



Graduate Student Orientation

Department of Computer Science
The Volgenau School of Engineering

Professor Sanjeev Setia, Chair

Fall 2016

<http://cs.gmu.edu>

Presented by: Professor Jeff Offutt



Outline

- CS Department Overview
- Rules pertaining to all programs
- Masters Degree Programs
 - MS Computer Science
 - MS Information Systems
 - MS Information Security and Assurance
 - MS Software Engineering
- Graduate Certificate Programs
- Plan of Study Forms
- Miscellaneous Information
- Individual Advising

CS Dept Overview

- The Computer Science Dept is located in the Nguyen Engineering Building (Room 4300, 4th floor)
- 49 full-time faculty members (40 tenure-track)
- Research expertise in almost all areas of computing
 - AI, Robotics, Software Engineering, Systems, Networks, Information Security, Data Mining, Databases, Computational Biology, Theoretical Computer Science, Graphics and Computer Game Technology, Computer Vision
 - CS had \$7M+ in research expenditures in FY 2016
 - Mason was ranked 39th nationally in research expenditures in CS by NSF (2013)
- Two Undergraduate Degree Programs with 1000 students
 - BS in CS and BS in Applied CS
- Four MS programs with around 400 students
 - MS in CS, Software Engineering, Information Systems, Information Security
- PhD in CS with around 100 students, joint PhD in IT with VSE

Graduate Programs

▣ **Masters Programs (30 credit hours)**

- ▣ MS Computer Science (MS-CS)
- ▣ MS Information Systems (MS-ISYS)
- ▣ MS Information Security & Assurance (MS-ISA)
- ▣ MS Software Engineering (MS-SWE)

▣ **Doctoral Programs (72 credit hours)**

- ▣ PhD in Computer Science
 - ▣ **Orientation was held on Wednesday, August 24**
 - ▣ **Director: Prof. Hakan Aydin (aydin@gmu.edu)**
- ▣ PhD in IT (administered by the office of the Associate Dean for Research & Graduate Studies)

▣ **Graduate Certificate Programs (12 credit hours)**

Key Faculty for MS Programs

- **Directors** of MS Programs

- **MS-CS Program**

- **Professor Zoran Duric (zduric@cs.gmu.edu)**



- **MS-ISYS Program**

- **Professor Alex Brodsky (brodsky@gmu.edu)**



- **MS-ISA Program**

- **Professor Duminda Wijesekera (dwijesek@gmu.edu)**

- **MS-SWE Program**

- **Professor Jeff Offutt (offutt@gmu.edu)**



- **Your academic advisor**

- **Identified in your letter of admission**

Rules Pertaining to all MS programs

- MS program consists of 10 courses (30 credit hours)
- To graduate, GPA must be 3.0 or higher (B average)
 - Maximum of two C grades allowed for MS degree
- **Students receiving two Fs or three unsatisfactory (C or F) grades are terminated from the program**
- **Students admitted provisionally must complete all courses that you are required to take before taking core curriculum courses**
- All MS programs have a thesis option (3-6 credit hours)

MS Computer Science

Professor Zoran Duric

□ **Mission**

- To combine a sound foundation in computer science with concentrated knowledge in the advanced areas.

□ **Required Academic Background**

- Discrete Math (Math 125)
- Data Structures (CS 310)
- Formal Methods and Models (CS 330)
- Computer Architecture and Systems Programming (CS 367, CS 465)

MS Computer Science

- MS CS courses are divided into 5 areas (grouped by similarity):
 1. Theoretical CS
 2. Systems & Networks
 3. Programming Languages & Software Engineering
 4. Artificial Intelligence & Databases
 5. Visual Computing

- The list of courses and their respective areas are available at:
<http://cs.gmu.edu/programs/masters/cs/>

MS Computer Science

- MS CS courses are classified as **basic** and **advanced**
- Some **basic** courses are designated as **core** courses in their respective areas
- Degree Requirements
 - **Core courses:** CS 583 (Analysis of Algorithms) from the “Theoretical CS” area and 2 additional core courses from 2 different areas must be completed with a grade of B- or better.
 - **At least five advanced courses** (15 credit hours)
 - **Breadth requirement:** Advanced courses must be taken from at least three different areas of CS
 - **CS requirement:** At least 6 courses (out of 10) must have CS prefix in course number and at least 2 must be advanced courses
 - NOTE: MS-CS students can take up to four SWE, ISA, or INFS courses

MS Computer Science – Provisional Admission

- Provisionally admitted students are required to take two courses in their first semester
 - CS 530 – Mathematical Foundations of Computer Science
 - CS 531 – Fundamentals of Systems Programming
- CS 530 and CS 531 count towards the MS CS degree
- You can test out of these courses by passing the associated test out exams

Foundation Courses – MS ISYS, MS ISA, MS SWE

- Ensure adequate background for graduate studies
- **Do not count for graduate credit**
- Provide basic undergraduate CS knowledge you need for graduate program
- Must be completed with grade of B or better
- You may need to take up to 4 foundation courses, depending on your background
- You can test out of some or all of the foundation courses

Foundation Requirements for MS-ISYS, MS-ISA, MS-SWE

- INFS 501 Discrete and Logical Structures
- SWE 510 Object-Oriented Programming with Java
- INFS 515 Computer Organization
- INFS 519 Program Design and Data Structures

MS-ISYS Program Information Systems

Professor Alex Brodsky

- **Mission:** Professional degree focusing on the technical, managerial and policy issues related to building and maintaining organizational information systems.

- **Four required courses:**
 - INFS 612 – Principles/Practices of Communication Networks
 - INFS 614 (or CS 550) – Database Management
 - INFS 622 – Info Systems Analysis and Design
 - ISA 562 – Information Security Theory and Practice

- Note: Students taking the emphasis area and/or Graduate Certificate in Software Engineering should substitute SWE 620 for INFS 622 and also take SWE 621

- **Six elective courses:**
 - Grouped into emphasis areas

MS-ISYS Program Emphasis Areas

- MS-ISYS students take 6 electives from an emphasis area or may mix and match from different emphasis areas:
 - Database Management
 - Data Mining and Data Warehousing
 - Electronic Commerce
 - Software Engineering
 - Knowledge Management
 - Information Security and Assurance
- For more information: <http://cs.gmu.edu/programs/masters/infs/>

MS-ISA PROGRAM

Information Security and Assurance

Professor Duminda Wijisekera

- **Mission:** Focus on the technical and management aspects of information security and examine ways to provide secure information processing systems

- **Three required courses (9 credits):**
 - INFS 612 Principles/Practices of Communication Networks
 - ISA 562 Information Security Theory and Practice
 - ISA 656 Network Security

- Students have to pick one of **two concentrations(15 credits)**
 - **Networks and Systems Security**
 - **Applied Cyber-Security**

- **Two additional elective courses (6 credits)**
 - From pre-approved list

MS-ISA program cont'd

- Two concentrations
 - Not optional – students have to pick one
- **Networks & Systems Security concentration**
 - **Required course** ISA 564 – Security Laboratory
 - **Four additional elective courses** from a list of courses
- **Applied Cyber-Security concentration**
 - **Five elective courses** from a list of courses
- For more information: <http://cs.gmu.edu/programs/masters/isa/>

MS–SWE Program Software Engineering

Professor Jeff Offutt

- **Mission:** To teach students to become leaders in engineering high quality, large scale, computing solutions to real life problems.
- **Four required courses:**
 - SWE 619 Object-Oriented Software Specification and Construction
 - SWE 621 Software Modeling and Architectural Design
 - SWE 622 Distributed Software Engineering
 - SWE 637 Software Testing
- **Emphasis Area — 3 Courses**
- **Electives — 3 Courses**
 - See approved list of electives

MS-SWE Program Emphasis Areas

- 3 Courses - (9 Credits) Required from Emphasis Area
 - Software Design
 - Software Assurance
 - Software Management
 - Web Applications

Note: With permission from the advisor, an MS-SWE student may choose not to take an emphasis area

- For more information: <http://cs.gmu.edu/programs/masters/swe/>

Graduate Certificate Programs

- A Graduate Certificate program consists of four or five courses that provide specialized knowledge.
- **Students may obtain one graduate certificate in conjunction with their MS studies.**
- Average grade of B or better (Only 1 C grade allowed)
- Graduate Certificates offered by the CS Department:
 - Foundations of Information Systems
 - Information Security and Assurance
 - Software Engineering
 - Web-based Software Engineering
- For more information: <http://cs.gmu.edu/programs/certificates/>

MS Students Transferring from Non-degree Status

Please note the following:

- **Only 12 hours of credit can be transferred into degree status**
 - **There will be no exceptions to this rule.**
- Classes must be successfully completed with a grade of B or better to be transferred
- Simply complete a masters graduate application and submit it to Graduate Admissions

MS Students Transferring from Provisional Status

- ▣ Transfer from Provisional status to Degree Status
 - ▣ **Completion** of all provisional requirements with B or better grade
- ▣ You must apply to transfer; it will not happen automatically
- ▣ **Provisional requirements must be satisfied before taking additional classes**

Transfer Between MS Programs

- If you plan to transfer between MS programs (e.g., MS-CS to MS-ISYS)
 - You will need to take at least 18 credits in the new program
 - You can request a program transfer after your first semester
- Depending on new MS program's requirements
 - You may have to take one or more additional courses
- Talk to your Academic Advisor or the Program Director for your target MS

Plan of Study Forms

- The plan of study forms are to be filled out by the student and submitted to the CS Dept office for approval **during your first semester**
 - **Available on the CS web site**
- Designed to help students plan their course of study
 - Students have 6 years to complete the degree
 - Part-time students usually take 1 or 2 courses per semester
 - Electives may be taken at any time **as long as pre-requisites are satisfied**
 - Any electives that do not appear on approved list **MUST** have your advisor's approval before registration
 - Note pre-requisites when planning course of study

Advising Procedures

- Call the CS office at 703-993-1530 and ask for the Graduate Program Specialist
 - The Graduate Program Specialist will try to answer your question on the phone
 - **MS CS and PhD CS – Mr. Ryan Lucas**
(wlucas@gmu.edu)
 - **MS ISYS, MS ISA, and MS SWE – Ms. Anne Hamill**
(ahamill2@gmu.edu)
 - If the Graduate Program Specialist cannot answer your question, it will be forwarded to your faculty advisor
 - Your academic advisor is identified in your letter of admission
- MS Program Directors can also answer questions

Miscellaneous

- Various forms can be found in the department web page at <http://cs.gmu.edu>

- You can send a written query by fax, letter, or email
 - **Email: csadmin@cs.gmu.edu**
 - Phone: 703-993-1530 Fax: 703-993-1710
 - Mailing Address: George Mason University
 CS Department – MS 4A5
 4400 University Drive
 Fairfax, Virginia 22030-4444

- Please keep the department informed of any name, address or phone changes by sending email to **csadmin@cs.gmu.edu**

Questions?