

INFORMATION TECHNOLOGY D.SC.

Degree: Doctor of Science (D.Sc.)

<https://www.towson.edu/fcsm/departments/computerinfosci/grad/infotech/>

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Towson University's Doctor of Science program in information technology prepares students for academic, research, government and state of the art industry positions. About half of our alumni are currently working as tenure-track assistant professors or research scientists across the country and abroad. After graduation, some students continued with their current company and acquired promotion to higher level positions. Others have ventured to start their own company and seek to develop innovative products. The doctoral program provides a new avenue and exciting opportunity for students, who want to become professors, scientists, entrepreneurs or assume leadership roles in their current careers.

The doctoral program is offered by the Department of Computer and Information Sciences in collaboration with School of Emerging Technology (SET). The department has over 40 professors conducting research in a variety of areas and committed to excellence in research and teaching. Faculty research covers three areas of information technology: computer science, information systems, and information technology. Students conduct their research working with their faculty adviser in one of these three areas based on their career interests and goals. The faculty has published extensively and has received grants from NSF, ARL, NIST, NRL, DARPA, other government agencies, and from industry. Admitted doctoral students may have an opportunity to work with funded research projects, in addition to acquiring academic experience as a graduate assistant in the department. Many of our doctoral students are offered teaching assistantships and serve as instructors for undergraduate courses. The doctoral student demographics include both domestic and international students.

The doctoral program requires 18 units of course work, a qualifying examination and a minimum of 24 units of dissertation beyond master's program. Similar to other Ph.D. programs in the country, doctoral students have to demonstrate research capabilities and publish in reputed journals or conferences in order to graduate.

NOTE: Since this program is operated in collaboration with School of Emerging Technology (SET), it has a different structure of tuition and fees for part of the degree program from other graduate programs. Contact the Student and University Billing Office for more information.

Admission Requirements

Rolling admission for applicants based on program needs. Full consideration is given to domestic students with complete applications received by June 15 for fall and November 1 for spring admissions.

Deadline for international applicants is October 1 for spring term and April 15 for fall term admissions.

Applicants must hold a master's degree in one of the fields of Computer Science, Information Systems, Information Technology, or a closely related area. Applicants who have a bachelor's degree and excellent

academic background in the above mentioned fields are eligible to apply for the combined M.S./D.Sc. program. In the combined program, students must finish all of the master's program requirements before starting the doctoral program.

The following materials must be sent to Admissions:

- Official undergraduate and graduate transcripts
- A minimum of two letters of recommendation, preferably from academic institutions
- Statement letter that reflects 1. area of research interest (CS, IS, or IT); 2. motivation for applying to the program; 3. faculty in the program with research interests close to your own interests (via communication with faculty); 4. planned utilization of your degree (academic, industry or research career); and 5. strengths of your academic background and career experience.
- Resume
- TOEFL scores (For International Students Only)
- Optional test scores (GRE - in analytic, quantitative, and verbal, NOT required)

Non-immigrant International Students

Program Enrollment: F-1 and J-1 students are required to be enrolled full-time. The majority of their classes must be in-person and on campus. See the list of programs that satisfy these requirements, and contact the International Student and Scholars Office with questions.

Admission Procedures: See additional information regarding Graduate Admission policies and International Graduate Application online.

See **Exceptions to Policy in Graduate Admissions.

Degree Requirements (75 Units Beyond B.S./B.A. Degree)

Code	Title	Units
	Completion of master's degree in computer science or applied information technology	33
	Graduate level coursework recommended by doctoral program committee	15
AIT 790	RESEARCH METHODOLOGY, IT TECHNICAL WRITING AND PRESENTATION	3
AIT 997	DISSERTATION	24
Total Units		75

- Completion of requirements for a master's degree (33 units) in computer science or applied information technology. (Students admitted to the doctoral program already holding a master's degree in computer science, information systems, or information technology or any other closely related areas are considered meeting this requirement.) Students may choose to meet this requirement by completing either the master's degree in computer science or the master's degree in applied information technology at Towson University.
- AIT 790 is a required course for all D.Sc. in IT students. Permission to register for dissertation credits (AIT 997) will not be granted until AIT 790 is completed with a grade B or better.

- c. Completion of a minimum of 15 additional graduate-level units as recommended by the doctoral program committee, selected from courses offered in the computer science and Applied Information Technology graduate programs. For those applicants whose master's degree is not in CS, IS or IT, the program committee may require additional course work so that the above core background is achieved. Annual GPA in course work must be at least 3.50.
- d. Students must pass the qualifying examination within two attempts; one or more sections of the examination can be taken during a given attempt. Four out of seven offered sections of the exam must be passed in order to qualify, and must be completed within four years of entering the program. Information about the sections of the qualifying exam is available from the Computer and Information Sciences department website. The qualifying exam is offered twice a year, typically in January and June.
- e. Satisfactory completion of the Dissertation requirements (minimum of 24 units of AIT 997—may not be registered more than 6 units per regular term or 3 units in the summer)
- f. Satisfactory completion of Dissertation defense.

AIT 790 is a required course for all D.Sc. in IT students. This course should be taken before completing the qualifying exams. Permission to register for dissertation credits (AIT 997) will not be granted until AIT 790 is completed with a grade B or better.

Students are strongly recommended to have at least three research publications in peer-reviewed international conferences and/or journals before graduation.

Computer Science Track (*Optional*)

Students in the doctorate in IT have the option of pursuing the Computer Science track as part of their required graduate level units. Three specific COSC courses (9 units) must be taken for the track in Computer Science, with additional requirements for the qualifying examination (given below). An IT doctoral student taking these three courses, passing the qualifying exam in the specified areas, and successfully completing the research requirements for the degree in a CS-related area will be eligible to graduate with a Computer Science track. *Students who completed their master's degree in Computer Science at Towson University may have already completed the following three courses and would need to substitute other courses with the D.Sc. in IT Program Director's approval.* (Note: Students in D.Sc. in IT program do not have to choose a track. You may have more flexibility to choose the courses and qualifying exam topics without a track.)

Code	Title	Units
	Completion of master's degree in computer science or applied information technology	33
Track Required Courses		
COSC 519	OPERATING SYSTEMS PRINCIPLES	3
COSC 600	ADVANCED DATA STRUCTURES AND ALGORITHM ANALYSIS	3
COSC 650	COMPUTER NETWORKS	3
	Additional graduate level coursework recommended by doctoral program committee	6
AIT 790	RESEARCH METHODOLOGY, IT TECHNICAL WRITING AND PRESENTATION	3

AIT 997	DISSERTATION	24
Total Units		75

Qualifying Exam Requirements

Students in the Computer Science track must pass the following areas of the qualifying exam:

- Operating Systems
- Advanced Data Structures and Algorithms
- Computer Networks

and **ONE** of the following areas:

- Database Management Systems
- Computer Security
- Software Engineering

Publications

Publications in this track are expected to be related to computer science.

NOTE: For additional details, contact the program director or check the Computer and Information Sciences department website.

- Students will demonstrate a comprehensive knowledge of the fundamentals in four of the following seven areas: data structures and algorithms, operating systems, computer networks, database systems, project management, software engineering and human computer interaction.
- Students will conduct and document scholarly research.
- Students will present scholarly research.