Notice of Change form

Notice of Change for: Master of Science in Computer Science

Date: 10/11/2018

A.   PROGRAM INFORMATION

1. **Name of institution**
   University of Rhode Island

2. **Name of department, division, school or college**

   Department: Department of Computer Science and Statistics
   College: Arts and Sciences

3. **Intended initiation date of program change. Include anticipated date for granting first degrees or certificates, if appropriate.**

   Initiation date: Fall 2019
   First degree date: May 2021

4. **Intended location of the program**
   Computer Science

5. **Summary description of proposed program (not to exceed 2 pages).**
   These changes to the Master of Science in Computer Science are made in order to align the program with national trends to provide more flexibility and collaboration opportunities to the student. This is achieved by providing a broader selection of core courses the student can choose from during their course of study.

6. **If applicable, please include the existing URI catalog language and proposed catalog changes indicated in Track Changes.**
   See attached file.

7. **Signature of the President**

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David M. Dooley

Rebecca Romanow
Digitally signed by Rebecca Romanow
Date: 2018.11.09 12:05:43 -05'00'

Nedra Reynolds
Digitally signed by Nedra Reynolds
Date: 2018.11.09 12:22:53 -05'00'

Computer Science

M.S., Ph.D., P.S.M.

401.874.2701

Faculty: Professor DiPippo, *chair*; Associate Professor Hamel, *director of graduate studies*. Professors Fay-Wolfe, Lamagna and Peckham; Associate Professor Hervé; Assistant Professors Alvarez and Daniels; Adjunct Assistant Professors Dickerman, Encarnação, and Ravenscroft; Professors Emeriti Baudet, Carrano and Kowalski.

SPECIALIZATIONS

Analysis of algorithms, big data, bioinformatics, computer algebra, computer graphics, computers in education, cryptography, cyber security, databases, digital forensics, distributed computing, implementation and semantics of programming languages, logic-based programming, machine learning, parallel computing, real time systems, simulation, sensor networks, vision, and visualization.

CORE AREAS

For the purpose of describing graduate degree requirements, core computer science courses are grouped into the following core areas:

Mathematical Foundations: CSC 541, 542, 544, 550

Programming Languages: CSC 402, 501, 502

Architecture and Systems: CSC 511, 512, 519

MASTER OF SCIENCE

Admission requirements: bachelor's degree in computer science or a closely related field. Applicants with a bachelor's degree in an unrelated field will be considered provided they have completed course work covering the material in CSC 211, 212, 301, 305, 340/447, 440 and MTH 141, 142, plus one MTH course at the 200 level or above or STA course at the 400 level or abovefor which calculus is a prerequisite. Students may be admitted who have completed only a part of the above course work but they will be required to complete the deficiencies before taking more advanced classes.

The GRE General test is required. A subject test in computer science or a related field is not required but may be considered by the admission committee.

Program requirements: The M.S. curriculum in computer science has three two tracks: thesis and , nonthesis, and applied nonthesis.

Program requirements for thesis option: 4 courses from a list of CSC courses the department maintains; 4 other courses chosen with the approval of the major professor; eight credits of thesis. ~~1) at least one course from each of the following core areas: mathematical foundations, programming languages, and architecture and systems; 2) at least five other courses chosen with the approval of the major professor (at least two of these must be approved CSC courses or equivalents); 3) eight credits of thesis.~~

Program requirements for nonthesis option: 6 courses from a list of CSC courses the department maintains; 4 other courses chosen with the approval of the adviser; least one of the ten courses listed above should include writing a substantial paper based on significant independent research; passing a written comprehensive examination. ~~1) at least two courses from mathematical foundations, one course from programming languages, and two courses from architecture and systems; 2) at least three more approved CSC courses or equivalents; 3) at least two more courses chosen with the approval of the advisor; 4) at least one of the ten courses listed above should include writing a substantial paper based on significant independent research; 5) passing a written comprehensive examination.~~

A program of study can include at most 3 courses at the 400-level. Students who have undergraduate credits for a particular 400-level course (or equivalent) cannot repeat the course for graduate credit.

~~Program requirements for applied nonthesis option: 1) at least two courses from mathematical foundations, one course from programming languages, and two courses from architecture and systems; 2) at least two more approved CSC courses or equivalents; 3) at least one course should include writing a substantial paper based on significant independent research; 4) an approved concentration in another discipline consisting of a minimum of four graduate courses in the area of concentration; 5) passing a written comprehensive examination.~~

~~Approved applied nonthesis option concentrations exist for Computers and Business Management, Computers and Operations Research, and Computers and Statistics. Other concentrations are possible. Students should meet with their faculty advisors to discuss requirements. The department encourages other application areas in the physical, biological, mathematical, and social sciences. Students in the applied track will have an advisor in computer science and an advisor in their application area. Together, these advisors will approve the student's program of study.~~

PROFESSIONAL SCIENCE MASTERS IN CYBER SECURITY

Admission requirements: Bachelor's degree. No technical background is required. For those students without a technical background, additional, optional materials will be provided in the summer prior to beginning the first course in the program.

No GRE is required.

Program requirements: The degree requires 36 credits, consisting of 9 4-credit courses. There is no Comprehensive Exam and no thesis requirement. CSF 590 provides a capstone experience through an internship with a partner organization.

Students are required to take five core courses, and choose four more optional courses from a list.

Core Courses: CSF 430, 432, 534, 580, and (CSF 590 or 591)

Optional Courses: CSF 410, 462, all 500-level CSF courses.

DOCTOR OF PHILOSOPHY

For the purpose of describing degree requirements, core computer science courses are grouped into the following core areas:

Mathematical Foundations: CSC 541, 542, 544, 550

Programming Languages: CSC 402, 501, 502

Architecture and Systems: CSC 511, 512, 519

Admission requirements: Bachelors degree in computer science or a closely related field. Applicants with a bachelors degree in an unrelated field will be considered provided they have completed course work covering the material in CSC 211, 212, 301, 305, 340 and MTH 141, 142, plus one MTH or STA course for which calculus is a prerequisite. Students may be admitted who have completed only a part of the above course work but they will be required to complete the deficiencies before taking more advanced classes.

The GRE general test is required. A subject test in computer science or a related field is not required, but may be considered by the admission committee.

Program requirements: The student must complete 54 credits of course work beyond the bachelors degree in addition to 18 credits for the doctoral dissertation. A student entering the program with an M.S. degree in computer science or a related area may be granted up to 30 credits toward the Ph.D. in computer science.

Students must complete two courses from mathematical foundations, one course from programming languages, two courses from architecture and systems, plus three more approved CSC courses or equivalents. Other courses must be selected in order to meet the 54-credit minimum and will be selected in consultation with the student's advisor or major professor.

Students must take a comprehensive examination, which is composed of a written examination and an oral examination. The written examination, which will be held at least once a year, covers the three core areas listed above. Success in the written examination is conditional upon obtaining passing grades in all areas, and is a prerequisite for taking the oral examination.

Typically, a student would be expected to take the comprehensive examination within two years after joining the program. The objective of the oral examination is for the student to present an intended research program and demonstrate satisfactory knowledge and understanding of the scientific literature of the corresponding research domain. A candidate whose comprehensive exam performance is deemed as failing by the Computer Science Graduate Committee may, with the recommendation of the committee and the approval of the Graduate School, be permitted one re-examination, to be taken no sooner than four months and no later than one year after the initial examination.

DIGITAL FORENSICS AND INCIDENT RESPONSE GRADUATE CERTIFICATE PROGRAM

The Graduate Certificate in Digital Forensics and Incident Response is designed for professionals who have a four-year undergraduate degree and wish to pursue a focused program in the field of digital forensics. A student wishing to receive a Graduate Certificate in Digital Forensics and Incident Response must complete the following courses: CSF 410, 432, 512, and 524.

CYBER SECURITY GRADUATE CERTIFICATE PROGRAM

The Graduate Certificate in Cyber Security is designed for professionals who have a four-year undergraduate degree and wish to pursue a focused program in the field of cyber security. A student wishing to receive a Graduate Certificate in Cyber Security must complete the following courses: CSF 430, 432, 534, and one of CSF 524, 538, 536. For more information, including a list of required courses and an application to the program, please visit dfcsc.uri.edu/academics/cyber_security.