Graduate Programs in Computational Science

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Graduate Student Handbook

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1 Graduate Study in Computational Science

Over the last few decades, computations have joined theory and experimentation to form the three pillars of scientific discovery and technological design. Moreover, in many cases scientific computations have superseded both theory and experimentation. Thus, whether one is studying sub-atomic particles or galaxies, whether one is designing minute nano-composites or huge skyscrapers, whether one is sequencing the human genome or protecting fragile ecosystems, whether one is studying the flow of blood in capillaries or predicting the winds in a hurricane, computations play a central role. The computations that enable these and a myriad of other studies depend on the invention, implementation, and testing of algorithms and software that computers use to solve scientific and engineering problems. This is the work of computational scientists.

The graduate programs in computational science offered by FSU's Department of Scientific Computing (DSC) are committed to training computational scientists through an innovative curriculum and an interdisciplinary research environment. The computational science courses are designed to function across disciplines rather than within a single discipline. The faculty of the DSC is truly interdisciplinary, today consisting of physicists, biologists, geophysicists, biochemists, engineers, mathematicians, and computer scientists, with an even broader spectrum of interests to be represented in the future. The DSC faculty is also collectively bound by one common interest: developing better computational tools. It is very fortunate that computational algorithms are very ecumenical in nature; a method that solves a problem in one discipline more often than not can also be used in several other disciplines. It is this synergy between disciplines that is being exploited by the DSC in its research programs. Thus, DSC is ideally positioned to establish an innovative graduate degree programs in computational science that imparts this same synergy to its students.

This computational science program cuts across departments, concentrating on the sub-disciplines that are common to all: programming, algorithm development, analysis and implementation, visualization, statistics, etc. The program strives to provide students with knowledge in various disciplines while obtaining depth in at least one area. In this way the computational scientist can also serve as a translator between domain experts who have most of their knowledge in a single field as well as a conduit to transfer technology from one discipline to another.

2 Graduate Degrees in Computational Science

The DSC offers Master's and Doctoral programs in Computational Science. Specifically, the programs are:

- M.S. in Computational Science

- Ph.D. in Computational Science.

2.1 Master's Programs

The M.S. degree in Computational Science is typically taken by students who are (i) seeking a terminal Master's degree in Computational Science, or (ii) seeking a Ph.D. in Computational Science and also want to complete the M.S. Students pursuing a Master's degree must choose between a thesis or non-thesis option. Both options require the same core coursework in computational science. The key differences between the thesis and non-thesis options are elaborated in the **Degree Requirements** section (sec. 5) of this handbook.

A student seeking a terminal Ph.D. degree in Computational Science is encouraged to choose the M.S. degree with non-thesis/project option, since the requirements of such a Master's degree are a subset of the Doctoral degree requirements. This option typically saves the student anywhere between six months to a year. Exceptions to this recommendation may occur in cases where a student wishes to complete a Master's thesis, switch their advisor and/or research focus for their Ph.D., etc.

2.2 Ph.D. in Computational Science

The goal of the Ph.D. program in Computational Science is to train graduate students to have extensive knowledge in computational science and to give the student the opportunity to acquire expertise in a particular area of science or engineering. Thus the degree provides the student with breadth as well as depth. Graduates should be able to successfully collaborate with scientists in other disciplines. Ideally, students should learn to develop and analyze new computational procedures which can be utilized in a variety of fields.

Based on the current expertise in DSC, the following tracks are available:

- Ph.D. in Computational Science (major track[1])

- Ph.D. in Computational Science with a Specialization in Atmospheric Science

- Ph.D. in Computational Science with a Specialization in Biochemistry

- Ph.D. in Computational Science with a Specialization in Biological Science

- Ph.D. in Computational Science with a Specialization in Fire Dynamics

- Ph.D. in Computational Science with a Specialization in Geological Sciences

- Ph.D. in Computational Science with a Specialization in Geophysical Fluids Dynamics

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[1]emphasizing the mathematical, statistical, and computer science aspects of computational science

- Ph.D. in Computational Science with a Specialization in Materials Science

- Ph.D. in Computational Science with a Specialization in Physics

If the student chooses one of the tracks then his/her diploma will reflect this; for example if the specialization in Geological Sciences is chosen then the student's diploma will indicate as "Ph.D. in Computational Science - Geological Sciences". The student's supervisory committee will advise the student on the coursework necessary necessary for a particular specialization.

Specializations in Fire Dynamics and Geophysical Fluids Dynamics are administered by the Geophysical Fluid Dynamics Institute (GFDI), which is an independent unit under the Department of Scientific Computing. Students in these specializations are strongly advised consult the GFDI Graduate Handbook.

2.3 Major codes for Graduate Programs in Computational Science

The following major codes have been assigned to the graduate programs in computational science. These codes are necessary for completion of many Univesity forms. The CIP code for the Ph.D. degree is 30.0801.

Master's Program	
Computational Science (Major Track/Thesis)	COMPLSCIMT
Computational Science (Major Track/Project)	COMPLSCIMS
Ph.D. Programs	
Computational Science (Major Track)	COMPLSCIPD
Computational Science (Atmospheric Science)	COMPLATSPD
Computational Science (Biochemistry)	COMPLBCHPD
Computational Science (Biological Science)	COMPLBSCPD
Computational Science (Fire Dynamics)	COMPLFDY
Computational Science (Geological Sciences)	COMPLGLYPD
Computational Science (Geophysical Fluid Dynamics)	COMPLGFDI
Computational Science (Materials Science)	COMPLMTSPD
Computational Science (Physics)	COMPLPHYPD

3 Admissions

All students entering this degree program should have a strong desire to do computational science and have experience in at least one programming language.[2] Students typically possess

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[2]Typically students are required to have a working knowledge of C/C++, Fortran 90 or Java.

an undergraduate degree in computer science, computational science, mathematics, statistics, a science or engineering. The University requires the general GRE examination. International applicants are required to take the TOEFL test.

3.1 Application Procedure for Students Outside FSU

Students outside the University who want to apply to the graduate program in computational science need to apply to FSU Admissions. It application process involves the following steps:

- complete the FSU application;[3]

- pay FSU application fee;

- have sent to FSU official copies of transcripts from all institutions attended;

- have official copy of GRE examination sent;

- have official TOEFL scores sent (international applicants only).

The DSC can only recommend admission to the Graduate Admissions Office; the official letter of admission comes from the University. However, the DSC Associate Chair for Graduate Studies will notify students of their recommendation for admission and will also notify the student of any offers of an assistantship.

3.2 Transferring from Another Graduate Program at FSU

Students who are currently completing another graduate program (such as a Master's program) at FSU may simply reapply to the FSU Graduate Admissions Office for the computational science program.

Students who are currently enrolled in another graduate program at FSU but are not completing a degree in that program, should complete a transfer form which can be obtained from the DSC Associate Chair for Graduate Studies or the FSU Graduate Admissions office. This form must be approved by the DSC, the student's current program and the Dean of Arts and Sciences. Transfer of students from other programs is limited to those students who can justify that their interests are a better fit in computational science than in their current program.

3.3 Continuation to the Ph.D. in Computational Science

Students who hold only an undergraduate degree are typically admitted into the M.S. program in computational science even if their ultimate goal is a Ph.D. This allows the student the opportunity to make sure that the graduate program fits their interests and allows DSC to

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[3]complete the Departmental supplemental form, when directed.

Core Required Courses		
ISC5305	Scientific Programming	3
ISC5315	Applied Computational Science I	4
ISC5316	Applied Computational Science II (Ph.D. only)	4
Seminars		
ISC 5934	Introductory Seminar on Research in Computational Science	1
ISC 5939	Advanced Graduate Seminar in Computational Science	1
Other		
ISC 5948	Graduate Internship in Computational Science	
ISC 5975	Thesis	
ISC 6981	Dissertation	
ISC 8965	Doctoral Preliminary Exam	0
ISC 8977	Master's Thesis Defense	0
ISC 8982	Dissertation Defense	0

evaluate their ability to get a Ph.D. in computational science. After two years of graduate study, the student can make a more informed decision whether he/she desires to get a Ph.D. If this is no longer the student's goal, then he/she can easily complete the M.S. degree requirements and leave with this degree. If a Ph.D. is desired then the student has two options for being admitted into the Ph.D. program.

Students in the M.S. program who have maintained at least a 3.2 GPA, have a major professor and have passed the preliminary examination by the end of their second year of graduate study will automatically be switched into the Ph.D. program at their request. All students are encouraged, but not required, to complete an M.S. degree with a project, during the course of their Ph.D. program.

4 Computational Science Courses

The DSC uses the prefix ISC for all computational science courses; see the departmental website for the current list of approved courses. Listed in the accompanying table are the required core courses, seminar course numbers, internship course numbers, numbers for thesis and dissertation credit as well as the courses necessary for defending an M.S. thesis or Ph.D. dissertation. Course numbers for elective coursework can be found from the departmental website or the registrar's website. The seminar ISC5934 may be repeated twice; the number of repeats for the seminar ISC5939 is unrestricted.

5 Degree Requirements

Graduate degree students in *computational science* at Florida State University must meet requirements specified by

- the Graduate College,

- the Department of Scientific Computing,

- the student's Supervisory Committee.

The Graduate College degree requirements are published in the [Graduate Bulletin](). The requirements specified by the Department of Scientific Computing are described in this document. Any requirements specified by the student's Supervisory Committee must be communicated to the student by completion of the prospectus for a Ph.D. student and for an M.S. student, before the beginning of the student's third academic year semester.

Typically students must complete the requirements that are in effect at the time of admission into the degree program. However, if requirements change during a student's graduate career, he/she may choose to follow the later rules. However, a student must completely follow one set of rules; i.e., the student may not "pick and choose" rules from different Graduate Handbooks.

5.1 Requirements for M.S. Degree in Computational Science

5.1.1 Types of Program

The M.S. degree program is structured as a two-year program for full-time students. The student must choose between the thesis or non-thesis option for the M.S. degree. The thesis option requires the completion of a Master's thesis which includes independent investigation which is potentially publishable. If the student chooses the thesis option then he/she must meet all University requirements for formating and submitting the document. The non-thesis option requires the student to complete a project which does not have to constitute original work. Both options require a minimum of 30 credit hours; for the thesis option, the 30 credits include 6 credit hours of thesis.

5.1.2 Major Professor and Supervisory Committee

The student's Supervisory Committee should play an integral role in guiding him/her through their graduate education. By the end of a student's second academic year semester, the student should choose a major professor, i.e., an advisor. The major professor must be an DSC faculty member who has graduate faculty status. In the case of co-advisors, then at least one of the

advisors must be an DSC faculty member with graduate faculty status. If the other co-advisor is not an DSC faculty member, then he/she must hold an appointment to Courtesy faculty rank in Computational Science with graduate faculty status. Upon request of the major professor, a Supervisory Committee will be established which will oversee the Program of Study, monitor the student's adherence to graduate policies, evaluate progress towards the degree, and assess the thesis or final project. The Supervisory Committee must consist of a minimum of three members of the graduate faculty including the major professor; the Committee must consist of a majority of tenured/tenure-track DSC faculty. The student must complete a departmental form specifying the composition of the Supervisory Committee; it should be completed no later than the semester before the student schedules the defense of his/her project or thesis.

Any changes in the Supervisory Committee must be approved by the major professor and the departmental Associate Chair for Graduate Studies.

5.1.3   Program of Study

The Program of Study (POS) is formulated to include all coursework which is necessary to meet FSU and DSC requirements. As early as possible, and no later than the third semester of graduate study at FSU, the student should prepare a POS;[4] The POS must be approved by the the student's major professor and the Associate Chair for Graduate Studies for DSC; a copy of the POS should be kept on file in the DSC. Modifications to the POS must be approved by the major professor and the Graduate Coordinator and approved no later than the beginning of the semester of graduation.

The POS must include a minimum of 30 credit hours and meet the following minimum coursework requirements imposed by DSC:

Group A. Core required courses: ISC5305, ISC5315 (7 credit hours on a letter-grade basis)

Group B. Core elective courses: 9 credit hours of letter-grade coursework with prefix ISC excluding ISC5305 and ISC5315 and with no more than 3 of the 9 credit hours consisting of graded Directed Individual Study (ISC5906)

Group C. Application courses: 6 credit hours of graduate level courses offered by programs other than computational science; no more than 3 credits may be taken on a non letter-grade basis

Seminar Requirement.   2 credit hours of ISC5934

Thesis.   6 credit hours of thesis (ISC5975) if you are choosing the thesis option

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[4]This form and all other DSC forms can be downloaded from the departmental website here.

Note that if a student has selected the thesis option then these requirements constitute the 30 credit hours necessary for the degree; if the project option is selected, then an additional 6 credit hours of coursework must be taken.

FSU requires that if the student has selected the thesis option then at least 18 of the 30 credit hours must be taken on a letter-grade basis. If the non-thesis option is chosen, at least 21 of the 30 credit hours must be taken on a letter-grade basis. Both of these requirements are automatically satisfied by departmental requirements.

If the student's Supervisory Committee approves a course substitution for any of these requirements, then this substitution must be approved by the departmental Graduate Committee.

The University allows a maximum of 6 hours of semester credit as transfer credit from another accredited graduate school as long as the hours are not counted toward a previous degree. Transfer of credit not counted towards a previous degree within FSU is limited to 12 credit hours.

5.1.4   Foreign Language Requirement

There is no foreign language requirement for the M.S. in computational science.

5.1.5   Minimum GPA Requirement

The student must maintain an average GPA of at least 3.0 in all coursework contained in the Program of Study. A student whose cumulative GPA falls below this threshold at the end of a term will be placed on academic probation. If the student does not raise his or her GPA by the end of the following term, they will be dismissed from the graduate program.

5.1.6   Thesis/Project/Graduation

The student is required to submit all forms and meet all deadlines required by the Graduate School; these forms and a checklist can be found at The Graduate School's Blackboard sites under the "Theses, Treatises, Dissertations" submenu. The student must register for the zero credit thesis defense (ISC 8977) during the semester he/she defends the thesis.

The thesis is the evidence that the student has successfully completed an independent inquiry which is potentially publishable. The student must defend the thesis to the Supervisory Committee. A prospectus is not required for a thesis.

The manuscript for the thesis must be prepared using the formatting guidelines prepared by the FSU Graduate School which can also be found on Blackboard. The student is strongly urged to completed a workshop for preparation of the thesis offered by the Graduate School. The manuscript must be submitted to the Supervisory Committee at least 10 days before the date set for the exam.

The project is the evidence that the student can communicate a topic in computational science in both a written and oral manner. The student must defend the project to the Supervisory Committee. A prospectus is not required for the project. The written description of the project must be submitted to the Supervisory Committee at least 10 days before the date set for the exam.

The University requires students to be registered for two credit hours during the semester he/she graduates. If a student does not meet the deadlines for the semester in which he/she has registered for graduation then the student may defer graduation to the next semester. However, if a student does not meet the graduation deadlines but defends and submits all paperwork *before* the start of the next semester, then he/she can request an exception to the requirement of registering for two credits.

The language of the thesis/project manuscript and defense should be English. Under special circumstances the Major Professor, the Chair, and the Supervisory Committee may approve writing the body of the thesis in a language other than English if doing so is essential for scholarly reasons. The Major Professor shall immediately notify the Dean of the College and the Dean of the Graduate School for all cases where such approval has been granted. Notification requires completion of the "ETD Alternative Language for the Dissertation/Treatise/Thesis Form"

5.1.7 Time Limitations

Typically, the requirements for a terminal Master's degree are completed within two calendar years. The Graduate College imposes the condition that all requirements for the Master's degree be completed within seven calendar years, from the time the student first registers for graduate credit.

5.2 Requirements for Ph.D. Degree in Computational Science

For the Ph.D. degree the student can choose to follow the major track which emphasizes the mathematical and computer science aspects of computational science or follow one of the application tracks in science or engineering listed in Section 2.

5.2.1 Major Professor and Doctoral Supervisory Committee

The student's Major Professor and Supervisory Committee should play an integral role in guiding him/her through their graduate education. The major professor should be chosen based upon mutual research interests. It is to the student's advantage to choose an advisor as early as possible. However, no later than the second semester in the program, the student should choose a major professor, i.e., an advisor. The major professor must have doctoral directive status and have competency in the area of the student's research for the dissertation.

Upon request of the major professor, a Supervisory Committee will be established which will oversee the student's Program of Study, monitor adherence to graduate policies, evaluate progress towards the degree through written annual evaluations,[5] and assess whether the student's research constitutes a significant contribution to the area of computational science; this committee should be established as soon as possible and prior to the Prospectus.

The Supervisory Committee must consist of a minimum of five members of the graduate faculty including the major professor; the Committee must consist of a majority of tenured/tenure-track DSC faculty. The major professor must be a member of the DSC faculty and have Doctoral Directive Status; in the case where there are co-advisors, at least one of the two major advisors must be a member of the DSC faculty. If a co-advisor is not an DSC faculty member, then he/she must hold an appointment to Courtesy faculty rank in Computational Science with doctoral co-directive status. One faculty member (University Representative) must be drawn from outside of DSC; if a student is following a track leading to a specialization in a particular area, then the faculty member outside of DSC must be drawn from that area. The University Representative cannot be a co-advisor. The composition of the Supervisory Committee must be established via the appropriate form; this form must be on file at the time the prospectus defense is scheduled.

Any changes in the Supervisory Committee must be approved by the major professor and the departmental Associate Chair for Graduate Studies.

5.2.2 Program of Study

The Program of Study is formulated to meet FSU and DSC requirements as well as coursework necessary to gain knowledge in the student's chosen research area. As early as possible, and no later than the end of the third semester of graduate study at FSU, the student should prepare a POS; see the departmental website for the appropriate form. This should be done in conjunction with the major professor. The POS must be approved by the major professor and the departmental Associate Chair for Graduate Studies; a copy of the POS must be kept on file in the DSC. Modifications to the POS must be approved by the student's major professor and the departmental Associate Chair for Graduate Studies and submitted no later than one semester before graduation.

The POS must include a minimum of 36 credit hours and meet the following minimum coursework requirements imposed by DSC or the Graduate College:

Group A. Core required courses: ISC5305, ISC5315, ISC5316 (11 credit hours)

Group B. Core elective courses: 12 credit hours of letter-based coursework with prefix

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[5] these are made available to the student, and the graduate committee

ISC excluding ISC5305, ISC5315, ISC5316 and with no more than 3 of the 12 credit hours consisting of letter-grade based Directed Individual Study (ISC5906)

Group C. Applications courses: 9 credit hours of graduate level courses offered by programs other than computational science; at least 6 credits must be taken on a letter-grade basis

Seminar requirement. 6 seminar credit hours (Includes 2 credit hours of ISC5934; ISC5939 or seminars from other departments may be taken for the remainder)

Dissertation requirement. 24 credit hours of dissertation.[6]

The total number of required credit hours is 62.

In addition, if the student is following a track (or area of specialization) then he/she must complete a total of 9 credit hours in that area; these courses must be approved by the Supervisory Committee and may also serve to satisfy requirement the Group C requirements listed above. If the Supervisory Committee approves a course substitution for any of these requirements, then this substitution must be approved by the DSC Graduate Committee.

When planning the graduate program, the student should be aware of the university's (i) Continuous Enrollment, and (ii) Scholarly Engagement policies.

Continuous Enrollment is defined as "enrollment without an interruption of two or more consecutive semesters (including Summer term). Credits earned at other institutions during any semester while not registered at Florida State University will not constitute continuous enrollment at the University. Students who are not enrolled at the University for two or more consecutive semesters (or consecutive semester and Summer term) must apply for readmission before resuming their studies." See the **Leave of Absence** section (7.1) for possible exceptions. This requirement supersedes the University's prior Residency Requirement.

The purpose of the **Scholarly Engagement** requirement is to ensure that doctoral students are active participants in the scholarly community. To meet the Scholarly Engagement requirement, doctoral students should interact with faculty and peers in ways that may include enrolling in courses, attending seminars, symposia, and conferences, engaging in collaborative study and research beyond the university campus; and utilizing the library, laboratories, and other facilities provided by the university. The goal is to prepare students to be scholars who can independently acquire, evaluate, and extend knowledge, as well as develop themselves as effective communicators and disseminators of knowledge. All graduate students in DSC will be evaluated annually (see section 8.1). One of the goals of the annual progress review is to ensure that students have the opportunity for scholarly engagement.

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[6]Ph.D. candidates are required to register for a minimum of 2 dissertation hours each semester they are in the program.

5.2.3   Foreign Language Requirement

There is no foreign language requirement for a Ph.D. in computational science.

5.2.4   Preliminary Examination Requirement

Satisfactory completion of a preliminary examination is required for admission to candidacy for a Ph.D. degree. The preliminary examination is typically taken after two semesters of graduate study and covers material from the required core courses (Group A) plus another area (from Group B or Group C) chosen by the student in conjunction with an Examination Committee consisting of the major professor and at least two other graduate faculty who may or may not be members of the Supervisory Committee. Students must register for the zero credit course ISC 8965 during the semester he/she first takes the written exam. Exams are typically scheduled at the beginning of the Summer and Fall semesters. They may be given at other times if the student and the Examination Committee agree. The Examination Committee is responsible for the form and content of the examination. The exam consists of an initial written portion in which the student is expected to attempt 10 out of 11 questions covering material related to the required core courses. The student should score 75% or above on at least 7 questions to unconditionally pass the written portion of the preliminary exam. After successful completion of this portion, the student takes an oral exam (ISC 8954) covering material from their second area plus a follow-up to the written exam.

Possible outcomes of the Preliminary Examination are: (i) passed, (ii) conditional pass with additional work to be completed, (iii) failed but can retake one time, (iv) failed (second attempt) without possibility of retaking the examination. Students will have the option to retake this examination one time, if it is not successfully completed on the first attempt. Students may not retake the written exam during the same semester that it was failed. Students who do not pass the exam in two attemps will have to seek a terminal Master's degree.

If a student changes his/her Major Professor after satisfactorily completing the preliminary examination, then his/her new Major Professor has the option to require the student to retake the oral portion of the preliminary examination. Students should refer to Section 8 to see the timeline to follow in passing exams to ensure a satisfactory progress towards the degree.

5.2.5   Admission to Candidacy

Once the student has successfully passed the preliminary examination, an admission to candidacy form must be completed and filed in the Office of the University Registrar. After this form is filed, the student will be allowed to register for dissertation hours.

5.2.6 Minimum GPA Requirement

The student must maintain an average GPA of at least 3.2 in all coursework contained in the Program of Study. A student whose cumulative GPA falls below this threshold at the end of a term will be placed on academic probation. If the student does not raise his or her GPA by the end of the following term they will be dismissed from the graduate program.

5.2.7 Prospectus

After successful completion of the preliminary examination, the student is required to submit and defend a prospectus to his/her Supervisory Committee. This prospectus provides the Supervisory Committee with:

 (i) a survey/summary of the relevant literature

 (ii) an outline of the proposed doctoral research project

(iii) a summary of preliminary results

(iv) an expected time-line for completion of the key tasks proposed.

Aside from the literature survey, the prospectus is expected to be a forward-looking document, presented during the early stages of doctoral study, that describes the student's research plan. It is not meant to be a backward-looking document which presents a summary of research completed. The Supervisory Committee will ascertain if successful completion of this project is suitable for awarding a Ph.D in Computational Science. After successfully defending the Prospectus, the student must submit to DSC the appropriate signed form.

Typically, students will complete the Prospectus before their second year of graduate study, and always after the successful completion of the Preliminary Examination. DSC requires that the Prospectus be completed no later than one academic year after successfully passing the preliminary examination, or defending a Masters with thesis option. For example, if the preliminary examination is passed in the Spring Semester then the Prospectus must be completed by the end of the following Spring Semester.

The DSC encourages Ph.D. students, who have not completed a Master's with thesis option, to use their prospectus in lieu of the Master's project and earn an M.S. degree, provided they have satisfied all the other requirements for a non-thesis Master's degree outlined in section 5.1.

5.2.8 Dissertation/Graduation

The dissertation demonstrates that the student has successfully produced an original and publishable body of work. The student must defend the dissertation in an oral examination admin-

istered by his/her Supervisory Committee. All members of the University community are invited to attend. The dissertation should be the completion of the research outlined in the prospectus.

The manuscript must be prepared using the formatting guidelines prepared by the Office of Graduate Students. The University suggests that academic courtesy requires that the dissertation must be submitted to each member of the Supervisory Committee at least four weeks prior to the date of the examination. This may be relaxed with the explicit acquiescence of all the committee members.

The student must register for ISC 8982, the zero credit dissertation defense, during the semester he/she defends. In addition, the student is responsible for completing all forms with the University for announcing the exam, etc. The student is strongly urged to attend a Graduate School workshop for preparing dissertations and preparing for graduation. The student should remind the outside committee member that after the defense of the dissertation he/she must submit a form reporting whether all university rules were followed.

The University requires that if the student has been admitted to candidacy then he/she must register for dissertation credits each term in which a substantial amount of work is being done on the dissertation. If the student has satisfied all of the coursework requirements and is completing the dissertation away from campus, then he/she must meet the University requirements of registering for a minimum of 2 dissertation credits per semester. See Graduate Bulletin. for details. However, if a student does not meet the graduation deadlines during a semester but defends and submits all paperwork *before* the start of the next semester, then he/she can request an exception to the requirement of registering for two credits.

5.2.9 Time Limitations

Typically, the time required to complete a Ph.D. varies between 4-6 years from the date of first joining the department. The Graduate College imposes the condition that all requirements for the doctoral degree be completed within five calendar years after being accepted as a doctoral candidate by the department. If this time limit passes, then the Supervisory Committee can choose to allow the student to pass a new preliminary examination.

6 Financial Issues

6.1 Fellowships

The University offers several fellowships for students, including fellowships specifically for students in under-represented groups. The interested individual should check the FSU OGFA (Office of Graduate Fellowships and Awards) for details. Furthermore, all first graduate students are required to attend a seminar about prestigious external fellowships presented by representatives

from the the Office of Graduate Fellowships and Awards as part of ISC 5934. Second year graduate students are strongly encouraged to attend and submit fellowship applications.

6.2 Assistantships

The DSC offers assistantships in the form of Teaching and Research Assistantships to full-time students. The Teaching Assistantships (TAs) may involve assisting a faculty member with his/her course or it may involve hands-on training opportunities in systems and network administration. Research assistantships (RAs) are typically funded by an individual faculty member's grant. The assistantships carry a stipend and a tuition waiver. Typically, assistantship duties will require 20 hours per week.

Assistantships are offered on an academic year (9 month) basis. Continuation of support is contingent upon the student making satisfactory progress towards the degree and performing the assistantship duties in a satisfactory and timely manner. The Chair of the DSC makes the final decision on assistantship offers with the aid of recommendations from the Graduate Committee. This Committee uses the annual evaluations (see Section 8) to make recommendations.

The department will support a Master's student on a TA for *a maximum of two academic years*, and a Ph.D. student for *a maximum of five academic years* from the time they enter the department. TA support beyond this period is not guaranteed; in special cases it may be provided at the discretion of the Chair.

6.3 Summer Support

The DSC will attempt to provide summer support as needed as long as funds permit. Students often receive summer support in the form of an RA from individual faculty members on a research grant or in the form of a partial TA from DSC. Since TA funds for the summer are usually limited, students are strongly urged to look for summer internship opportunities. To receive summer support, a student should be on campus during the time of his/her appointment unless approved by the student's major professor; if the student has not chosen a major professor, then the departmental Associate Chair for Graduate Studies should be contacted for approval.

6.4 Tuition Waivers

To be eligible for a tuition waiver, the student must be enrolled as a full-time student, be appointed as an RA or TA and meet all College eligibility requirements. For any questions concerning eligibility, the student should see the departmental Associate Chair for Graduate Studies.

6.4.1 Florida Residency

Out-of-state domestic students will be eligible for an out-of-state tuition waiver for the first year. During the first year, the student is required to establish Florida as his/her legal residence; consequently, a domestic student will receive a tuition waiver at the in-state rate after the first year. It is imperative that an out-of-state student begin this process as soon as he/she arrives in Florida.

Domestic students not granted state resident status at the time of their admission must petition for a change of status through the Registrar's Office at the end of their first year (usually in June). Procedures for reclassification of residency include:

- Evidence of legal ties to the State of Florida;

  - Declaration of Domicile (required) obtainable in person from the Clerk of the Circuit Cour in the County Court House of the Florida County in which the student claims permanent domicile. (Small fee required.)
  - Copies of drivers license, voters and vehicle registration. Legal ties with a previous state of residence must be switched to Florida within 30 days of filing your Declaration of Domicile.

- Official confirmation of a Graduate Assistantship by the department. This form can be completed by the department.

- Proof of financial independence. In most cases the formal *Statement of Independence* will be sufficient.

- Proof of twelve months continuous physical presence in Florida. Documentation may include: Florida lease agreements, utility bills, band records, etc.

- Submit an official application for reclassification of residency, with required documentation, *prior to the first day of classes*.

6.5 Health Insurance

Effective Fall 2007, health insurance is mandatory for all new graduate students. The student should check the Graduate School website for details concerning this requirement.

7 Registration

The standard course load per semester during the academic year is 9-12 credits for full-time students. Courses must be chosen in consultation with the major professor and/or the Associate

Chair for Graduate Studies. The student must notify the staff Graduate Administrator of the total number of hours he/she registers for so that the appropriate tuition waiver can be entered. Students must be full time to receive a tuition waiver. Students are responsible for meeting the deadlines imposed by the FSU Registrar's Office for timely registration to avoid late registration fees.

7.1 Leave of Absence

Under exceptional circumstances a graduate student may need to interrupt the pursuit of a graduate degree. The circumstances justifying a leave include, but are not limited to: personal or family medical conditions, call to active military duty, parental leave, death in immediate family, or completion of an off-campus internship. The student must complete the "Request for Leave of Absence Form", provide appropriate documentation and a rationale for the leave request. Requests for a leave should be scrutinized carefully and not be used as a means to simply avoid enrollment, especially at the dissertation stage; payment of tuition and fees; and the re-admission process. A leave of absence is a complete separation from the university. An approved leave acknowledges that there is a reasonable justification, e.g., a serious health issue that requires the student to interrupt his or her studies. At the end of the leave the student need not re-apply and the time to degree clock resumes. Students on leave will not have access to university resources and faculty should not engage in academic interactions with such students.

8 Evaluations

Evaluations are an integral part of the assessment of the student's progress towards the degree as well as the satisfactory completion of his/her graduate assistantship duties. In the following sections we describe the annual review process and outline the criteria that the Graduate Committee will use to assess the student's progress.

8.1 Annual Progress Evaluations

Every spring semester the student is required to complete a *Graduate Student Activities Report*. This report has two parts: the first tracks the student's progress through the program (course work, prelim, prospectus etc.), while the second tracks student's progress on his/her research. If the student has not chosen a major professor at the time he/she is completing this report, then the departmental Associate Chair for Graduate Studies will serve the role of the advisor or appoint another faculty member to serve as the student's temporary advisor.

Annually, doctoral candidates are required to make an oral presentation before their supervisory committee. The chair of the doctoral committee shall provide substantive written

feedback to the student (and the Graduate Committee), summarizing the views of the committee on the progress made. When applicable, the supervisor for the student's TA will be asked to assess the student's performance of his/her assistantship duties.

The Graduate Committee uses this information to assess progress and make recommendations to the Chair for financial support for the next academic year. The student and his/her advisor will be notified in writing of the Committee's assessment. Typically students are rated as making satisfactory or unsatisfactory progress towards the degree. In addition, the Committee may include requirements for the student to meet in the upcoming year to continue to make satisfactory progress. For example, the student may be told that he/she needs to pass a preliminary examination within the next academic year to continue to make satisfactory progress.

8.2 Satisfactory Progress Towards the Degree

The Graduate Committee will use the following criteria as general guidelines for a student making satisfactory progress toward the degree. In addition to these criteria, if appropriate, the Committee will use the assessment of the student's research accomplishments by his/her major professor included in the student's activities report.

8.2.1 Students in Master's Programs

Students entering the graduate program with an undergraduate degree should complete all requirements for the M.S. degree within two years. Under extraordinary circumstances, a student and his/her advisor may request an additional semester of support.

First year students should:

- choose a major professor;

- complete a POS and have the form on file;

- work towards satisfying the course requirements outlined in this document;

- maintain a minimum average GPA of 3.0 on all coursework;

- be actively attending the introductory seminar, ISC 5934;

- attend at least one teaching or TA training workshop;

- be fulfilling assistantship duties in a satisfactory manner.

Second year students should:

- complete the course requirements outlined in this document;

- continue to maintain a minimum average GPA of 3.0 on all coursework;

- complete 6 credits of thesis if choosing the thesis option;

- successfully complete project or thesis;

- present their thesis/project work at the Computational Expo;

- attend at least one teaching or TA training workshop;

- be fulfilling assistantship duties in a satisfactory manner.

As described in Section 3.2, students in the M.S. program who desire to switch to the Ph.D. program should pass the preliminary examination by the end of their second year in the M.S. program.

8.2.2   Ph.D. Students

Students entering the Ph.D. program with an B.S. degree should typically complete the Ph.D in five years. Students who transfer from the M.S. program in computational science should typically complete the Ph.D. in three years. Under special circumstances, a student and his/her advisor may request an additional semester of support.

General criteria:

- Students who have been admitted directly into the Ph.D. program (without passing the preliminary examination) must pass the exam by the end of their second year; generally students should first attempt the exam after the Spring semester of their first year.

- attend at least one teaching or TA training workshop, annually.

- Students should be making progress towards satisfying the course requirements outlined in this document and maintaining an average GPA of 3.2.

- As early as possible, and no later than the beginning of the third semester, Ph.D. students should choose a major advisor and complete a POS.

- The prospectus must be completed within a year of (i) passing the preliminary examination, or (ii) defending his/her Master's thesis.

- Starting from their second year in the program, students should present their thesis/project work at the Computational Expo, annually.

- After a student has passed the preliminary examination and completed the prospectus, then his/her evaluation will be primarily based upon the major professor's assessment of the student's research progress and the successful completion of assistantship duties.

- The student should be fulfilling his/her assistantship duties in a satisfactory manner.

8.3   Appeals

The student may appeal a grade that he/she feels has been inequitably awarded. See the Graduate Bulletin for the Grade Appeals System.

The student has the right to appeal any decision made by his/her Preliminary Examination Committee or Supervisory Committee to the DSC Graduate Committee. This appeal should be done in a timely fashion, preferably within two weeks of the action/decision. The student should prepare a written appeal document which must contain (i) a description of the action or decision, including dates and individuals involved, and (ii) a statement of the resolution sought with justification. The appeal document should be given to the Associate Chair for Graduate Studies who will arrange for a meeting of the Graduate Committee; the Committee must meet concerning this appeal within one week if the appeal is made within the academic year. Confidentiality should be exercised during the entire appeals process. A student will not suffer a punitive action or decision for having pursued an appeal.

9   Teaching Assistant Training and English Competency

The DSC will ensure students working as teaching assistants (TA) are fully qualified to perform their duties. Candidates for TA positions, must enroll in the Program for Instructional Excellence (PIE) and undergo training during the last week before classes begin. This includes competency in English (see below). A satisfactory level of preparedness will be assessed through the TA Student Level Evaluation report offered by Graduate School's Graduate Student Training.

The DSC is responsible for ensuring that international students achieve competency in spoken English sufficient to communicate as a scientist and to participate in quality instruction when serving as a Teaching Assistant. International students must demonstrate competency in spoken English. Exceptions to this are international students from English speaking countries or foreign students with an undergraduate degree from a U.S. institution.

International students should register for the course "Spoken English for International TAs" until they pass the SPEAK test administered by the University. Students with exceptional conversational English experience may be recommended for immediate testing or be exempted from this requirement by the departmental Associate Chair for Graduate Studies.

10   Graduation

In the semester prior to graduation, the student must check with the departmental Associate Chair for Graduate Studies to verify that his/her transcript indicates that all course requirements,

seminar requirements, thesis/dissertation hour requirements, residency requirements, etc. have been satisfied. This way any deficiencies can be remedied in the final semester.

The FSU Office of Graduate Studies has rigid deadlines that must be met for applying for graduation and for electronic submission of a thesis or dissertation. The student should be cognizant of the deadlines and due dates imposed by that office; a checklist can be found at The Graduate School's Blackboard sites under the "Theses, Treatises, Dissertations" submenu. It is highly recommended that each student attend a workshop sponsored by the Graduate School the semester before they plan to graduate.

11 Frequently Asked Questions

1. *How do I register for thesis/dissertation hours?*

   - Email your faculty advisor to receive permission
   - Then, email the academic advisor, who will register you for the credits

2. *How do I register for a directed independent study (DIS) course?*

   - Retrieve the DIS form from the DSC forms website
   - Fill it out with the faculty member, you will be working with
   - Turn it in to the academic advisor who will register you for the course

3. *What are the deadline dates for manuscript submissions?*

   The dates vary each semester; they can be found in the academic calendar hosted on the registrars office website. Look for "Last day for submission of final defended thesis, dissertation, or treatise and required forms."

4. *Will I have TA funding the entire time I am a student at FSU?*

   TA assistantships are provided on a year to year basis. Renewals are determined by progress towards the target degree. See sec. 6.2 for details.

   The department will support a Master's student on a TA for *a maximum of two academic years*, and a Ph.D. student for *a maximum of five academic years* from the time they enter the department. TA support beyond this period is not guaranteed; in special cases it may be provided at the discretion of the Chair.

5. *I plan on defending my [prospectus/thesis] next semester. What courses should I register? What forms do I need to fill out?*

   For the Masters thesis defense you will need to be registered for:

- ISC 8977 (Masters Thesis Defense), and
- at least two credits of ISC 5975 (Thesis)

If you are using your dissertation prospectus in place of a Masters Thesis you will need to register for ISC 8963 (Masters Comprehensive Examination).

For the Doctoral dissertation defense you will need to be registered for

- ISC 8982 (Dissertation Defense), and
- at least two credits of dissertation hours (ISC 6981).

You will need to contact the academic advisor who will register you for the courses.

The manuscript forms for the thesis and dissertation can be found on the GradSpace Blackboard.

6. *I plan on defending my PhD dissertation next semester. What should I do to make sure I have everything covered?*

   You will need to fill out a PhD program of study, and have a member of the Graduate Committee look over it to make sure that you will have completed all of the necessary courses prior to graduation.

   The [Graduate School](#) offers workshops for preparation of thesis/dissertation. Students are urged to complete these workshops in the semester before graduation.

7. *Where can I find templates for theses and dissertations?*

   Thesis and dissertation formatting templates can be found on the GradSpace Blackboard site in the manuscript clearance folder.

8. *How many seminar credits do I need?*

   Students pursuing a M.S. degree in Computational Science will need four credits of seminar courses (two ISC 5934 and two ISC 5939 or outside seminars). Doctoral students will need a total of six seminar credits.

9. *Should I register for a graded or S/U DIS?*

   Typically you should register for a graded DIS if you are trying to complete your core requirements. Note that 21 of the 36 credit hours for a M.S. degree must be from graded courses.

10. *I did not sign up for Florida residency in time. What are the consequences?*

    If you do not begin the Florida residency process prior to the start of your first semester you risk having to pay for the out of state portion of your tuition during your second year of courses.