Department of Chemical and Biomolecular Engineering

PhD GRADUATE DEGREE REQUIREMENTS AND PROCEDURES
Additional information may be obtained from the Rice University General Announcements, the Office of Graduate and Postdoctoral Studies (graduate.rice.edu) and the Graduate Studies Committee of the Chemical and Biomolecular Engineering department. It is the student’s responsibility to be familiar with the rules, procedures and requirements and to make sure that policies and timelines are followed in order to allow for a timely graduation. A student failing to meet department or university requirements is subject to dismissal from the program.

This document summarizes departmental requirements and includes information on some university requirements for graduate degrees.

Consult the General Announcements and Code of Conduct for official and complete information on University requirements at ga.rice.edu and students.rice.edu/students/Conduct.asp

DEPARTMENT OF CHEMICAL AND BIOMOLECULAR ENGINEERING

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2018-2019 GRADUATE STUDIES COMMITTEE:

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# Department of Chemical and Biomolecular Engineering

## PhD GRADUATE DEGREE REQUIREMENTS AND PROCEDURES

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I. THE PhD DEGREE

1.1 Course Requirements

PhD students entering Rice with a bachelor’s degree must take at least 24 semester hours of advanced courses approved by the Graduate Studies Committee and receive a grade of B- or better in each course. For those who do not receive a grade of B- or better, the credit hours for that course will not count toward fulfilling the 24 semester-hour requirement. No courses counted toward this requirement may be taken on a Pass/Fail basis.

In accordance with University policy, students whose cumulative GPA falls below 2.67 or the semester GPA falls below 2.33 the student will be placed on academic probation.

Course selection for first year students may be completed after the department orientation. The Graduate Studies Committee will assist and advise students. (See addendum A for first year course recommendations)

The general guidelines for choosing a course are the following:

PhD courses must be 500-level or above to count toward the 24 credit hour degree requirement. Core courses listed below plus three 500-level elective credits comprise the degree required courses.

- CHBE-611 Thermodynamics
- CHBE-692 Mathematics
- CHBE-501 Fluid Mechanics & Transport
- CHBE-602 Transport Physico-Chemical Hydrodynamics
- CHBE 590 Kinetics

The three elective courses taken to fulfill the PhD degree must be selected from 500-level and above Natural Science and Engineering courses. For upper level courses outside of these school requirements please use the CHBE Course Approval Request Form.

With the approval of the advisor the student may take or audit any other class without petitioning the Graduate Studies Committee with the understanding that it will not count toward fulfilling the course requirements for the PhD degree.

During the first two semesters in residence, all full-time PhD students must register for at least three graduate courses each semester. In the second semester, students can register for up to three semester hours of ChBE 800 xxx (choose the correct section for your adviser), which will count as one of the three graduate courses required.

All PhD students must register for the graduate seminar course, CHBE 661 (Fall) and CHBE 662 (Spring), each semester they are in residence. Prior approval must be obtained from the Graduate Studies Committee before registering for a class that conflicts with the CHBE seminar course. More than two unexcused absences will result in an unsatisfactory seminar grade for the semester.

PhD students entering with a master's degree may petition the Graduate Studies Committee to evaluate their transcript to determine if they may be excluded from the required core courses with documentation that their master's coursework is substantially equivalent to Rice engineering courses. Students are still required to take 24 hours in graduate level courses.

The following restrictions also apply:

a) Each case must be individually approved by the Graduate Studies Committee, based on the work done for the master’s degree.

b) A detailed petition is required for consideration by the Graduate Studies Committee: students need to provide the syllabus of the master’s course and indicate the equivalent Rice course.

c) The decision as to whether a course is “substantially equivalent” will be made by the Graduate Studies Committee.

The university minimum requirement for the doctorate degree is 90 semester hours beyond the bachelor’s degree (60 hours beyond the master’s degree). PhD students must earn the additional credits they need for graduation by registering for
the thesis research course CHBE 800 during the terms they are engaged in research. When registering for CHBE 800 students must ensure they register for the section assigned to their primary adviser.

Departmental policy requires that full-time students be registered for at least 9 credit hours each semester and 6 hours (University minimum) each summer. PhD students must register for CHBE 800 (research hours) to meet the above stated requirements.

I.2 Teaching Requirement
Teaching is a graduate degree requirement and all PhD students are expected to assist a faculty member on a teaching assignment each semester in residence for a minimum of four semesters. Students must register for CHBE 605 in each semester they are assigned as a teaching assistant, which usually involves supervising work in the undergraduate laboratory, grading papers, tutoring, and answering student questions on homework and class topics. Unsatisfactory TA performance may result in an additional teaching assignment.

A student planning to pursue an academic career may request more involved teaching assignments by informing the Graduate Studies Committee and her/his advisor. Graduate students who are at least in their third year of residency (and who typically will have fulfilled three semesters of the TA requirements) are eligible to apply to the Graduate Studies Committee (prior to the beginning of each Fall semester) for one of several Dean of Engineering Teaching Assistant positions. Assigned to an undergraduate course in the Fall or Spring, these "Dean's TA's" take on teaching and curriculum development responsibilities, under the guidance of the instructor of that course. Dean's TA's must register for CHBE 606 in the semester they are assigned and will be required to attend training provided by the Dean of Engineering office.

I.3 Selection of Principal Adviser and Thesis Topic
Department faculty members will present their research topics to the first-year graduate students during the fall semester. Attendance at these presentations is mandatory for all PhD candidates. Each student must visit a minimum of three faculty members for detailed discussions on the research topics of most interest to him/her. Only those faculty members who make a presentation are available for selection as an adviser.

Each PhD student will be provided an Adviser/Research Project Preference Sheet to be submitted by the published deadline indicating his/her three top choices of research projects. Topics from at least three faculty members must be indicated. Students who fail to meet with at least three faculty members may not be assigned their top choice of research project/research group. The Department will strive to match the preference of each student to those of the faculty and to available research projects. Students will be notified by the end of the first semester of their adviser appointment.

Students whose adviser’s primary appointment is in a different department will be required to follow the requirements outlined in the CHBE guidelines.

I.4 The PhD Qualifying Exam
The department offers the following graduate courses in core areas of chemical engineering:

- Thermodynamics (CHBE 611)
- Mathematics (CHBE 692)
- Transport (CHBE 501, 602)
- Kinetics (CHBE 590)

These core courses are required of all students, unless otherwise indicated by the Graduate Studies Committee.

The PhD qualifier is an oral exam in the core areas of chemical engineering listed above, which will be administered the first year of residence, typically mid-May, as scheduled by GSC. Extensions will be approved on a case-by-case basis and requests must be submitted at least two weeks prior to the deadline. The Graduate Studies Committee, in consultation with the PhD adviser, will form a qualifying examination committee comprised of three faculty members of the Chemical and Biomolecular Engineering Department (and jointly appointed faculty where appropriate) for each PhD student. Exam committees will be designed to include faculty with expertise in all core areas: transport phenomena, thermodynamics, reaction engineering, and applied mathematics. The student’s adviser will not be part of the committee. The chair of each exam committee will select a published research article and provide it to the student two weeks in advance of the exam. The student will prepare and submit to the committee a brief critical review of the paper at least 48 hours
before the beginning of the oral exam (3 to 5 pages, in the style of a referee report). This is a pledged assignment, and the student cannot receive help in preparing the review. However, students can work together in reviewing material from the core courses. Additionally, senior CHBE graduate students provide practice opportunities and guidance before the qualifying exam.

Students should download the Assessment of Student Performance on PhD Qualifying Examination on Chemical Engineering (http://ow.ly/o5Kjt) Students must bring this form with them on their scheduled examination date. This form provides written assessment from the examination committee regarding core chemical engineering principles. The assessment forms and signature page must be turned in to the Academic Coordinator upon completion of the exam. The student will have approximately 30 minutes to present the paper and his/her critique in an oral presentation. The committee members will ask questions about the paper as well as general questions on transport, thermodynamics, and chemical reaction engineering. The exam itself should last no longer than 90 minutes, unless the committee decides to exceed this time to help with its deliberation. The student will receive immediate feedback from the committee at the end of his/her exam period. Students are requested to submit a copy of their critical review and any prepared slides to the Academic Coordinator.

The student will be assessed by determining how well he/she (1) demonstrates an ability to perform PhD-level research by providing a critical review of the research article, and (2) demonstrates satisfactory fundamental knowledge at the graduate level in the four core areas of chemical engineering. A student passes the oral examination if both outcomes are achieved, i.e., the committee judges the overall performance to be excellent, good, or fair. Students who pass the exam continue on the PhD track and prepare their thesis proposal for the following May deadline.

The committee may award a partial pass if the student’s performance is judged to be unsatisfactory for either outcome. A student is deemed to have partially passed the oral examination, but must perform additional activities to fully pass the examination, as recommended by the examination committee in consultation with the Graduate Studies Committee and a deadline for completion will be determined by the committee. For example, the student can be required to retake the qualifying exam, either in whole, or in part, at the discretion of their exam committee. As another example, the student can be required to revise the critical review of the paper or complete a pledged problem.

If the student performance is judged to be unsatisfactory for both outcomes, then that student fails the qualifying exam. He/she subsequently is placed in a probationary status and must retake the exam by August 15th. Students who fail to retake the exam by the deadline will have his/her stipend terminated until the exam is complete. Students who pass this make-up oral exam will then be allowed to follow the normal timeline for submission and defense of the thesis proposal. Students who fail this exam will be moved to the MS track and will have to complete their MS by May 15th of the following year. Readmission to the PhD program in CHBE will not be possible under any circumstances.

I.5 Thesis Proposal
A PhD thesis proposal is a written document that describes in detail a proposed research project. It should include a hypothesis-driven plan and preliminary results obtained during the first two years of residency. Normally, it should contain at minimum:

a) Abstract (no more than 250 words)
b) Background and literature survey
c) Problem statement including scope and significance
d) Research plans and methodology
e) Preliminary results
f) Possible pitfalls and alternative strategies
g) Timeline

Portions of manuscripts or reports to sponsors may be incorporated into thesis proposals.

The student will also select their thesis committee to be comprised of at least three members.

- Two faculty (including the committee chair) must be members of the student’s department faculty
- One faculty member must have his/her primary appointment in another department within the university
- Tenured or tenure-track members of the Rice faculty
Consult the General Announcements for further regulations and procedures. (ga.rice.edu)
PhD students must submit to the Academic Coordinator by May 15th:

a) A single pdf file of the thesis proposal
b) The names and email addresses of the thesis proposal committee members
c) The date for which the oral presentation is scheduled (all committee members must have agreed to this date).

In the event May 15th falls on a weekend, thesis proposals will be due the following Monday.

Additionally, students must give an electronic copy of the thesis proposal to each member of the committee at least a week before the date of the oral presentation. Students must also submit any presentation slides to the Academic Coordinator as directed by the Graduate Studies Committee.

The oral presentation should be held by July 1st. Many research-active faculty have busy summer travel schedules; students are advised to assemble a committee as early as February and agree on a defense date with committee members by the end of April. If an extension is needed, a student must petition the Academic Coordinator and the Graduate Studies Committee by May 1st.

After the presentation, the signed, original Evaluation of PhD Thesis Evaluation Proposal (http://ow.ly/o5L7Y) and signature page (http://ow.ly/o5Ls3) from each thesis committee member, should be submitted to the department by the student. A statement of whether or not the committee considered the proposal and presentation satisfactory shall be entered in the student’s departmental file. If the written proposal and/or oral presentation are judged unsatisfactory by the thesis committee, the committee can either (a) fail the student and transfer him or her to the MS degree program or (b) request a revised proposal which must be submitted by October 1st. A second failure will result in automatic transfer to the MS degree program. For students who are transferred to the MS program, continued funding will be decided according to the guidelines on financial support (See Sec. V). The program should be completed by May 15th of the following year. Students who successfully complete the requirements for an MS degree under these terms, may reapply to the PhD program if they desire. Re-admission to the PhD program is not guaranteed.

Failure to meet the deadline for submission of the written proposal (May 15) will result in termination of the student’s stipend for a minimum of one pay period. If the proposal is not submitted by June 15th, no stipend will be paid until the proposal has been submitted. Please note this also applies to the presentation deadline. Any request for an extension to these deadlines must be submitted to the Graduate Studies Committee by emailing chbe@rice.edu. The committee will notify students of the extension request decision and revised deadlines for submission and oral presentation.

After the thesis proposal presentation, the thesis committee will complete the assessment form and provide the student with immediate feedback at the end of his/her presentation. The original assessment form must be submitted to the Department Coordinator for inclusion in the student’s file.

I.6 Convening Thesis Committee for Annual Review

In years three of residency and beyond, students are required to provide their thesis committee with a written progress report no later than September 15th using the PhD Research Progress Report.

The student’s Annual Progress Report is reviewed by the thesis adviser. Advisers will give a written feedback to the students about their research progress.

I.7 Candidacy, Oral Defense and Thesis Submission

All PhD students must submit a Petition for Approval of Candidacy (http://ow.ly/o5M9i) to the Academic Coordinator to obtain department chair or GSC chair approval for forwarding to the Office of Graduate and Postdoctoral Studies.

As a general rule, students should apply for candidacy as soon as they have successfully completed all required courses, teaching assistant
requirements, and qualifying examinations, and have had their thesis proposals and presentations approved. The university requires that candidacy be approved before the beginning of the ninth semester in residence.

If any committee members are changed since the time of the thesis proposal the changes will be made on the petition form. Consult the General Announcements for regulations and procedures. (ga.rice.edu)

After a student’s candidacy has been approved and upon completion of his/her research project the student must schedule, in coordination with his/her research adviser, a public oral examination for the defense of his/her thesis.

Thesis Defense instructions are posted on the Graduate and Postdoctoral Studies website at gpsdocs.rice.edu. In general students must:

- Confirm with their adviser that you are ready to defend
- Schedule a thesis defense date with your committee
- If any changes are made to the thesis committee after candidacy has been approved by Graduate and Postdoctoral Studies the change must be submitted to the department and approved by the department and sent to GPS for approval and updating. (Contact the Academic Coordinator for assistance with committee changes)
- Submit at least two weeks before your oral exam, in either final or advanced draft form, a completed thesis to your committee members
  - In the course of this examination the thesis committee members may recommend revisions or additions, which must be incorporated in the final thesis
- Contact the Academic Coordinator regarding your plans to defend
- Reserve a room for your defense
- Submit your defense announcement at events.rice.edu/rgs/ in the appropriate time frame
  - Confirm that your Approval of Candidacy form is up-to-date.

After you have passed your defense you will need to make sure your Approval of Candidacy Form is signed by your committee members. Within a week of your defense you will need to upload your Approval of Candidacy Form to the Graduate and Postdoctoral Studies submission website. PhD candidates must submit their final thesis within six months of passing the oral examination.

Complete instructions, including deadlines, can be found at graduate.rice.edu/submitthesis.

Students have three conferral date options; Spring, Summer (August 31) or Fall (December 31). Submission of the final thesis for these conferrals can be found in the appropriate academic calendar.

### 1.8 Satisfactory Progress

PhD students are expected to make continuous and **satisfactory progress** toward fulfilling their PhD requirements.

**Satisfactory Progress in Courses:**

- By end of the **second** semester in residence, PhD students will have at least 18 semester hours of advanced courses with grades of B- or better in each course. In accordance with University policy (see General Announcements at ga.rice.edu), students whose cumulative grade point average or the average for the most recently completed semester (including the summer semester) falls below 2.33 – are placed on probationary status. University policy further states that any student placed on probationary status for a second semester will lead to an automatic dismissal by the Office of Graduate and Postdoctoral Studies unless the student’s department presents a plea for exception that is approved by the Dean of Graduate and Postdoctoral Studies.
- By the end of the **sixth** semester in residence, students will have at least 24 semester hours of advanced courses with grades of B- or better in each course.

**Satisfactory Progress in Research:**

Students are expected to meet the research expectation and requirement provided by the thesis adviser. Failure to meet these expectations may result in a warning to the student and notification to the Graduate Studies Committee. Advisers will notify the student in writing (email or letter) when inadequate research progress is being made as a warning of unsatisfactory performance. Dismissal from the graduate program is possible if the student
does not meet the research expectations and requirements provided by the thesis adviser.

Students who fail to meet any of the above requirements will receive a notice of warning for lack of satisfactory progress from their adviser. This notice will include a plan to improve progress with specified deadlines for improvement. The Graduate Studies Committee will also be notified. When such a notice has been issued, the Graduate Studies Committee may, after discussion with the student and thesis adviser, recommend a reduction or suspension in stipend and help advise the department chair on possible options. In cases of egregious failure to maintain satisfactory progress a student's stipend may be terminated (See Section II.3). Decisions to reduce or terminate student stipends will be made on a case-by-case basis. Students who receive external funding may have their funding source notified of their unsatisfactory progress. Students with unsatisfactory progress in two consecutive semesters in either courses or research (including the summer term) will be automatically dismissed from the graduate program. The Graduate Studies Committee, the thesis adviser and the department chair will consider all the factors that may have affected a student's performance before reaching such a decision. Rice University dismissal policy can be found in the General Announcements Academic and Judicial Discipline (ga.rice.edu).

Summary of Expected PhD Milestones:

- **Year 1** – Qualifying exams taken
- **Year 2** – Thesis Proposal deadline met and oral presentation passed.
- **Years 3 & Beyond** – Annual Progress Report Form submitted to adviser, thesis committee, and Graduate Studies Committee by September 15th. This form will review research progress and provide feedback from the thesis committee members.
- **Year 5** – Continued Financial Support requested (if applicable). See Section II.

## II. FINANCIAL SUPPORT

### II.1 Rice Support

Most PhD students receive financial support in the form of a department stipend, fellowship or from sponsored project funds. Students are considered full time and are expected to focus strictly on the curriculum. Until the assignment of thesis advisors, full-time for first-year students consists of four or more advanced courses, and assistance in teaching (as described in section I.2). After the assignment of thesis advisors, full-time consists of advanced coursework, assistance in teaching, and research as mutually agreed by the student and his/her adviser.

Graduate students normally perform full-time research during the winter and spring recesses, and in the summer following the first academic year.

- First year students may be released for recesses with permission from the adviser and the department. An email must be sent to the Academic Coordinator at chbe@rice.edu and copy to the adviser.
- During the second and subsequent years of study, the department will usually allow two weeks of vacation and time off for holidays. However, **all vacations and holiday time off must be approved in advance by the thesis adviser.**

### II.2 Outside Employment and Internships

#### Employment-

Rice University policy states "Students receiving a stipend may accept employment only with the approval of their home academic department. Students working for more than 20 hours per week are not normally eligible for full-time status". However, per CHBE department policy students are expected to devote themselves fully to their studies and research. Students are not permitted to take outside employment, **defined as work not related to progress toward their PhD degree**, which includes other on-campus work. Exceptions will be made for short-term campus events, (such as graduation), with **written permission** from the student's advisor and approval by the Graduate Studies Committee.

#### Internships-

Students accepting an internship must demonstrate the relevance of the planned work to their research and/or training. It is expected that work performed during the internship will constitute an integral part of the student’s thesis.
Students may only consider internship offers that meet or exceed the current graduate student hourly stipend rate (2018-2019 is $28.85) before accepting an offer. **Students must notify the Academic Coordinator at least four weeks prior to the start date of their internship to allow adequate time for GSC review.** The following must be provided at the time of the request:

- Employment offer letter
  - Employer Information
  - Location of work
  - Dates of internship. Starting date and end date
  - Stipend amount (meeting the department standard)
  - Full-time or part-time (specific expected hours per week)
- Student and adviser statement that demonstrates relevancy and importance of the research toward graduate student degree
- Any possible Conflict of Interest (Rice University Policy No. 838)

Students on a paid full-time internship will have their stipend suspended during their employment period. Student offered a part-time internship (less than 40 hours per week) will have their stipend adjusted accordingly.

**NOTE: Failure to follow the above procedures may result in denial of the internship request and possibly affect a student's stipend support.**

**Additional Requirement for International Students on Visas -**

Once an internship request has been approved by the Graduate Studies Committee students must obtain approval from the Office of International Students and Scholars. Additional information about this process can be found at oiss.rice.edu. Students must report to the department once OISS documentation has been processed and report any changes with regard to internship start and/or end date.

**Conclusion of an Internship for all students -**

For stipend pay to resume notification of return from an internship must be made at least two weeks prior to the return date. Failure to report an internship may affect the student’s stipend support.

**II.3 Suspension of Support**

Continued financial support is contingent upon satisfactory progress toward research goals, the doctoral thesis plan and is subject to limitations described in Section II.4 below. Students who fail to maintain satisfactory progress as described in IV.5 will have their stipends terminated. The thesis adviser will issue a **written warning** to the student at least one pay period before initiating action to terminate his/her stipend. This warning must also be communicated to the Graduate Studies Committee and the department chair. The student can appeal the stipend termination by requesting a review of his/her research progress by the thesis committee before financial support is terminated. The decision of the thesis committee is final.

**II.4 Support Limitation Rule for PhD Students - Progress Report**

The normal limit of financial support for PhD students is 10 semesters (excluding summers). Students who anticipate taking longer than 10 semesters for completion of the PhD degree must request, in writing, an extension of their support and submit a progress report. Students must submit a new petition to the Graduate Studies Committee each year beginning in their tenth semester, and each subsequent year, to continue their financial support.

This progress is a two page document that includes:

- A summary of work accomplished since the presentation of the thesis proposal,
- Specific information on research work remaining to be done,
- Estimated time for completion
- A brief statement from the adviser indicating his/her approval of the request, and contain a recommendation and/or justification (in the case of exceptional circumstances) for continued funding.

Manuscripts, reports and chapters of the thesis already written could be included. The complete progress report should be submitted to the Graduate Studies Committee **no later than May 15th**, or the following Monday if May 15th falls on a weekend. A **specific period for continued support**.
not to exceed one year in duration, shall be included in the recommendation.

The Graduate Studies Committee will review the thesis committee’s recommendation in conjunction with the thesis adviser (and the department chair, if the student is supported with departmental funds).

The financial support request may be updated with additional research data and proposed deadlines and resubmitted to meet the Annual Progress Report required and due by September 15. (See I.9 Satisfactory Progress).

II.5 Support Limitation Rule for PhD Students who Transfer to the MS Program

Continued funding for PhD students who transfer to the MS program because they either fail the qualifying examinations or the thesis proposal exam or for personal reasons is decided on a case-by-case basis. If the student accepts the master's opportunity, the Office of Graduate and Postdoctoral Studies will be notified of the change in degree program. Typically, at the discretion of the adviser, the student will continue to be supported until May 15th of the following year pending continued satisfactory performance and progress toward completion of the MS degree requirements. Students who are supported by department funds must submit a written request for continued support to the Department Chair.

Any request for continued support beyond this initial period should be requested in writing by the student and the adviser at least two months before the financial support period is scheduled to expire and should be accompanied by a progress report to the Graduate Studies Committee (see Section V.1).

II.6 Changing Research Groups/Advisers or Departments

Before any group/adviser change can be made the student must:

- Discuss any issues with their current adviser and try to resolve the problems by adjusting the research focus and the advising relationship;
- Discuss with a member of the Graduate Studies Committee and seek advice on whether to seek other potential advisers;
- Speak to other potential advisers whose research interests may align more closely with the student's focus; when consulting with other potential advisers the student should discuss any funding needs;
- When an alternate faculty member agrees to serve as adviser, the student should petition the CHBE Graduate Studies Committee for the adviser change;
- If the student needs financial support, the petition for adviser change should also be reviewed by the CHBE department Chair.

II.7 Transferring from a Research/Thesis Program to Professional Program

Admission into a professional program is granted separately from admission into a research or thesis program. Students who wish to change from a thesis program to a professional degree program must petition the department in writing. Upon recommendation of the department and approval by the dean’s office, the request is then sent to the Office of Graduate and Postdoctoral Studies for consideration and final approval. If approved, students who received tuition waivers while enrolled in the thesis program will be expected to repay the tuition before their professional degree is awarded.

II.8 Graduate Student Mentors

Graduate students will have access to peer mentors. A peer mentor is another student who will provide support, encouragement and information to students in their department who are just beginning the graduate program. The Chemical and Biomolecular Engineering Graduate Student Association is dedicated to serving the needs of the graduate student population. GSA members serve as a resource to help graduate students navigate their way through the CHBE graduate program. Graduate students in both the MCHE and PhD programs are encouraged to seek out fellow graduate students to serve as their peer mentor, and serve in this capacity themselves during their own academic career.

Students are required to participate in a minimum of two mentor opportunities each semester. Incoming
students must petition the department for non-involvement in the Mentor Program.

III. RICE UNIVERSITY POLICIES APPLICABLE TO ALL GRADUATE STUDENTS

III.1 Leaves of Absence

All graduate students are expected to maintain continuous enrollment, unless an official leave of absence has been granted. Failure to register for any period without a leave of absence granted by the Associate Provost constitutes de facto withdrawal. If a student later wishes to resume study, reapplication is required. Readmission is given only on the recommendation of the department and the approval of the Associate Provost.

A leave of absence is granted only by the Office of Graduate and Postdoctoral Studies upon the recommendation of the department, and is granted only to students in good standing with the University. Leave must be approved in advance of the academic semester in question; it will not be granted after the student has registered for courses or after the registration period has passed. Normally, leave of absence is granted for no more than two consecutive semesters. No work toward a degree may be done at Rice or involve Rice faculty (or facilities) during a student's leave of absence.

III.2 Guidelines for Dismissals, Petitions, Appeals, Grievances, and Problem Resolution

Rice University graduate students have guidelines to assure fairness in problem resolution. These policies strive to uphold standards and raise the quality of graduate programs. They provide graduate students with an environment that has high standards, clear assessments of the student's achievements and fair and transparent procedures for handling cases of inadequate academic progress. Please find the complete list of guidelines in the General Announcements for graduate students at ga.rice.edu. These guidelines are to be followed by all Rice graduate students. The CHBE Graduate Studies Committee will be the standing committee for all issues regarding these guidelines.

III.3 Title IX Sexual Misconduct Policy

Rice encourages any student who has experienced an incident of sexual, relationship, or other interpersonal violence, harassment or gender discrimination to seek support. There are many options available both on and off campus for all graduate students, regardless of whether the perpetrator was a fellow student, a staff or faculty member, or someone not affiliated with the university.

Students should be aware when seeking support on campus that most employees are required by Title IX to disclose all incidents of non-consensual interpersonal behaviors to Title IX professionals on campus who can act to support that student and meet their needs. The therapists at the Rice Counseling Center and the doctors at Student Health Services are confidential, meaning that Rice will not be informed about the incident if a student discloses to one of these Rice staff members. Rice prioritizes student privacy and safety, and only share disclosed information on a need-to-know basis. If you are in need of assistance or simply would like to talk to someone, please call Rice Wellbeing and Counseling Center, which includes Title IX Support: (713) 348-3311. Policies, including Sexual Misconduct Policy and Student Code of Conduct, and more information regarding Title IX can be found at safe.rice.edu.

III.4 Time Boundaries for PhD and MS Degrees

Graduate students who have exceeded their time boundaries for achieving candidacy, defending their thesis or being beyond their time to degree without prior approval will be assessed a $125 reinstatement fee by the Office of Graduate and Postdoctoral Studies. Students who anticipate exceeding their time boundaries may petition for an extension of their time boundaries by submitting an extension request to Graduate and Postdoctoral Studies prior to the deadline in order to avoid the fee.
## Appendix A

### Important Milestones for Students Entering in August 2018

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
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<tbody>
<tr>
<td><strong>FALL SEMESTER 2018 (1st Semester)</strong></td>
<td>When: August 2018 <strong>Register for at least four graduate courses and for the Chemical Engineering Seminar Course (CHBE 661) and Teaching Assignment Course (CHBE 605), if assigned.</strong></td>
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<tr>
<td>October 31, 2018</td>
<td><strong>Submit choices of thesis advisor and topic, (see section I.3).</strong></td>
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<tr>
<td><strong>SPRING SEMESTER 2019 (2nd Semester)</strong></td>
<td>When: No later than May 15, 2019 <strong>PhD Qualifying Exam - Oral exam in core areas of chemical engineering; thermodynamics and mathematics, transport and kinetics. All students must attempt examinations.</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Complete at least 18 semester hours of advanced courses with grades B- or better.</strong></td>
</tr>
<tr>
<td><strong>FALL SEMESTER 2019 (3rd Semester)</strong></td>
<td>When: No later than August 15, 2019 <strong>PhD Qualifying Exam (second attempt)</strong></td>
</tr>
<tr>
<td>May 15, 2020</td>
<td><strong>Submit written thesis proposal, (see Section I.6).</strong></td>
</tr>
<tr>
<td>July 1, 2020</td>
<td><strong>Deadline for presenting thesis proposal to thesis committee.</strong></td>
</tr>
<tr>
<td><strong>FALL SEMESTER 2020 (4th Semester)</strong></td>
<td>When: No later than September 15, 2020 <strong>Annual Progress Report submitted to adviser, thesis committee and Graduate Studies Committee.</strong></td>
</tr>
<tr>
<td>September 15, 2021</td>
<td><strong>Deadline for submitting Annual Progress Report</strong></td>
</tr>
<tr>
<td>By the end of</td>
<td><strong>Submit petition for approval of candidacy <strong>as soon as</strong> all course requirements are completed, qualifying exams have been passed, thesis proposal has been successfully defended and TA requirement met. The University requires that candidacy be approved before the start of the ninth semester in residence.</strong></td>
</tr>
<tr>
<td>SPRING SEMESTER 2022 (8th Semester)</td>
<td><strong>September 15, 2022 and every year thereafter</strong> <strong>Deadline for submitting progress report</strong></td>
</tr>
<tr>
<td></td>
<td><strong>May 15, 2023 and every year thereafter, as needed</strong> <strong>Deadline for submitting petition for continued support. (See Sect. II.4)</strong></td>
</tr>
</tbody>
</table>
# Appendix B
PhD Course Samples for Incoming PhD Graduate Students 2018-2019

The following is a sample schedule for reference. It is recommended that students aim to carry a total of 36 hours per academic year. The early years will have a higher ratio of classroom course hours, later years will be weighted towards research credit hours. Students should determine the total number of research hours together with their advisor prior to registering each semester. Some advisors may also require specific elective courses based on the planned research.

## YEAR ONE
### FALL 2018
- CHBE 501 - 3 credits
- CHBE 590 - 3 Credits
- CHBE 692 - 3 Credits
- Elective * - 3 Credits
- CHBE 661/Seminar – 1 Credit
- CHBE 605/TA (if assigned) – 1 Credit
- UNIV 594 – 1 Credit

**TOTAL CREDITS = 15**

### SPRING 2019
- CHBE 602 - 3 Credits
- CHBE 611 – 3 Credits
- Elective * - 3 Credits
- CHBE 662/Seminar – 1 Credit
- CHBE 605/TA (if assigned) – 1 Credit
- Research/CHBE 800 xxx – 3 Credits

**TOTAL CREDITS = 14**

### SUMMER 2019
- Research/CHBE 800 xxx - 6 Credits

## YEAR TWO
### FALL 2019
- Elective – 3 Credits
- Elective – 3 Credits
- CHBE 800 xxx – 9 Credits
- CHBE 661 – 1 Credit
- CHBE 605 TA – 1 Credit

**TOTAL CREDITS =17**

### SPRING 2020
- CHBE 800 xxx - 15 credits
- CHBE 662 - 1 Credit

**TOTAL CREDITS = 16**

### SUMMER 2020
- Research/CHBE 800 xxx - 6 Credits

## YEAR THREE
### FALL 2020
- CHBE 800 xxx – 15 Credits
- CHBE 661 – 1 Credit
- CHBE 605 TA – 1 Credit

**TOTAL CREDITS = 17**

### SPRING 2021
- CHBE 800 xxx – 15 Credits
- CHBE 662 – 1 Credit

**TOTAL CREDITS = 16**

### SUMMER 2021
- CHBE 800 xxx – 6 Credits

## YEAR FOUR & BEYOND
### FALL 2021
- CHBE 800 xxx – 15 Credits
- CHBE 661 – 1 Credit

**TOTAL CREDITS = 16**

### SPRING 2022
- CHBE 800 xxx – 15 Credits
- CHBE 661 – 1 Credit

**TOTAL CREDITS = 16**

### SUMMER 2022
- CHBE 800 xxx – 6 Credits

* Elective courses must be at the 500-level or above to count toward the 24 credit hour degree requirement. Students may choose from Engineering and Natural Sciences courses. Full-time students must register for at least 9 credit hours for fall and spring and 6 hours for summer, which includes the appropriate adviser section for research CHBE 800 xxx. Failure to register in a timely manner following the academic calendar deadlines will result in a suspension of student stipend.
Appendix C

- 1\textsuperscript{st} Year PhD Qualifying Exam (I.4 page 5)
  - Assessment of Student Performance on PhD Qualifying Examination in Chemical Engineering

- 2\textsuperscript{nd} Year Thesis Proposal
  - Evaluation of PhD Proposal
  - Preliminary Oral Examination Report Doctoral Degree Committee Signature Page

- Candidacy, Oral Defense & Thesis Submission Form (I.7 pg 7. 8)
  - Forms can be found at graduate.rice.edu/forms

- CHBE Course Approval Request Form (I.1 pg.4)

*Note 1\textsuperscript{st} and 2\textsuperscript{nd} year exam forms and course approval form can be found at chbe.rice.edu*

‘Graduate Program’

‘Current Student’

‘Forms’