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I. Introduction

This guide to graduate study in the Department of Computer Science contains information about faculty, staff, and graduate students; degree programs; financial support and health insurance; academic regulations and procedures; how to get started in graduate school; and other miscellaneous information of interest to graduate students. It is intended to supplement the General Announcements by providing a more detailed description of the graduate program in Computer Science.

This handbook is the result of an ongoing attempt by the faculty to codify and make readily available to graduate students the rules, requirements, and general approach to graduate education of the Department of Computer Science. Please do not hesitate to notify the faculty about areas that need further clarification.
II. Faculty, Staff, and Graduate Students

CS Faculty

Robert “Corky” Cartwright, Professor of Computer Science
• Programming language design and implementation, program semantics and verification.
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  • Yanxin Lu
  • Sailesh Prabhu
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• Wireless and mobile networking protocols
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  • Xiaozhu (Felix) Lin
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  • Shams Imam
  • Deepak Majeti
• Alina Sbirlea
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Dan S. Wallach, Associate Professor of Computer Science and Electrical & Computer Engineering
• Computer systems, language securities
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**Yun Yu**
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- 713-348-4834

**Administrative Staff**

**Jennifer Amato**, Events & Web Coordinator
- Duncan Hall 3138
- jennifer.amato@rice.edu
- 713-348-5198
  - Maintains departmental website; shares important news items with Public Affairs; Records and edits lecture videos; Photographs departmental events and people; Approves emails for all departmental mailing lists; Orders food for events, lectures, etc.; Approves all submitted technical reports; Updates departmental phone list.

**Penny Anderson**, Executive Administrator
- Duncan Hall 3080
- anderson@rice.edu
- 713-348-5186
  - Serves as the primary business manager of the research, academic, fiscal, and administrative functions in the Department of Computer Science.

**Melissa Cisneros**, Administrative Assistant
- Duncan Hall 3056
- mcisnero@rice.edu
• 713-348-3834
  • Provides administrative support to three faculty members (Professors Vardi, Kavraki and Mellor-Crummey). Assists assigned faculty members with editorial responsibilities; manages calendars; makes arrangements for meetings and events as necessary; prepares accounting documents for travel, entertainment and business meeting expenses; maintains computerized files; and answers phones. Assists the Executive Administrator and Department Chair with meeting and travel arrangements for departmental visitors and guests.

Karen Lavelle, Department Administrator
• Duncan Hall 3124
• klavelle@rice.edu
• 713-348-2062
  • Coordinates all activities related to proposals submitted and grants awarded and supports all phases of research administration, including both pre-award and post-award processing of grants and contracts. Provides advanced administrative support to CS department faculty, and serves as back-up to the Executive Administrator. Prepares TV expense envelopes, purchasing card statements. Assists with promotion and tenure cases (prepares dossiers). Assists with scheduling visits for faculty candidates.

Sherry Nassar, Accounting Assistant
• Duncan Hall 3140
• nassar@rice.edu
• 713-348-2031
  • Processes travel reimbursements, check request reimbursements, processes P card transactions, faculty club reallocations and assists the department Accountant with accounting support as needed.

Beth Rivera, Department Coordinator
• Duncan Hall 3125
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• 713-348-3820
  • Handles academics for all CS students, including all student Petitions, CS majors declarations, Degree applications, and maintains a departmental checklist on all students working towards their Masters and Doctoral degrees
  • completes Departmental surveys for NSF, NRC, and CRA Taulbee Survey
  • Reserves and updates all classroom and course scheduling
  • Handles all General Announcement reviews/updates
  • Back-up support for faculty on submitting grades via Esther
  • Maintains personnel records for staff and students.
  • Assists Faculty in the hiring of all Post Docs and visiting students and/or other visitors

Lena Sifuentes, Accountant and Financial Analyst
• Duncan Hall 3123
• lenas@rice.edu
• 713-348-6325

• Balancing and projections on all research funds awarded to Computer Science
• Process of payroll redistributions as needed for effort corrections
• Process quarterly shared facilities billings
• Set up and maintain spreadsheet on all facility users in CS
• Balance of all department funds, including A1 funds
• Processes all graduate student payroll
• Processes and audits all travel and reimbursement expenses
• Processes all faculty summer salary forms.
• Processes Faculty release time
• Processes budget transfer forms as needed
• Acts as liason between other departments and Computer Science on department matters.

Graduate Students - Ph.D.

• To see a current list of graduate students, please visit
  www.compsci.rice.edu/people.cfm?doc_id=3462

Academic Committees

Graduate Committee
Graduate students can seek advice from members of the Graduate Committee on course selection, as well as on any other academic issues and procedures.
  • Ronald N. Goldman, Co-Chairman
  • T. S. Eugene Ng, Co-Chairman
  • Chris M. Jermaine
  • Alan L. Cox
  • Krishna V. Palem
  • Swarat Chaudhuri
  • Devika Subramanian
  • Robert “Corky” Cartwright

Undergraduate Committee
Undergraduates seeking advice from graduate students on course selection or any other academic regulations and procedures should be referred by the graduate student to a member of the Undergraduate Committee.
  • John Greiner
  • Luay K. Nakhleh
  • Scott Rixner
• Stephen Wong
• Dave Johnson
• Scott Cutler
• Alan Cox
III. Getting Started

Orientation Week

- Monday and Tuesday
  - **International Graduate Students** must attend the International Graduate Student Orientation held on Monday and Tuesday of Orientation Week.
  - Topics discussed will include: immigration regulations, legal issues, cultural adaptation, Rice honor code, health insurance, and applying for a Rice ID. Lunch and refreshments will also be served.
  - Students should bring originals and copies of all immigration documents. Be sure to make three copies of your passport ID page, I-94 card, I-20 card or DS-2019, and visa stamp.

- Wednesday
  - Graduate Orientation is mandatory for all incoming students. Any students with stipends beginning second half of August who are not present will be docked one week’s stipend.

- Thursday
  - Registration for all new graduate students will take place on Thursday, August 21, 2014, after you have been advised by your department on your planned course of study.
  - Department Orientation - Thursday afternoon – held in Duncan Hall 3076

Previous Graduate Work

Certain requirements may be modified for students who have done equivalent graduate work elsewhere. Students should consult with the Chair of the Graduate Committee to verify the guidelines described below to their particular case.

Graduate level courses taken elsewhere will be evaluated by an interview with an appropriate faculty member. Courses will be waived in areas where the student has sufficient background. The implication of a waived course is detailed in each degree program’s description.

For the Rice Ph.D. program, a research oriented Masters degree, including either a thesis or published paper, may substitute for the Rice M.S. The Graduate Chair, in consultation with the appropriate faculty, will decide if the previous work is equivalent to that expected for a Rice M.S. It is not necessary for the student to resubmit their M.S. thesis to the Graduate School, and the student will not receive a Rice M.S. A Masters or similar degree based only on course work is not equivalent to the Rice M.S. Students holding such degrees must still demonstrate research ability by doing a 590 project and defending a Master thesis before they can qualify for Ph.D. candidacy.
Registration
Graduate students normally register during the first week of classes. Registration is performed using the Rice University student and faculty self-service system called ESTHER.

ESTHER can be accessed by all students and faculty at http://esther.rice.edu. Access information for ESTHER will be provided from Graduate Studies by email to beginning graduate students prior to their arrival at Rice.

The student’s advisor or the Chair of the Graduate Committee should be consulted to approve the student’s course selections.

Drop/Add Policy
Courses can be added after the first week. A course can be added for free until the end of the second week. Students will not be able to add classes after September 6th.

Classes can be dropped until the seventh week of the semester.

The schedule established in the first week can be adjusted, but the semester is only 15 weeks long. Therefore, students are encouraged not to take too long to make their final course selections.

The student’s advisor or a member of the Graduate Committee, as well as the course instructor, must approve any drop or add.

Computers
Upon arrival at Rice, every graduate student is provided with an account on the departmental computing system. All new students are assigned a Rice NetID and password, which gives them access to Rice email and other resources.

See the Rice IT website for more information about computing resources: http://www.rice.edu/it.

Many research groups maintain their own specialized computing facilities. These become available to the student when he/she joins the research group. Every first year Ph.D. student will be provided with a fully networked desktop workstation. In addition, graduate students have access to the various research computing facilities at Rice University. After the first year, computer equipment will be provided by the student’s thesis advisor.

Rice Library
The Rice Library is in Fondren Hall on the main quad facing Lovett Hall. Students have access to the Rice Library with a valid Rice ID. Many library resources, including catalogues, online journals, recalls, renews, and interlibrary loans, are available online at http://library.rice.edu
**English Classes**

The ability to write and speak English competently is essential for successful academic work at Rice and has become essential for scientific careers worldwide. The department reinforces its commitment to fostering speaking and writing skills in the following ways:

1. All non-native English speakers are required to enroll in an ESL (English as a Second Language) class for at least one semester. *Failure to enroll may result in a loss of the student’s stipend.* Please see [http://esl.rice.edu](http://esl.rice.edu) for more information.

2. All Ph.D. students must participate in the COMP 600 Graduate Research Seminar.

The Rice Office of International Students and Scholars (OISS) offers a number of free English and culture classes. [http://oiss.rice.edu](http://oiss.rice.edu) Additionally, Rice’s ESL Program offers non-native speakers of English the opportunity to improve their language skills. Foreign students are strongly encouraged to take advantage of these opportunities.

**Useful Websites**

- Rice University: [http://www.rice.edu/](http://www.rice.edu/)
- Computer Science Department: [http://compsci.rice.edu/](http://compsci.rice.edu/)
- Graduate and Postdoctoral Studies: [http://graduate.rice.edu/](http://graduate.rice.edu/)
- Office of International Students and Scholars (OISS): [http://oiss.rice.edu/](http://oiss.rice.edu/)
- Fondren Library: [http://library.rice.edu/](http://library.rice.edu/)
- Esther: [esther.rice.edu](http://esther.rice.edu)
- Graduate Student Association: [http://gsa.rice.edu](http://gsa.rice.edu)
IV. Financial Support

Stipends and Tuition Waivers
Rice University is somewhat unusual because relatively few graduate students support themselves by teaching. Almost all Ph.D. students in Computer Science receive stipends and tuition waivers from the university, an external research grant awarded to a CS faculty member, or a Graduate Fellowship awarded to the student.

The Office of Graduate Studies supports most incoming Ph.D. students during their first year of studies and a few individuals in later years. This support includes a stipend and tuition. At the beginning of each year, additional payments for fees, health insurance, and parking are required.

As a matter of University policy, Rice does not offer financial support for MCS students. Support for MS students can sometimes be arranged at the discretion of the student’s thesis advisor.

If a student needs financial aid beyond what the department has arranged, the student may contact the Financial Aid office for information about loan programs for graduate students.

External Prizes and Fellowships
The National Science Foundation, as well as other government agencies and foundations, offer scholarships, fellowships, and other funding opportunities for graduate students. Some of these opportunities are listed on the George R. Brown School of Engineering website: http://engr.rice.edu (go to “Students”, and then “Opportunities”).

Graduate students are strongly encouraged to seek out these opportunities. The application process is a valuable learning experience. Being awarded one of these prestigious fellowships is a great enhancement to a student’s vitae, and many of these fellowships carry a higher stipend level than that offered by the CS department. Faculty advisers will provide guidance and help in selection of appropriate opportunities and in the application process.

Paid Teaching Assistantships
A limited number of paid teaching assistantships are available to those who wish to acquire teaching experience. Since some evidence of teaching competence is a prerequisite for entry-level academic positions, CS graduate students who wish to eventually become professors should take advantage of this opportunity to enhance their vitas in this important way.
V. Academic Regulations and Procedures

Honor Code
Graduate students are expected to observe the provisions of the Rice University Honor Code as presented in the booklets received at orientation. Students are responsible for knowing and understanding the principles of the Honor Code. In particular, plagiarism is never acceptable.

All written examinations and certain specifically designated assignments are conducted under the Honor Code. The faculty will state the conditions applying to various forms of class work. If in doubt about the conditions for a particular assignment, it is your responsibility to ask the faculty member in charge of the course. In most cases, a single violation of the Honor Code, such as plagiarism or cheating on an exam or assignment, results in failure of the course or expulsion from Rice.

The student body at Rice, through its commitment to the Honor Code, accepts responsibility for assuring the validity of all examinations and assignments conducted under the system. The Honor Council is responsible for investigation of all reported violations and for trial in those cases where the facts warrant.

Grievances
All requests for exceptions or variances from the policies outlined above should be addressed to the Graduate Committee and delivered to the Chair of this committee. Grievance letters should state precisely what exception or variance is requested and give detailed reasons to support the request. Either the Graduate Committee, the Chair of the Department, or the full faculty will decide the issue, as appropriate.

Sexual Harassment
As a graduate student you may find yourself in a position of power over undergraduates in courses that you lead or in a position of vulnerability as the junior member of the academic community. It is important for you to know both your rights and responsibilities. All incoming graduate students are encouraged to take our online “Preventing Sexual Harassment” training this summer and to submit proof of the completion of your training to graduate@rice.edu. Please go to the New Graduate Student Training Page of the Graduate Student & Postdoctoral Studies Webpage to take the training. www.graduate.rice.edu/newstudenttraining/.

All new graduate students must take this training before September 15th.

Responsible Conduct of Research
You are also encouraged to take the online Responsible Conduct of Research training during the summer. As a new member of the academic community, you will be responsible for conducting your research with integrity. This training serves as an introduction to what will be expected of you as a member of the research community. Please follow these directions. All new graduate students must take this training before September 15th.
Health and Safety
Your completed health data form was due on July 1st. If you have not yet completed the form, please make arrangements to do so as soon as possible. If you have any questions, please contact Student Health at health@rice.edu.

All students are required to pay a student health fee. We encourage you to take advantage of these resources. The Rice Student Health Services provides preventative and outpatient clinical care for the students of Rice University. The Wellness Center is an excellent resource for information and tools on a variety of student wellness issues. The Rice Counseling Center offers professional counseling to promote positive mental health for all Rice University students. For more information about the services offered, please visit http://health.rice.edu.

Transcripts
If you have completed coursework since you submitted your transcript with your application, please request that your previous institution send a new transcript to the Computer Science department coordinator. All new students must submit a final original transcript showing their Bachelor’s degree conferred before they will be permitted to register for a second semester.
VI. The MCS Degree

The Master of Computer Science (MCS) degree is a terminal, professional degree intended for students who will pursue a technical career in the computer industry. The MCS program normally requires three semesters of full-time study. MCS students must spend at least one fall or spring semester in full-time or part-time graduate study at Rice. Full-time study is defined as enrollment in nine or more hours of course work.

Students must complete 30 semester hours of course work approved by the department with a cumulative grade point average of at least 2.67. The student works with the department’s MCS advisor to develop an approved course plan.

Students may transfer up to six hours of credit from another university with approval from the graduate committee. Transferred courses must be compatible in content and depth to the corresponding course at Rice, must be completed at the time that the student enters the MCS program, and must not have counted toward another degree. The MCS program does not normally lead to further graduate study. No financial aid is available from the university or the department for MCS students.

Prerequisites
In general, we expect that a student must have had the following minimal background in computer science. A student must have previously taken courses or otherwise demonstrated background in the following: intermediate-level programming and algorithms; discrete math; and computer systems or organization. Also, many individual courses have prerequisites, including not only lower-level computer science courses, but also digital logic design, linear algebra, probability, and statistics. A student may need to take prerequisite courses that do not count toward the MCS degree.

Curriculum for students admitted Spring 2015 or after

- **General Requirements:** 30 credit hours are required, of which at least 24 must be completed at Rice. Students cannot use one course to satisfy requirements from multiple categories (e.g., both Breadth and Depth). No more than 3 credit hours total may be counted from 1- and 2-credit-hour courses. At least 15 credit hours must be at the 500-level or above.

- **Breadth** (9–12 credit hours): Students must take one course from three of the four following groups. Students demonstrating that they have previously passed two courses of comparable depth from a group may be exempted from that group’s breadth requirement.
  - Languages & Compilers: COMP 411, 412, 512, 515
  - Theory: COMP 481, 482, 507, 509
  - Systems: COMP 421, 422, 425, 429, 519, 520, 522, 524, 525, 526, 527, 529
  - Applications: COMP 430, 440, 450, 540, 550, 551, 560, 571, 572
• **Depth** (6–8 credit hours): Students must complete a tightly coupled two-course focus: one 400-level or above, one 500-level or above. A list of approved specializations is available (see below), but students may design their own with approval by the MCS advisor. They may include courses outside the Computer Science Department, and they may include one independent study project. *The following list of depth specializations is representative, but not comprehensive.*
  - Parallel computing: COMP 422, 522
  - PL theory and logic: two of COMP 411, 507, 509
  - Compilers: two of COMP 412, 512, 515
  - Networking: two of COMP 429, 519, 524, 529
  - Distributed computing & security: COMP 520, 527
  - AI: COMP 440, 540
  - Bioinformatics: COMP 571, 572
  - Optimization: CAAM 471 or 474, CAAM 56X
  - Architecture: two of COMP 425, 525, 526
  - Robotics: two of COMP 450 or 498, 550, 551
  - Graphics & games: COMP 460, 560

• **Design project** (4 credit hours): Students must complete a design project: one of COMP 402, 404, 410, 460, or a 590 independent study project of similar depth.

• **Professional Development**: Up to 6 credit hours is encouraged but not required:
  - COMP 694 Future Computing Technologies: How to be a CTO
  - ENGI 510 Technical and Managerial Communications
  - ENGI 529 Ethics and Engineering Leadership
  - ENGI 505 Engineering Project Development and Management
  - ENGI 528 Engineering Economics
  - ENGI 545 Structured Problem Solving
  - ENGI 610 Management for Science and Engineering

• **Electives**: Any remaining credit hours counting towards the degree must be 400-level or above COMP courses.

**Curriculum for students admitted Fall 2014 or before**

• **General Requirements**: 30 credit hours are required, of which at least 24 must be completed at Rice. Students *cannot* use one course to satisfy requirements from multiple categories (e.g., both Breadth and Depth). No more than 3 credit hours total may be counted from 1- and 2-credit-hour courses. At least 8 credit hours, not including the Professional Development courses, must be at the 500-level or above.

• **Breadth** (11–12 credit hours): Students must take one course from three of the four following groups. Students demonstrating that they have previously passed two courses of comparable depth from a group may be exempted from that group’s breadth requirement.
• Languages & Compilers: COMP 411, 412
• Theory: COMP 481, 482, 509
• Systems: COMP 421, 422, 425, 429
• Applications: COMP 430, 440, 450, 470, 560

• Depth (6–8 credit hours): Students must complete a tightly coupled two-course focus: one 400-level or above, one 500-level or above. A list of approved specializations is available (see below), but students may design their own with approval by the MCS advisor. They may include courses outside the Computer Science Department, and they may include one independent study project. The following list of depth specializations is representative, but not comprehensive.
  • Multi-core: COMP 422, 522
  • PL theory: COMP 411, 517
  • Compilers: two of COMP 412, 512, 515
  • Networking: two of COMP 429, 519, 524, 529
  • Distributed computing & security: COMP 520, 527
  • AI: COMP 440, 540
  • Bioinformatics: two of COMP 470, 571, 572
  • Optimization: CAAM 471, 474, CAAM 56X
  • Architecture: COMP 425, 525
  • Robotics: two of COMP 450, 498, 550, 551
  • Graphics & games: COMP 460, 560

• Design project (4 credit hours): Students must complete a design project: one of COMP 402, 404, 410, 415, 460, or a 590 independent study project of similar depth.

• Professional Development: Up to 6 credit hours is encouraged but not required:
  • ENGI 510 Technical and Managerial Communications
  • ENGI 529 Ethics and Engineering Leadership
  • ENGI 505 Engineering Project Development and Management
  • ENGI 528 Engineering Economics
  • ENGI 545 Structured Problem Solving
  • ENGI 610 Management for Science and Engineering

• Electives: Any remaining credit hours counting towards the degree must be 400-level or above COMP courses.
VII. The MS Degree

The Master of Science in Computer Science (MS) is a research degree that requires 30 credit hours beyond the Bachelor’s degree, plus a thesis. While some students elect to pursue the MS as a terminal degree, most MS recipients remain in the graduate program to pursue a Ph.D.
VIII. The Ph.D. Degree

The Doctor of Philosophy with dissertation in Computer Science (Ph.D.) requires an extended course of study and research that typically lasts from four to six years. The Ph.D. is granted for demonstrated ability to conduct original research. The Ph.D. degree is intended for students planning to pursue a career in computer science research and education.

The typical Ph.D. Timeline

First Week
• Attend university and department orientation.
• Register for classes.

First Semester
• Take 2 courses.
• Become familiar with faculty and fellow graduate students.
• Attend faculty research talks and department colloquia to learn about research inside and outside the department.
• Think about which area to pursue for your Ph.D. research and who to choose as your Ph.D. advisor. Meet with potential Ph.D. advisors and ask faculty for research papers to read independently outside of class.
• Choose a COMP590 advisor for the next semester.

Second Semester
• Take 2 courses.
• Complete a COMP590 project with a faculty advisor.

Second Year
• Take more courses.
• Finish your MS degree.

Third Year
• Take your C-Exam.
• Apply for Ph.D. candidacy.

Fourth Year and Beyond
• Concentrate on your Ph.D. research.
• Do your thesis proposal at least one year before your thesis defense.
• Defend your Ph.D. thesis.

Summers are an extremely valuable time as students can perform research without the distraction of coursework and grading. Summers are also a time when some students secure internships in order to gain valuable experience working for industry or in research labs. If a student plans to absent themselves from Rice during the summer, either to take on an internship or for another activity, please inform the Department Coordinator as early as possible so that good use can be made of the stipend funds that
are not needed for your support.

**Choosing an Advisor**

Your advisor is going to be the most important person in your life during your stay in graduate school. He/she is your teacher and mentor, your guide to scholarship and research. Your advisor will typically fund you from one of his/her research grants or help you to apply for outside scholarships and fellowships. Even beyond graduate school, your advisor will have an important influence on your life because employers will ask him/her to write letters of recommendation on your behalf and his/her opinion of you will count more than anyone else’s at least for the first several years after you graduate.

Choose your advisor carefully. Decide the general area of research—AI, Bioinformatics, Compilers, Databases, Data Mining, Graphics, Networking, Operating Systems, Programming Languages, Robotics—you would like to pursue. Then talk to other graduate students working in this area. Some students want a good deal of guidance, while others want largely to be left alone to pursue their own ideas. Find out how each advisor works with his/her students. You need to find a good fit, both for your research interests and for your style. How often does the advisor meet with his/her students? How much guidance does he/she provide? Does he/she specialize in theory or applications? How does this emphasis coincide with your interests? Does the advisor have sufficient funding to support another student for several years? After completing their dissertations, do these advisor’s students get good jobs in industry or academia? Getting answers to these questions early on will make your choice easier and your stay in graduate school a much more pleasant experience. Learn as much as you can about our professors as early as you can. The more information you have, the better your choice is likely to be.
Detailed Requirements

This section lists the department’s and university’s graduate degree requirements. The university’s requirements are more fully described in the General Announcements and by the Office of Graduate and Postdoctoral Studies (OGPS).

The following figure summarizes these requirements and the relationships between them. Arrows in the figure represent dependencies, with the rough timing and time relationships between requirements flowing from top to bottom.
Serving as Teaching Assistant
You must TA for 5 semesters, each of which will average about 10 hours per week. TA-ing for pay does not count towards this requirement. You may TA the same course multiple times. Duties vary by course and instructor but typically include grading, holding regular office hours to help students, leading lab or tutorial sessions, and course administration.

At Rice, it is uncommon for graduate students to teach courses. If you wish to gain additional teaching experience, consider the following common options:

- TA a course with a student-led lab section.
- TA a course, and ask the instructor whether you can lead classes or review sessions.
- Contact the Department Chair to be considered for a School of Engineering Teaching Assistantship. Among its requirements are for you to lead 2 classes.
- Consult with your research advisor whether you can help lead research seminars.

Course Requirements– Deadlines: 2nd and 5th semesters
Breadth Component: You must pass at least one course from each of six of the sub-areas from the list of approved breadth courses (see “Ph.D. Breadth Courses”), with at least two courses are from each of the three super-areas. Electives Component: You must pass at least two additional courses from the approved electives list (see “Ph.D. Electives Courses”).

You must pass any four of these courses by the end of your 2nd semester and must pass all eight by the end of your 5th semester. You must maintain a cumulative grade point average of at least B+ (3.33) in these courses.

All Ph.D. students receiving financial support must register for at least 9 hours each semester and cannot drop below 9 hours. Use the course COMP 800 “Graduate Research” to fill any needed hours in your schedule.

If you need to add a course during the 3rd or 4th week of classes, you must get the signature of the instructor and your advisor. After the 4th week, a signature from the OGPS is also required. If you wish to drop a course after the 10th week of classes, you need signatures from your advisor and OGPS.

Graduate Student Seminar– All semesters in residence
Every semester you are in residence, you must register for and pass COMP 600, the Graduate Student Seminar, a one credit hour course. Grades are based upon attendance. For every four semesters in residence, you must present at least one talk.
COMP590 Project– Deadline: 3rd semester
You must complete a small, roughly semester-long, research project.

1. Find a project advisor to work with – typically your research advisor. Notify the Department Coordinator who this is.
2. Enroll in COMP 590 each semester you work on the project. Receiving a grade does not signal project completion.
3. At the end of this project, you must write a report approved by the project advisor.
4. Your advisor will notify the Department Coordinator that the project has been completed.
5. You are strongly encouraged to present a poster at a suitable venue.

M.S. Degree Candidacy– Deadline: before beginning of 5th semester
You must petition for M.S. candidacy. This petition must be approved by OGPS before the Master’s thesis defense can be held.

1. Form a Master’s thesis committee of at least 3 members. Your committee chair (a.k.a. thesis director) will be your research advisor, who must be a tenure-track Computer Science faculty member at Rice. A second committee member must also be a tenure-track Rice CS faculty member. A third committee member must be a tenure-track Rice faculty member, although may be from outside CS. Any additional committee members may be faculty members or research personnel at any institution.
2. Fill out the “Petition for Approval of Candidacy for the Master’s Degree”, available from OGPS or from the Department Coordinator.
3. Give this form and an unofficial transcript to the Department Coordinator.  
4. OGPS will send you a packet, including a copy of your approval of candidacy.

If you already have a Master’s degree from another University, you may petition the Graduate Committee to waive this requirement, along with the associated thesis defense and thesis.

1. Fill out the “Request for Waiver of Rice M.S. Thesis”, available from the department web site.
2. Give this form and a copy of your Master’s thesis to the Department Coordinator.

M.S. Thesis Defense – Deadline: 5th semester
You must defend your Master’s thesis research in a public oral presentation. This presentation is normally about 45 minutes, plus questions and discussion.
1. At least 3 weeks prior to your defense presentation, email the Department Coordinator with the following: date, time, title, abstract, and committee members. Also, provide a draft paper copy of the thesis.
2. The Department Coordinator will reserve a room, announce the talk — including the required announcements to the department bulletin board and OGPS — and make the thesis draft available for all faculty members to review.
3. Get the approval form from the Department Coordinator that will be sent by OGPS. The Department Coordinator will have filled out the date and title on the form.
4. At the defense, have your thesis committee sign this form.
5. Make two copies of the signed form. Give one copy and the original to the Department Coordinator. Give one copy to OGPS.

### M.S. Thesis – Deadline: 6 months after M.S. Thesis Defense

The following are only the highlights of the procedures described by OGPS.

<table>
<thead>
<tr>
<th>Step</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Get your original signed Master’s thesis defense form from the Department Coordinator.</td>
</tr>
<tr>
<td>2.</td>
<td>Submit this form and a copy of the thesis to OGPS.</td>
</tr>
</tbody>
</table>

### M.S. Degree – Deadline: After Course Requirements, COMP590 Project, and M.S. Thesis Defense

After finishing these requirements, you may receive the M.S. degree.

<table>
<thead>
<tr>
<th>Step</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Fill out an &quot;Application for Degree&quot; on Esther before the end of the semester.</td>
</tr>
<tr>
<td>2.</td>
<td>Optionally, participate in that semester’s graduation ceremony.</td>
</tr>
</tbody>
</table>

### C Exam – Deadline: 7th semester

You must pass a private oral examination in your area of research. Each area has a formal or informal syllabus listing topics and material covered. The exam normally takes 1.5 to 2 hours. It covers both basic material, such as that from a 400-level course, and more advanced material, such as solving a problem in current research.

<table>
<thead>
<tr>
<th>Step</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Form an examination committee of 3 faculty members. Consult your research advisor about how this is done in your research area.</td>
</tr>
<tr>
<td>2.</td>
<td>Consult your research advisor or examination committee for your exam syllabus.</td>
</tr>
<tr>
<td>3.</td>
<td>Consider scheduling your exam in the same semester as other students in the same research area, so you can study together.</td>
</tr>
<tr>
<td>4.</td>
<td>Get the &quot;C Exam Record&quot; form, available from the department web site.</td>
</tr>
<tr>
<td>5.</td>
<td>At the exam, have your examination committee fill out and sign this form.</td>
</tr>
<tr>
<td>6.</td>
<td>Submit this form to the Department Coordinator.</td>
</tr>
</tbody>
</table>
Ph.D. Degree Candidacy – Deadline: 7th semester
After completing the course requirements, M.S. thesis, and C exam, you must petition OGPS for Ph.D. candidacy.

1. Form a Doctoral thesis committee of at least 3 members. Your committee chair (a.k.a. thesis director) will be your research advisor, who must be tenure-track Computer Science faculty member at Rice. A second committee member must also be a tenure-track Rice CS faculty member. A third committee member must be a tenure-track Rice faculty member from outside CS. Any additional committee members may be faculty or research personnel at any institution.
2. Fill out the “Petition for Approval of Candidacy for the Doctoral Degree”, available from OGPS or from the Department Coordinator.
3. Give this form and an unofficial transcript to the Department Coordinator.
4. OGPS will send you a copy of your approval of candidacy.

Ph.D. Thesis Proposal – Deadline: Determined by advisor
You must propose your Ph.D. thesis research in a written thesis proposal and a public oral presentation of your proposal.

1. At least 3 weeks prior to the date of your proposal presentation, email the Department Coordinator with the following: date, time, title, abstract, and committee members.
2. Also give a copy of your thesis proposal to each of your thesis committee members.
3. The Department Coordinator will reserve a room and announce the talk.

Ph.D. Thesis Defense – Deadline: 8 semesters after Ph.D. Degree Candidacy
You must defend your Ph.D. thesis research in a public oral presentation. This presentation is normally about 45 minutes, plus time for questions and discussion.

1. At least 3 weeks prior to the date of your thesis defense presentation, email the Department Coordinator with the following: date, time, title, abstract, and committee members. Also, provide a draft paper copy of your thesis to the Department Coordinator and to each of your thesis committee members.
2. The Department Coordinator will reserve a room, announce the talk to the department and to OGPS, and make the thesis draft available for all faculty members to review.
3. Get the approval form from the Department Coordinator that will be sent by OGPS. The Department Coordinator will have filled out the date and title on the form.
4. At the defense, have your thesis committee sign this form.
5. Within one week after a successful defense, make 2 copies of the signed form, giving one each to the Department Coordinator and OGPS.

You must submit your written thesis to OGPS.
The following are only the highlights of the procedures described by OGPS:

1. Get the original signed Doctoral thesis defense form from the Department Coordinator.
2. Have two copies of your thesis signed by all of your committee members. No substitute signatures are allowed, even if a committee member is out of town.
3. Submit this form and the thesis copies to OGPS.
4. Fill out an “Application for Degree” on Esther before the end of the semester.
5. Optionally, participate in that semester’s graduation ceremony.

Extensions
We expect you to treat the deadlines outlined in this document seriously. However, if you need an extension on the deadline for any requirement, you may petition the Graduate Committee for an extension.

1. Include in your petition your current status on completing that requirement, the reason for the extension request, and your plan and schedule for completing that the requirement.
2. Have your advisor sign the petition.
3. Give the petition to the Department Coordinator.
4. The Graduate Committee Chair will inform you whether your petition was granted.

Ph.D. Breadth Courses
The table below lists the approved courses that may be used to satisfy the breadth component of the Ph.D. course requirements. The approved courses are grouped into three super-areas, each having three sub-areas. You must pass at least one course from each of six of the sub-areas on this list, with at least two of these courses from each of the three super-areas. In other words, you must take at least one course from at least two of the sub-areas out of each of the three super-areas. This is a total of six courses required to complete the breadth requirement.

A Ph.D. student may petition to the Graduate Committee to have a breadth component course waived if another course of equivalent scope and depth has been successfully completed by the student elsewhere. The equivalence of such a course will be evaluated by an interview with an appropriate faculty member. However, the student must still complete 8 courses total at Rice to satisfy the course requirements. In other words, instead of the waived breadth component course, the student must take an additional elective course.
<table>
<thead>
<tr>
<th>Sub-Area</th>
<th>Course #</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Super-Area 1</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AI and Robotics</td>
<td>440</td>
<td>Artificial Intelligence</td>
</tr>
<tr>
<td></td>
<td>450</td>
<td>Algorithmic Robotics</td>
</tr>
<tr>
<td>Bioinformatics and Graphics</td>
<td>460</td>
<td>Advanced Computer Game Creation</td>
</tr>
<tr>
<td></td>
<td>560</td>
<td>Computer Graphics</td>
</tr>
<tr>
<td></td>
<td>571</td>
<td>Bioinformatics: Sequence Analysis</td>
</tr>
<tr>
<td>Security</td>
<td>527</td>
<td>Computer Systems Security</td>
</tr>
<tr>
<td><strong>Super-Area 2</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Algorithms</td>
<td>482</td>
<td>Design and Analysis of Algorithms</td>
</tr>
<tr>
<td>Languages</td>
<td>402</td>
<td>Production Programming</td>
</tr>
<tr>
<td></td>
<td>411</td>
<td>Advanced Programming Languages</td>
</tr>
<tr>
<td>Logic and Automata</td>
<td>509</td>
<td>Logic in Computer Science</td>
</tr>
<tr>
<td></td>
<td>481</td>
<td>Automata, Formal Languages, and Computability</td>
</tr>
<tr>
<td><strong>Super-Area 3</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Architecture</td>
<td>425</td>
<td>Computer Systems Architecture</td>
</tr>
<tr>
<td></td>
<td>525</td>
<td>Advanced Microprocessor Architecture</td>
</tr>
<tr>
<td></td>
<td>526</td>
<td>High-performance Computer Architecture</td>
</tr>
<tr>
<td>Compilers and Parallel Computing</td>
<td>412</td>
<td>Compiler Construction</td>
</tr>
<tr>
<td></td>
<td>422</td>
<td>Parallel Computing</td>
</tr>
<tr>
<td></td>
<td>512</td>
<td>Advanced Compiler Construction</td>
</tr>
<tr>
<td>Systems</td>
<td>421</td>
<td>Operating Systems and Concurrent Programming</td>
</tr>
<tr>
<td></td>
<td>429</td>
<td>Introduction to Computer Networks</td>
</tr>
<tr>
<td></td>
<td>520</td>
<td>Distributed Systems</td>
</tr>
</tbody>
</table>
**Ph.D. Electives Courses**

In addition to the six courses required to complete the breadth component of the course requirements for the Ph.D. degree, you must also complete the electives component of the Ph.D. course requirements, consisting of at least two additional courses. These two courses may be chosen from either the list of approved breadth courses (see “Ph.D. Breadth Courses”) or from this list of additional courses that may also be used to satisfy the electives component. Students are also encouraged to take courses beyond this minimum total of eight required courses, whether or not on these two lists.

<table>
<thead>
<tr>
<th>AI and Robotics</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 540 Adaptive Systems</td>
</tr>
<tr>
<td>COMP 551 Advanced Robotics Lab</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Bioinformatics</th>
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</thead>
<tbody>
<tr>
<td>COMP 470 From Sequence to Structure: An Introduction to Computational Biology</td>
</tr>
<tr>
<td>COMP 572 Bioinformatics: Network Analysis</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Graphics</th>
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<tbody>
<tr>
<td>COMP 561 Geometric Modeling</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Languages</th>
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</thead>
<tbody>
<tr>
<td>COMP 511 Multi-stage Programming</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Logic and Automata</th>
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</thead>
<tbody>
<tr>
<td>COMP 407 Algorithmic Verification</td>
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<table>
<thead>
<tr>
<th>Architecture</th>
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</thead>
<tbody>
<tr>
<td>COMP 519 Network Systems Architecture</td>
</tr>
<tr>
<td>COMP 522 Multi-core Computing</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Compilers</th>
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</thead>
<tbody>
<tr>
<td>COMP 515 Advanced Compilation for Vector Parallel Processors</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 430 Introduction to Database Systems</td>
</tr>
<tr>
<td>COMP 524 Mobile and Wireless Networking</td>
</tr>
<tr>
<td>COMP 529 Computer Network Protocols and Systems</td>
</tr>
</tbody>
</table>
IX. Additional Academic Requirements

Department Colloquia
Department colloquia are regularly scheduled throughout the academic year. These talks are intended to expose students and faculty to diverse research areas in Computer Science at a level appropriate for specialists and non-specialists alike. Graduate students are required to attend.

Progress Reports
Each Ph.D. student will write an online progress report once a year after the end of the Spring semester. In their narrative, students should discuss any progress they have made in the following areas since their last report:

1. Courses, with grades
2. Exams - C-Exam, thesis proposal
3. Masters Degree
4. Admission to candidacy
5. Journal papers submitted or accepted
6. Workshop or conference papers submitted or accepted
7. Workshop or conference presentations
8. Software development
9. Scholarships or fellowships
10. Awards
11. Internships
12. Any other relevant information that might help their adviser and the Graduate Committee assess the student’s progress, including illnesses or personal problems.

Students should also discuss their plans for the next six months and provide an expected graduation date.

First year students should discuss their progress towards finding a Ph.D. adviser.

The adviser and the Graduate Committee will assess each student’s progress based on their report, and each student will receive online feedback. Students who receive an Unsatisfactory assessment from the Graduate Committee will be placed on academic probation. Students who receive two consecutive Unsatisfactory assessments will be dismissed from the Ph.D. program. Students who are dismissed can appeal to the Computer Science faculty. All of the Computer Science faculty members will meet and make a final decision regarding the student’s dismissal.
X. Miscellaneous

Stipend Payments
Research assistantships and special fellowships (e.g., NSF Fellowships) are usually paid on a 12-month basis. Rice fellowships, awarded to incoming students, are paid on a 9-month academic year basis.

Stipends may also be paid during the summer for work on research projects. A student who works for a full summer will receive six paychecks on the 15th and the last day of the summer months.

Students that receive a stipend from any source through Rice University will be paid semi-monthly on the 15th and the last day of each month. (In the event that one of these days falls on a weekend or holiday, payments will be issued the prior working day.) The first payment of the academic year will be issued on August 31st and the last (of 18) on May 15th. Due to the break between the fall and spring semesters, two payments are issued on December 15th and none on December 31st. Continuing graduate students will receive their last summer stipend payment on August 15th.

Checks or deposit notifications are distributed through the department offices. Upon request, the university will deposit stipend payments directly to your bank account rather than issuing a check. Department staff can provide you with a form authorizing payroll to make a direct deposit.

Health Insurance
Rice University requires that all students have health insurance. Students may either provide the Rice Cashier with proof of medical insurance or purchase health insurance from Rice University. All on-site students are required to pay a Health Center Fee, regardless of whether they purchase Rice University medical insurance or are covered by some other agency. Further information can be found at http://studenthealthinsurance.rice.edu. A medical insurance subsidy towards purchase of the Rice medical plan is available to full-time doctoral students in their first eight years of doctoral study. The Graduate Student Association maintains a helpful website describing the subsidy: http://gsa.rice.edu/document/student-health-insurance-and-doctoral-subsidy-08-09.

Building Access
The department coordinator will authorize issuance of door keys for student offices, as well as to any other areas to which access is needed. All keys must be returned when a student leaves permanently. Keys may not be duplicated under any circumstances. A number of buildings, such as Duncan Hall, have card-controlled locks that will accept any valid Rice ID, but specific authorization is needed for most other buildings and labs, including Symonds Lab. Faculty can authorize access, as required.

Mail
All graduate students have an assigned mailbox in Duncan Hall 3141. This box will be used for official correspondence and any other mail that arrives at the CS department
Office. You should check your mailbox regularly.

**Office Supplies**
The department stocks and provides supplies for academic and administrative use in Duncan Hall 3140. Please consult the office staff regarding items you need that are not available. To keep costs reasonable, please do not obtain supplies elsewhere. (The campus store, in particular, is much more expensive than our regular suppliers. Research Accounting will generally disallow charges at the campus store.) Items that could be construed as office supplies, such as special paper, plotter pens, or printer cartridges, must be charged as laboratory supplies if they are actually used solely for research purposes. Research funds may not be used for general-use office supplies.

**Printers and Copiers**
A copy machine is located in Duncan Hall 3141, and two printers (Phast and Phaster) are located in Duncan Hall 3058. Both are available for research and departmental use as needed. Personal use of copiers and printers is not allowed.

**Mailing and Shipping**
Internal university mail and external US mail can be placed in the appropriate bins located in Duncan Hall 3141. Stamps for US mail will not be supplied.

The department will pay postage for all university business and for routine research-related correspondence, including grant proposals, journal submissions, paper reviews, and small numbers of preprints. Large batches of preprints and other research-related shipping must be charged to the appropriate grant. To send packages by DHL, UPS, or FedEx, seek assistance from the department staff.

**Travel**
Student travel must be authorized by the Department Chair or the Principle Investigator of the project to which the travel will be charged. The Dean and the department can sometimes provide supplemental funds for students presenting papers at conferences and workshops. Contact the Department Chair to request this assistance. When preparing for a trip, please give the department staff your itinerary and the account number(s) to be charged. Note that most grants require the use of US carriers. Travel expense documentation should be submitted within three days after returning from a trip. The following original receipts must be supplied: Airline tickets, hotel receipt, car rental receipts (these must show amount charged), as well as miscellaneous items, such as taxi, bus, and registration fees.