GRADUATE STUDENT ORIENTATION

Department of Computer Science
School of Computing
Volgenau College of Engineering and Computing
Department chair: Professor David Rosenblum
Host: Professor Jeff Offutt
MS program directors: Zoran Duric, Alex Brodsky, Frank Wang

Fall 2021
cs.gmu.edu
Congratulations!!!!
And welcome to graduate school at
George Mason University

George Mason University
A university for the world
Freedom & learning
Diversity
Inclusion
Belonging
Cutting edge computing
education for the 21st
century
INTRODUCTIONS

Professor David Rosenblum
Department Chair

Professor Jeff Offutt
Associate Department Chair

Ryan Lucas
Grad program specialist

Beth Posocco
Grad program specialist
csgrad@gmu.edu

Cecelia Kimes
Grad program specialist
• We are fully aware that some classes are full and waitlists are long
  • We have been monitoring this all summer
  • We were surprised by a dramatic increase in new students this fall
  • We are continuing to actively ramp up teaching resources and expect to add more questions this week

• We have dramatically reduced waitlists

• More sections and teachers are coming

Thank you for your patience and understanding!
CS Department has 4 MS programs

- Computer Science
  - Zoran Duric

- Information Security & Assurance
  - Xinyuan Wang

- Information Systems
  - Alex Brodsky

- Software Engineering
  - Jeff Offutt
MS-CS
Theoretical foundations of computation and computer-based systems, and practical techniques to design and build them

MS-INFS
How to design and develop enterprise information systems

MS-ISA
Understand and defend against vulnerabilities in computer networks and systems

MS-SWE
How to engineer high quality large scale software products
OVERVIEW OF MS PROGRAM RULES @ GMU

• MS programs require 30 credit hours
  • 10 3-credit courses

• Must have a 3.0 GPA (B average) to graduate
  • Maximum of 2 grades of C

• All MS programs have a research option
  • 3-6 credits for an MS thesis (most students do not)

• Easy to transfer between MS programs
  • Must complete one semester in initial program
  • A simple form (Graduate Change of Program)
  • Most classes will count as electives in the new degree program

• Be sure to understand the honesty and integrity rules
  • Honor codes are taken very seriously in US universities
PANDEMIC PLANS

Most Mason courses are on-campus, in-person, for fall 2021.

All students and staff must be vaccinated.

Masks are required indoors on campus (including during classes).

Any updates or changes will be sent to your GMU email.
FUNDING AND CAREER PROSPECTS

The CS dept. has a few GTA positions

Very competitive: First semester MS students rarely obtain GTA positions

Other GMU departments hire our MS students

Apply through *handshake*: https://gmu.joinhandshake.com/login

George Mason is in one of the hottest areas in the world for jobs in the software industry

Our graduates are highly respected

Half of our MS students are part-time, working full-time

Every class meeting is a mini-jobs fair
ADVISING AND CONTACTS

1. Start with the official source of all rules
   • Catalog (https://catalog.gmu.edu/)

2. Then ask the graduate advisors
   • csgrad@gmu.edu (Beth, Cecelia, Ryan)

3. Strictly academic questions or advice?
   • Your academic advisor’s name is on your dept. acceptance letter

4. Problems and unusual issues?
   • Contact the Program Director

Prof. Zoran Duric
   MS-CS

Prof. Xinyuan Wang
   MS-ISA

Prof. Alex Brodsky
   MS-INFS

Prof. Jeff Offutt
   MS-SWE
**Program director: Professor Zoran Duric**

**Mission:** To combine a sound foundation in computer science with concentrated knowledge in the advanced areas

**First courses**
- CS 530 Mathematical Foundations of Computer Science
- CS 531 Computer Systems and Fundamentals of Systems Programming

**Bypassing CS 530 & CS 531**
- Some students already know this material from strong Computer Science undergraduate programs
- You may request to substitute for advanced electives by:
  1. Passing the corresponding test out exams (in-person only)
  2. Submitting an appeal request and have it approved
MS COMPUTER SCIENCE

5 areas
1. Artificial Intelligence & Databases
2. Programming Languages & Software Engineering
3. Systems & Networks
4. Theoretical Computer Science
5. Visual Computing

3 core (required) courses
1. CS 583 Analysis of Algorithms (Theoretical CS)
2. Core course from a second area
3. Core course from a third area

Advanced breadth
• 4 advanced courses
• From at least 2 different areas

Electives and CS requirement
• Additional courses from list of electives
• At least 6 courses must be CS
• Up to 4 can be SWE, ISA, or INFS
MS COMPUTER SCIENCE

2 optional concentrations
1. Cyber Security
2. Machine Learning

Cyber Security
1. 2 required: ISA 562, ISA 656
2. 2-3 electives: CS 587, ISA 564, ISA 673, ISA 674, ISA 763, ISA 764, SWE 681
3. 0-1 related: CS 540, CS 555, CS 571, CS 600, CS 655

Machine Learning
1. 2 required: CS 584, CS 688
2. 2-3 electives: CS 657, CS 681, CS 747, CS 782
3. 0-1 related: CS 580, CS 687, CS 682, CS 685
**FOUNDATION COURSES FOR MS ISA, MS INFS, MS SWE**

- Discrete Math (Math 125 or INFS 501)
- Computer Organization and Operating Systems (CS 367 or INFS 515)
- Data Structures (CS 310 or INFS 519)
- Object-Oriented Programming with Java (CS 211 or SWE 510)

**Why?**
- To help students with non-CS backgrounds enter our programs
- Ensure adequate background for graduate studies
- Provide basic undergraduate CS knowledge students need for graduate programs
- Protect students from poor performance in later courses

**Policies**
- Foundation courses do not count for graduate credit
- Must get a grade of B or better
- You can test out of some or all of the foundation courses
Mission: Focus on the technical and management aspects of information security and examine ways to provide secure information processing systems

Three required courses
- INFS 612 Principles & Practices of Communication Networks
- Or: CS 555 Computer Communications and Networking
- ISA 562 Information Security Theory and Practice
- ISA 656 Network Security

Five courses from one of two concentrations
- Networks and Systems Security
- Applied Cyber Security

Two elective courses
From a list in the catalog
Mission: to teach diverse students:
• the theoretical knowledge and hands-on project experience needed to analyze, design, build, deploy, maintain, manage and promote effective organizational use of modern information systems
• how to succeed in technical or managerial careers in information systems in large and small organizations in both industry and government

Five required courses
CS 530 Mathematical Foundations of Computer Science
CS 550 Database Management
INFS 612 Principles & Practices of Communication Networks
INFS 622 Information Systems Analysis and Design
INFS 740 Database Programming for the World Wide Web

Five elective courses
From a list in the catalog
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 & Construction
- SWE 621 Software Modeling and Architectural Design
- SWE 632 User Interface Design and Development
- SWE 637 Software Testing

Three software engineering-related courses
From a list in the catalog

Three elective courses
From a list in the catalog
PROCEDURAL ISSUES

• Reach out to csgrad@gmu.edu to ...
  • Submit all forms
  • Transfer from non-degree status
  • Remove provisional status after completing requirements
  • Transfer between MS programs

• Forms are on the website
  • Department forms: https://cs.gmu.edu/resources/student-forms/
  • GMU forms: https://registrar.gmu.edu/forms/

• Plan of study forms document your degree plans
  • Seek advice and approval from your faculty advisor

• The Grad Team is always here to help:
  
  Ryan Lucas
  MS & PhD Programs

  Beth Posocco
  MS Programs

  Cecelia Kimes
  PhD Program

• College orientation videos are on the web:
  • https://cec.gmu.edu/admissions/graduate-admissions/new-graduate-students
PRO TIPS FROM FORMER STUDENTS

• Graduate courses are 4:30-7:10pm or 7:20-10:00pm
  • They meet once a week
• Allow for traffic, parking, and walking to classrooms
• Always stand up and move during breaks
• Eat something, but not too much
• You will learn more if you:
  • Read materials before class
  • Start assignments early
  • Work with classmates—especially classmates with diverse backgrounds
  • Get enough sleep
• We take honesty and integrity very seriously
• Is it better to be full or part-time? It’s a tradeoff:
  • Part-time students have less time but bring context from work
  • Full-time students have more time but less practical experience
• The vocal student who talks about fancy technology does NOT know more than you do and is NOT smarter