

Ph.D. in Information Systems

Degree Requirements

To graduate, students must have an approved dissertation and are expected to attain an overall GPA of at least 3.5. Students need always to get approval of the Ph.D. Graduate Committee for the courses they take for their degree requirements.

Ph.D. Information Systems (students with a master's in information science or related computational degree).⁴

Code	Title	Credits
Electives		
700-level courses ¹		12
600-level courses		12
Dissertation		
IS790 Doct Dissertation & Res ²		
Seminar		
IS 791	Doctoral Seminar ³	0
Total Credits		24

Ph.D. Information Systems (students with a bachelors in information science or related computational degree).⁴

Code	Title	Credits
Electives		
600 and 700-level courses ¹		36
Dissertation		
IS790 Doct Dissertation & Res ²		
Seminar		
IS 791	Doctoral Seminar ³	0
Total Credits		36

¹ Ph.D. students with a recognized master's degree are required to take four 600-level classes and four 700-level classes. Ph.D. students with a Baccalaureate degree are required to take eight 600-level or 700-level 3-credit courses (24 credits) of coursework beyond the Baccalaureate degree as well as four additional 700-level 3-credit courses (12 credits), for a total of twelve 3-credit courses (36 credits). Master's project (course 700), Master's thesis (course 701), or more than two independent study courses (courses 725 and 726) cannot be used to satisfy these coursework requirements. No more than 6 credits may be IS725 or IS726 Independent Study. 700-level courses may be substituted by 600-level courses if the academic advisor appeals on behalf of the student to the Office of Graduate Studies and receives approval. Whether or not a program requires additional courses above the aforementioned minimum requirements, a Ph.D. student's dissertation committee may ask the student to take additional courses.

² Ph.D. students who pass the Qualifying Examination (QE) must then register for 3 credits of pre-doctoral research (IS 792 Pre-Doctoral Research) per semester until they defend successfully the dissertation proposal. Ph.D. students who defend the dissertation proposal successfully must then register for the 1-credit dissertation course (IS790 Doct Dissertation & Res) each semester until they complete all degree requirements. Students may take courses simultaneously with the 790 or 792 courses as per Ph.D. program guidelines or dissertation committee recommendation.

³ Ph.D. students must register six semesters for this seminar. Students must attend at least 5 seminars per semester. Part-time students may request that this requirement be waived for some semesters. Exit requirements for IS791 Graduate Seminar include presentations in research group meetings and satisfactory reviewing performance on research proposition panels

⁴ Students without a background in information science or computer science may need to take some added foundational courses in programming or computational methods.

Deadlines

Students who do not meet the following deadlines may be dismissed from the Ph.D. program.

- The required coursework for the Ph.D. program should be completed successfully by the end of the second year in the program.
- The qualifying exam should be completed no later than the first semester of the third year in the program or four semesters after registering for the first time in the 792 pre-doctoral research course.
- The dissertation proposal should be defended successfully by the end of the third year in the Ph.D. program.
- The dissertation must be defended successfully by the end of the sixth year in the Ph.D. program.

Selection of Dissertation Advisor

Temporary advisors are assigned upon entry into the program based on student preferences and availability of funding. Students must select a dissertation topic and permanent advisor within 18 months of joining the program. Change of advisor should have the consent of the previous advisor in most cases and departmental approval. In cases where more than one advisor is directing the dissertation, the primary advisor must be on the core departmental faculty.

Qualifying Exam: Research Study

The research study serves as the Ph.D. qualifying exam and demonstrates research readiness. Each student works with their Ph.D. advisor to identify the topic of a research study. The student takes the lead in designing and conducting the study and analyzing the results.

Timing of the Qualifying Exam: The study proposal should be submitted during the first semester of the third academic year. At the start of the second semester, the student will present the study and results in a department seminar, and prepare a quality publication as lead author. Recommended revisions to the study and publication should be completed by the end of the first semester of the third year. Because the study topic may be part of the faculty member's existing research efforts, the student must petition the department Ph.D. committee to be allowed to utilize the work as a dissertation topic as well. The student will register for IS 776 under the faculty advisor to conduct this Research Study (IS 725 and IS 726 cannot be used for this Research Study).

Qualifying Exam Committee (QEC): The faculty advisor will propose a Qualifying Exam Committee (QEC) of 3 faculty members with sufficient familiarity with the topic or the study methodology. The QEC must be approved by the Department Ph.D. Committee. The faculty advisor will not be a member of the QEC. Each QEC member will vote (pass-fail) on the Research Study as a whole (considering the design, execution, analysis, and written report to be submitted for publication). The student must receive a unanimous pass vote from the QEC to pass the Qualifying Exam.

Formation of the Dissertation Committee

A dissertation committee must be formed within three months after passing the qualifying examination. The dissertation committee must be approved by the Department Ph.D. Committee at the time of its formation and before the presentation of the research proposal. The committee consists of a minimum of five members, at least one of whom is external to the Informatics Department or NJIT, and at least three of whom are members of the Informatics department.

The dissertation committee meeting chairperson typically is the doctoral candidate's program advisor, but other faculty may be selected. The dissertation advisor must be a tenure-track or tenured faculty member at NJIT. If the dissertation advisor is an Informatics department faculty member, then the chair of the student's dissertation committee may be any tenure-track or tenured faculty member in the Informatics Department at NJIT. If the dissertation advisor is not a member of the Informatics department at NJIT, then the chair of the student's dissertation committee must be a tenured faculty member in the Informatics department at NJIT. If the dissertation advisor is not an Informatics department faculty member including jointly appointed faculty, there must be a co-advisor who is a faculty member in the Informatics department at NJIT.

Dissertation Research Proposal

Doctoral candidates must prepare a written research proposal for approval by their dissertation committee. The dissertation proposal is both a plan for research and a binding contract between the dissertation committee and the student. The proposal must be presented after the formation of the committee but within twelve months after passing the qualifying exam.

Research is expected to investigate or develop a unique contribution to science and technology. Research may be experimental, analytical, applied, or theoretical, provided it satisfies these criteria and is approved by the dissertation committee.

The research proposal would normally include title and goal of the proposed dissertation; a detailed discussion of background material, including a substantial literature search and review; a summary of work accomplished to date; a plan and outline of the theory, methods, and work to be done; and a proposed time table for completion of the research.

Dissertation and Defense

A dissertation should demonstrate original research that contributes to knowledge in the field. The dissertation should result in scholarly publication and must be defended in a publicly-announced oral defense.

A fully-formatted version of the completed dissertation should be available to the committee at least three (3) weeks before the oral defense is scheduled; otherwise, the meeting of the committee will be rescheduled.

A successful defense of the dissertation is determined by a vote of the dissertation committee. All members of the committee must be present to hear the defense. Every member of the dissertation committee must sign the approval page of the final dissertation document.

In regard to format, the standard reference is the latest edition of the Estrin/Roche manual Guidelines for Scientific and Professional Theses. The Office of Graduate Studies policies on the number of copies, deadlines, and submission of dissertation and abstracts are also to be followed.

Publishing Dissertation Research. Before defending the final dissertation, a student must submit a quality paper approved by his or her advisor based upon a substantial aspect of the thesis work to a recognized conference or journal in the field. Students cannot be certified by the Informatics department for the doctoral degree until the student publishes at least one paper in a peer-reviewed journal deemed of acceptable quality by the dissertation advisor.

Independent Teaching Practicum

During the practicum, a degree candidate will teach at least one course under the course coordinator's direct supervision. It is preferred that this be a class in which the student served as a teaching assistant. Students apprentice with a faculty member for a semester in preparation for a teaching practicum. During the apprenticeship, students typically will serve as a teaching assistant or grader.

Participation in Research Activities

Informatics Ph.D. seminar meetings present an important opportunity for faculty and Ph.D. students to immerse themselves in Informatics research paradigms, learn about research interests, present ideas, and find collaborators.

Publishing: Students should have one paper accepted for publication in a quality conference or journal as the lead author by the end of their third year. Students are strongly encouraged to start on this requirement during this stage and over time submit multiple papers to ensure that it is met. Students also are encouraged to co-author papers with faculty and other doctoral students.

Ongoing Activities in Ph.D. Development: As Ph.D. students are training to be future independent researchers, Ph.D. students are encouraged to work with faculty and fellow students to:

- Publish regularly in quality conferences and journals, including co-authoring,
- Attend conferences relevant to the student's research area,
- Regularly review conference and journal submissions, and
- Participate in authoring grant submissions and working on grant-funded projects.