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

GEORGE MASON UNIVERSITY

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

Professor David Rosenblum
Department Chair

Professor Jeff Offutt
Associate Department Chair

Ryan Lucas
Grad program specialist

Beth Posocco
Grad program specialist

Cecelia Kimes
Grad program specialist

csgrad@gmu.edu

FIRST THINGS FIRST

- **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

CS DEPARTMENT, GEORGE MASON UNIVERSITY

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

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

MS-INFS
How to design and develop enterprise information systems

MS-SWE
How to engineer high quality large scale software products

UNIVERSITY

- **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**

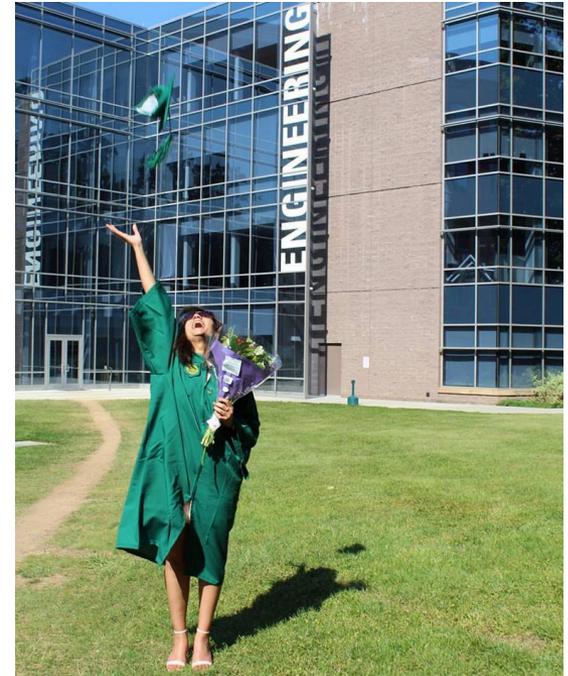 - Honor codes are taken very seriously in US universities

PANDEMIC PLANS

Most Mason course 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

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

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

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, CS600, 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, CS682, CS685

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

MS INFORMATION SECURITY & ASSURANCE

Professor Frank Wang

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

MS INFORMATION SYSTEMS

Professor Alex Brodsky

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

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 & 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

- **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**

OPEN QUESTIONS TIME