam is to assess research achievement, it may be appropriate to discuss work on such projects here, describing the concrete results that led to significantly altering research goals.

- ✓ **Expected Outcomes:** Assuming success in the experiments outlined in Experimental Strategy, what will the consequences of the student's work be? What will the student have accomplished?
- ✓ **References (no word limit):** These should be in a modified J. Am. Chem. Soc. format which includes the title of the article for example (please note that journal names should be properly abbreviated, e.g.: J. Am. Chem. Soc., not Journal of the American Chemical Society):

Bachilo, S. M.; Strano, M. S.; Kittrell, C.; Hauge, R. H.; Smalley, R. E.; Weisman, R. B. "Structure-Assigned Optical Spectra of Single-Walled Carbon Nanotubes" *Science* 2002, 298, 2361-2366.

The student's references should be almost entirely from the primary literature. References to outstanding reviews or textbooks may be appropriate for broad, well known or old concepts. The internet is not typically acceptable. Avoid Wikipedia. **Improper referencing may be construed as plagiarism and result in failure of the qualifying examination and/or expulsion.** The Rice Honor Code, is in effect for this examination. <https://honor.rice.edu/>

Any use of AI (e.g., ChatGPT) in preparing the written document needs to be properly acknowledged in detail. You are solely responsible for the scientific accuracy of your written document.

- ✓ **Supporting Information (no word limit):** This should include detailed JACS-style experimental procedures for all experiments described both in the student's Experimental Strategy and in the student's Research Accomplishments. Any data necessary to prove the results mentioned in Research Accomplishments should be included here. Portions of this section can be taken directly from any manuscripts already written by the student (but still must be properly referenced).

Written documents which do not follow the guidelines described above may be returned for revision before the oral examination takes place or result in failure of the examination (see below).

Oral Exam

The student will present his or her work as a public seminar using a professional-quality presentation. These will be scheduled as part of CHEM 600. The student is responsible for the technical aspects of the presentation (for example the working of the projector and interface with the computer). The presentation should last 25-30 minutes and will be followed by questions from the general audience. Following the public presentation and questioning, the closed portion of the will commence with only the members of the student's committee. The examination may include (but is not limited to): clarification of a point or a request to discuss a point in more detail to ascertain whether the student understands in detail the concepts being presented; speculative questions to force the student to consider new ideas or alternative approaches and to think on her/his feet; and questions addressing fundamental chemical concepts relevant to the described work. The student

will be scored independently by each committee member on four questions (see below) from 1–5 with a 5 being the best possible score.

Possible Outcomes

The exam committee has the following options after having reviewed the student's written and oral proposal and advisor's letter of recommendation. The decision will typically be made by the committee immediately following the examination, but always within 72 hours.

- **Pass.** If the average score on each of the four questions is 3 or above, and the committee feels that no revisions, corrections or addendums are needed, the student passes. Nothing further is needed from the student.
- **Incomplete.** The student neither passes nor fails the qualifying exam. An incomplete denotes a strong performance exhibiting solid achievement, but with one or more areas in which the student's progress towards the thesis could be facilitated by doing something more. A written revision/addition is probably expected. Additional experimental work may also be requested. *The committee chair will describe in writing exactly what is required of the student and the timeline for its completion.* Please see "Exam Revisions" below.
- **Fail.** The student fails the qualifying exam. This is typically the result of multiple major flaws in scientific reasoning and/or a significant deficiency in research progress. The committee believes that advancement to candidacy is not appropriate in this case, and the student is generally not permitted to retake the exam. The student's research advisor may petition the full department to allow the student to defend a Master's thesis if the advisor believes this is warranted or retake the QE. If the Master's thesis is successfully defended the student may be promoted to Ph.D. candidacy. In any case, the student is placed on probation.

Exam Revisions

Within one week of the oral examination, the QE Committee Chair will prepare a written analysis of the student's exam performance, and will provide a copy of this analysis to the student, their advisor, and the Chemistry Graduate Studies Committee Chair. If the student scores an incomplete on the exam, this document will clearly indicate what is being asked of the student and provide concrete deadlines for the tasks requested. When corrections or additions to the written document are requested, the student should provide an itemized commentary describing the changes made in response to each point raised by the committee.

If the QE Committee has asked for an in-person defense of the revision, public or private, any written documents must be turned in one week before the established meeting date. The QE Committee will inform the student if revisions are sufficient within two weeks of receipt of that document. The QE Committee may score the revision as a Pass, Incomplete or Fail. If the student passes, nothing further is needed. If the student earns an incomplete or a fail, the student is placed on probation. Further, if the student is given an incomplete the student's research advisor may choose to allow the student to defend a Master's thesis if they believe this is warranted. If not, the student must leave the chemistry program. If the QE Committee scores the revision as a fail the student's research advisor may petition the full department to allow the student to defend a Master's thesis. If not, the student must leave the

chemistry program. In the case that a student is placed on the Master's track, a successfully defended Master's thesis may allow the student to be promoted to Ph.D. candidacy.

Questions and Scoring

The committee member evaluates student performance in each category on a 1-5 scale:

- 5 - Performance quality (not necessarily quantity) consistent with that of a very good Ph.D. defense.
- 4 - Performance quality (not necessarily quantity) would be adequate, but not exceptional, at a Ph.D. defense.
- 3 - Performance that is expected for a Ph.D. candidate. Achievement/knowledge is beyond that expected of a first-year graduate student or undergrad (i.e., in terms of accomplishments, significantly more work is presented than that expected of an undergrad during a school year or REU session).
- 2 - First-year graduate student level knowledge/achievement.
- 1 - Clear deficiencies.

To pass each category, students must average a 3 or better from their QE Committee members. A mean below 3 in any category equates to not passing the qualifying exam. Only that deficient category needs to be addressed to pass a second effort. A low score in the research progress section may indicate the presenter should go back to the lab for several months before a re-examination

1. Mastery of Scientific Concepts

Did the student demonstrate a mastery of relevant background material, recent literature, and chemical concepts relevant to the described work?

2. Research Progress

Has the student demonstrated a track record of concrete, scientifically rigorous research achievement? To pass this category, results presented must be well supported by rigorous data appropriate for someone who has completed a quarter or more of the expected time to the Ph.D. In most chemical disciplines, this requires a substantial progress towards a publishable manuscript, such as proving or disproving a hypothesis, establishing an appropriate mass of sufficiently interesting facts, or developing an instrument, method, or approach with unambiguous value.

3. Proposed Work

Did the student present a well thought-out and scientifically significant proposal for future work, both written and oral? And, did the student present a sensible research plan to carry out the research?

4. Presentation/Communication

*Did the student present clear and concise scientific information (written and oral) and answer questions from the committee? The written document should be to the standards of a submission to a peer reviewed journal such as *J. Am. Chem. Soc.* The oral presentation should be of the quality necessary for a national meeting, such as ACS.*

5. Mastery of Chemical Literature

Has the student demonstrated the ability to locate, retrieve, read and interpret current chemical literature?

APPENDIX II

**Wiess School of Natural Sciences
Graduate Student Time-off Policies**

- Full-time graduate students are entitled to 10 weekdays of paid annual leave based on a 12-month appointment, in addition to Rice University staff holidays. Unused days may not be carried forward year to year and do not accrue payable time upon departure. Graduate students must coordinate their vacation plans with their adviser in advance, to avoid last-minute conflicts. Graduate students who are teaching must also coordinate their plans with their teaching supervisor or graduate chair. There may be times that students are required to work on staff holidays in order to support ongoing projects and operations; students who work on a staff holiday will be able to use this paid day off at another time.
- Time away for professional activities (such as: conferences, workshops, interviews) shall not count against paid annual leave.
- Short absences (those anticipated to be less than one week) due to a student's illness or that of a family member should be granted upon notice to a student's supervisor, provided they are commensurate with the episode. These should not be deducted from paid annual leave.
- If a graduate student cannot fulfill the duties of their appointment due to a medical emergency or the adoption or birth of a child, the student may be temporarily released from their academic responsibilities. Enrollment and stipend support may be continued for up to six weeks or until the appointment expires (whichever occurs first). A full description of the university's short-term medical and parental release policies may be found on the [Office of Graduate and Postdoctoral Studies website](#). Students are responsible to complete relevant forms.
- Graduate students who would like to report a deviation from this policy should talk to their department ombudsperson, their department chair or the Natural Sciences ombudsperson.

Rice University
Department of Chemistry

APPENDIX III
Achievement Awards

Award Title	Background Info	Semester/Event Awarded	# Awards	Stipend Support	Stipend Support Duration	One-Time Award	Eligibility	Application Deadline	Materials to Submit
Harry B. Weiser Research	Awarded each year to Graduate students recognized for outstanding research	Spring Commencement Reception	3	No	N/A	\$1,000	3-4 year (current)	April 1	Student CV (including list of publications)
Harry B. Weiser Teaching	Awarded once a year based on TA performance. The faculty nominate with the support of student evaluations.	Spring Commencement Reception	5-7	No	N/A	\$1,000	TAs	April 1	Course instructors email nominations
Harry B. Weiser Leadership	Awarded to graduate student(s) who exhibited above and beyond departmental service such as in a leadership role with graduate recruiting.	Spring Commencement Reception	4-5	No	N/A	\$1,000	All Grads	N/A	Department decision
Margrave Thesis Award	Recognize a grad for an outstanding thesis.	Spring Commencement Reception	1 (2 on occasion)	No	N/A	\$1,000	Graduating Students	April 1	Faculty nominates and emails thesis, LOR, and CV
Stauffer-Rothrock Scholarship	The Stauffer-Rothrock Scholarship was established in 1968 in memory of E.S. Rothrock. Rothrock was awarded the first distinguished service award for outstanding achievement in the chemical engineering .	Fall/ Orientation	1	Yes	1 Year	\$1,000	3-4 year (current)	April 1	Student CV (including list of publications)
Turner, Richard Memorial Award	Academic excellence in organic chemistry. Dr. Turner, an internationally recognized organic chemist , spent his life at Rice University.	Fall/Orientation OR Spring	1	No	N/A	\$1,000	Research in Organic Chem	April 1	Student CV (including list of publications)
Stephen C. Hofmann Award	The Stephen C. Hofmann Award recognizes outstanding early achievement towards the Ph.D. degree and superb performance on the qualifying exam.	Fall/ Orientation	Varies	No	N/A	\$1,000	N/A	N/A	Department decision after QE's
Hasselmann Fellowship	The fund was established in 1980 by Marjory Meyer Hasselmann for studies in the field of Chemistry.	Fall/ Orientation	1-2	Yes	1 Year	\$1,000	3-4 year (current)	April 1	Student CV (including list of publications)
Norman Hackerman Fellowship	This award is intended for a graduate student in chemistry who demonstrates similar commitment and achievement to that which Dr. Hackerman exemplified during his academic and scientific career.	Fall/ Orientation	1	Yes	1 Semester	\$1,000	3-4 year (current)	April 1	Student CV (including list of publications)

Award information is subject to change.