Welcome! We will begin soon.
Please start by turning off your microphones to avoid feedback loops

Here’s how to ask a question:
• Chat. Click the purple tab, choose Everyone, and type.

• Click the Raise Hand button (bottom right icon) and we’ll answer as soon as we can.

• Talk. If no one is talking, you can turn on your mic (click mic at bottom) and ask

Can’t hear us?
• Make sure your volume is turned up. Click the gear icon under the purple tab to check audio settings. Or, click the menu (top left) to get a dial in number. Logging out and in may help, too.
Getting Started in Computer Science

Computer Science Department

School of Computing

College of Engineering and Computing

http://cs.gmu.edu/
Agenda

• Finding Information
• Policies to Know
• The BS-CS and BS-ACS Degrees
• What do I register for?

Find these slides and materials at:

• [https://cs.gmu.edu/](https://cs.gmu.edu/) → Current Students → Undergraduates → Getting Started in CS at GMU
• [https://cs.gmu.edu/current-students/undergraduates/getting-started-in-cs-at-gmu/](https://cs.gmu.edu/current-students/undergraduates/getting-started-in-cs-at-gmu/)
Department Info

Contacts

<table>
<thead>
<tr>
<th></th>
<th>ENGR 4300</th>
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</thead>
<tbody>
<tr>
<td>CS office</td>
<td></td>
</tr>
<tr>
<td>walk-in advising</td>
<td>(virtual for now)</td>
</tr>
<tr>
<td></td>
<td>11am-4pm weekdays</td>
</tr>
<tr>
<td>contact email:</td>
<td><a href="mailto:csug@gmu.edu">csug@gmu.edu</a></td>
</tr>
<tr>
<td>contact phone:</td>
<td>703-993-1530</td>
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</tbody>
</table>

People

<table>
<thead>
<tr>
<th></th>
<th>Dr. David Rosenblum</th>
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<tbody>
<tr>
<td>Chair:</td>
<td></td>
</tr>
<tr>
<td>Undergraduate</td>
<td>Dr. Mark Snyder</td>
</tr>
<tr>
<td>Associate Chairs:</td>
<td>Dr. Elizabeth White</td>
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<tr>
<td>Undergraduate</td>
<td>Joshua Fletcher</td>
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<tr>
<td>Advisors:</td>
<td>Evan Frejo</td>
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<td>Linda Sheridan</td>
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College of Engineering and Computing (CEC)

Computer Science

- Bioengineering
- Civil & Environmental Engineering
- Electrical and Computer Engineering
- Information Sciences and Technology
- Mechanical Engineering
- Statistics
- Systems Engineering & Operations Research
- Cyber Security Engineering
Quick Facts

• BS-CS is ABET-accredited
  https://www.abet.org

• No online or night CS classes
  • Virtual coursework during COVID precautions
  • Majority face-to-face coursework in Fall 2021

Sites to know

password.gmu.edu – create your GMU username (netID)

example.gmu.edu - CS website.
  • read through current students/undergraduates section

patriotweb.gmu.edu
  • unofficial transcript: Student records → Unofficial transcript
  • Patriot Scheduler – search classes and register
  • DegreeWorks – see live mapping of your degree progress

catalog.gmu.edu – course/degree details; all academic policies; catalog requirements
Policies to Know
Catalog Years

• The catalog is published yearly.
  • you meet all requirements for your catalog year: 2021-2022
  • Your catalog requirements don't change when we update later catalogs.

• Degree Planner – paper copy of your requirements. (on CS website)

• DegreeWorks – live mapping of your degree progress
  • Great for "What if?" scenarios. https://patriotweb.gmu.edu/

• Online Catalog – https://catalog.gmu.edu
  • all official catalog text, including your entire degree requirements
  • course info/prerequisites
  • all department/school/university policies
Prerequisites

- Each class has hardcoded prerequisites – courses that must be successfully completed before you can take the course
- Need **C or better** to meet the prerequisite
More Prerequisites
Grading Policies

- **C or better** needed for all prerequisites
- **one C-/D grade** is allowed towards CS major
  - *(can't be a prerequisite for another course though – those all must be C or greater)*
- **Repeats**: third and final (successful) attempt required in next semester, or you're terminated from CEC
- **Selective Withdrawal**: three times as undergraduate, you may drop by mid-semester from class (grade of W)
- **Honor Code**: you pledged not to lie, cheat, steal, or plagiarize in all academic matters. oai.gmu.edu
  - It is strictly enforced! http://cs.gmu.edu/resources/honor-code/
More Programs

Minors

- Separate course sequence from major.
- Must have 8 unique credits (not used towards major)
- We offer the **Software Engineering Minor** (16 credit hours)

Accelerated Masters

- Use four graduate-level courses towards both BS and MS degrees (double-counted)
- Apply after earning 60 credits, with good GMU GPA
- Effectively a five-year BS+MS program
BS Computer Science Degree
BS CS Degree (120 credits)

- General Education (24cr)
- CS Core (35cr)
- Mathematics and Statistics (20cr)
- Natural Sciences (12cr)
- CS Senior electives (15cr)
- CS Related electives (6cr)
- General electives (8cr)
General Education (24cr)

• COMM 100/101 – oral communication
• ENGH 100/101 – composition
• ENGH 302N – advanced composition
  • *Natural Science sections only*

• Mason Core
  • One course from each list:
    • Arts
    • Global Understanding
    • Literature
    • Social and Behavioral Science
    • Western Civ/World History

• *Search lists of Mason Core courses on catalog.gmu.edu*

• *All other general education requirements are covered by CS/SoC requirements.*
CS Core Courses (35cr)

- **Ethics** CS 110, 306
  - Essentials of CS, Synthesis of Ethics/Law for the Computing Professional

- **Programming** CS 112, 211, 310
  - Introduction to Programming; Object-Oriented Programming; Data Structures

- **Systems** CS 262, 367, 471
  - Intro to Low-level Programming; Computer Systems and Programming; Operating Systems

- **Software Engineering** CS 321

- **Theory** CS 330, 483
  - Formal Methods & Models, Analysis of Algorithms
Math/Statistics (20cr)

- Calculus I – MATH 113 (or 123+124)
- Calculus II – MATH 114
- Calculus III – MATH 213
- Discrete Math – MATH 125
- Linear Algebra – MATH 203
- Prob/Stat – STAT 344

- Math overrides contact: camaya@gmu.edu
Natural Science Requirements (12cr)

Stronger requirements by CS than General Education.

- **Required:** lecture/lab sequence in one field, plus 4cr more
  - Some are one 4cr course combo, others are a separate lecture (3cr) and lab (1cr)
  - Example: sequence of GEOL 101(4)/102(4), and PHYS 160/161(3+1) == 12cr.
  - Last 4cr: different lab science from Mason Core, or using your sequence as prereqs.

<table>
<thead>
<tr>
<th>Field</th>
<th>First</th>
<th>Second</th>
<th>Third</th>
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<tbody>
<tr>
<td>Biology</td>
<td>102</td>
<td>103/105</td>
<td></td>
</tr>
<tr>
<td>Chemistry</td>
<td>211/213</td>
<td>212/214</td>
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</tr>
<tr>
<td>Geology</td>
<td>101</td>
<td>102</td>
<td></td>
</tr>
<tr>
<td>Physics</td>
<td>160/161</td>
<td>260/261</td>
<td>262/263</td>
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</tbody>
</table>
CS Senior Electives (15cr)

- your chance to specialize your degree!
- five of the following, including at least one of 455/468/475/487

  CS 425 – Game Programming I
  CS 440 – Language Processors and Programming Environments
  CS 450 – Database Concepts
  CS 451 – Computer Graphics
  CS 455 – Computer Communications and Networking
  CS 463 – Comparative Programming Languages
  CS 468 – Secure Programming and Systems
  CS 465 – Computer Systems Architecture
  CS 469 – Security Engineering
  CS 475 – Concurrent and Distributed Systems
  CS 477 – Mobile Application Development
  CS 480 – Introduction to Artificial Intelligence
  CS 482 – Computer Vision
  CS 484 – Data Mining
  CS 485 – Autonomous Robotics
  CS 487 – Introduction to Cryptography
  CS 490 – Design Exhibition
  CS 491 – Industry-Sponsored Senior Design Project (3 cr. – only)
  CS 499 – Special Topics in Computer Science
  MATH 446 – Numerical Analysis I (equiv. to OR 481)
CS Related Electives (6cr)

- STAT 354
- SYST 371, 470
- PHIL 371, 376
- ENGH 388
- OR 335, 441, 442
- SWE ≥300 (e.g. 419, 432, 437, 443)
- MATH > 300 (except 351)
- CS > 300 (more CS-senior electives)
- ECE 301, 231/232, 350, 446, 447, 511

General Electives (8cr)

- can't count remedial math (e.g. MATH 105) or military science courses
- may count up to 3cr of RECR
- university requires 120 credits total to graduate; no exceptions
BS Applied Computer Science

- Concentrations: game design and software engineering
- Students take foundation/core courses in CS and in the concentration area.

- All concentrations share the same common foundation/core:
  - CS 110/306
  - CS 112/211/310
  - CS 262/367/471
  - CS 321
  - CS 330/483
  - MATH 113/114/125/203, STAT 344 (or other stat course) \textit{(no calc III)}
  - One additional course CS\geq400
ACS Concentrations

• Concentration in **Computer Game Design**
  - Foundation: GAME 230, CS 306, CS 325, CS 351; AVT 104; STAT 344
  - Core: CS 425, 426, 451; AVT 382, 383
  - One approved elective related to game design
  - PHYS 160/161, one additional lab science course

• Concentration in **Software Engineering**
  - Foundation: STAT 344; CS 306
  - Core: SWE 205, 301, 401; CS 332, SWE 437
  - Five courses chosen from:
    - CS 450, 455, 463, 465, 468, 475, 477, 491; SWE 432, 443
  - ENGL 388 & one of the following:
    - (PSYC 333, COMM 320, COMM 335)
Transferrable Credits

• Only **college-level approved coursework** is transferrable
• **AP/IB scores** with sufficient scores
• **specific courses from specific places** have been approved for specific courses here at GMU
• All listed online (search for "GMU transfer credit")
  • [https://www2.gmu.edu/admissions-aid/how-apply/transfer/transfer-credit-policy](https://www2.gmu.edu/admissions-aid/how-apply/transfer/transfer-credit-policy)

• **once starting courses at GMU, GMU students cannot take coursework elsewhere for GMU credit (without PRIOR permission).**
  • E.g., you cannot take coursework at NVCC for GMU credit even if it's equivalent.

Getting Credits

• **Send scores/official transcript** to GMU **after** grades posted.
• GMU receives scores, processes manually – then they should show up on your transcript. (patriotweb → student records → unofficial transcript)
• **appeal elective credit** as specific course: send syllabus, coursework samples, etc. to relevant department.
When/How to Request Overrides

• **When:** you plan on immediately taking a course that needs to use your transfer credits as a prerequisite, but they aren't yet in the system.

• **How:** email the relevant department with a printed-to-pdf copy of your unofficial transcript/scores, requesting the override.
  • Use your **GMU email**, including G#, e.g. **G01234567**
  • Attach **PDF of unofficial scores** (with your name and score visible)
  • You must re-attempt registration after the override is approved

Computer Science  csug@gmu.edu
Mathematics  camaya@gmu.edu
Others  <email the department>
What do I register for?
What do I register for? (Freshmen)

Recommendation: only four courses.

Are you calculus-ready?
- **Math Placement Test** score or credit for MATH 113/123
- Take four courses:
  - CS 110
  - CS 112
  - MATH 113 (or MATH 123 or MATH 124)
  - Gen-Ed  \( (e.g. \text{ approved Mason Core Literature course, COMM 100/101}) \)

Not calculus ready yet?
- CS 110
- proscribed next Math course (105, 123)
- Gen-Ed  \( (e.g. \text{ approved Mason Core Literature course, COMM 100/101}) \)
- another Gen-Ed or Natural Science
What do I register for? (Transfers)

Each transfer's starting point is different! Here are guidelines. Four courses recommended.

- **CS 110** *(needed first semester, everyone)*
- next programming course (e.g. 112, 211, 262 and/or 310)
- next math course (e.g. MATH 113, 114, 213, 125)
- next natural science or gen-ed
- ENGH 302N (Natural Science sections only)
- CS-Related courses (PHIL 376, ENGH 388, more math, SWE courses)

**Goal**: finish CS 310, 330, 367 to open up prerequisite chains
COVID-19 Notes

Many classes may be online. They still might use a mix of synchronous and asynchronous (recorded) materials.

Math placement test (for calc1/CS112 placement) is currently online until July 23, 2021.

• [https://science.gmu.edu/academics/departments-units/mathematical-sciences/mathematical-sciences-testing-center](https://science.gmu.edu/academics/departments-units/mathematical-sciences/mathematical-sciences-testing-center)

• To register for MATH 113/123:
  • need sufficient MPT scores or credit for pre-calculus on transcript.

• To register for CS 112:
  • Need to be "calculus ready" – calculus credit on transcript or sufficient MPT scores
  • You don't have to be registered for calculus, just have the prerequisites or MPT scores

Offices on campus might require appointments, or email/video visits.

*It's certainly an unusual start to college – but life goes on! We are here for you 😊*
Getting Help

• If you have concerns about meeting the prerequisites for a class, contact the CS Department.

• If you are in need of assistance before the semester starts, contact the CS Department Office staff.
  
  - We accept walk-ins 11am—4pm every day. (pending campus reopening)

• Email: csug@gmu.edu
  
  • Contact us by email – for email communication or to set up video meeting
  • Request CS course overrides
  • Only send from your Mason email account (@gmu.edu)
  • Always include your G number on all correspondence (e.g. G01234567)
  • Attach print-to-pdf webpage showing your relevant scores, e.g. A.P., transcript, etc. (needs to show your name on it too, of course!)
Break Through Tech
Mission Statement

Break Through Tech works at the intersection of academia and industry to propel more women and underrepresented communities into technology education and careers.

Our goal is to achieve gender equality in tech.
Key Drivers

3 C’s Framework

**Curricular Innovation and Academic Pathways**
Recruit non-traditional computer science students who may have limited or negative experiences with -- or perceptions of -- computer science and tech fields, and address policy barriers that restrict their access to relevant majors.

Improve the inclusive teaching practices of introductory computer science courses, through intervention and collaboration with faculty, staff, and other key academic department stakeholders.

**Career Access**
Focus on the career development of students underrepresented in tech careers, providing connections from students’ studies to real-world applications and in-depth exposure and access to tech careers.

**Community Building**
Support students who may not feel that they belong in tech by building opportunities that promote peer relationships, student leadership, and connections to networks of professional women in tech.
Foundational programs for early college years

**Summer/Winter GUILD**

Inspire more women to take an introductory computing course and consider major or minoring in computer science or related majors

- Paid 1-2 week workshop designed for incoming students and underclassmen to “widen the funnel”
- Hands-on experience with coding, digital product development, and technology creation through the lens of a “real world challenge”

**SPRINTERNSHIPS®**

Give students a resume credential that makes them more competitive when applying for summer internships and provides employers a chance to engage with a diverse talent pipeline.

- Paid, three-week, mini-internship during an academic recess for first and second year undergraduate students
- Working in teams of five, ‘Sprinterns®’ are immersed in their host site’s business and culture, complete a challenge project, and build their industry network and knowledge.

**GMU 2021 Summer Guild: July 26 - 30**
To apply, visit: [https://dc.breakthroughtech.org/programs/guild-mason/](https://dc.breakthroughtech.org/programs/guild-mason/)
For full consideration, apply by June 15, 2021 (rolling applications accepted!)
What Happens Next

• Activate your Mason ID/password
• Take the Math Placement Test if needed
• Use PatriotWeb/PatriotScheduler to plan your semester
• Register on PatriotWeb (part of orientation schedule)
  • Registration Guide:  https://registrar.gmu.edu/topics/registration-guide/
  • Adding to a waitlist:  https://registrar.gmu.edu/students/patriot-web-tutorials/interactive-demo-adding-yourself-to-waitlists/

Getting Help

Walk-in Advising
ENGR 4300, 11am-4pm weekdays
csug@gmu.edu
Override requests for CS courses. (use @gmu.edu account, G#)

Things to Read/Explore

CS website: cs.gmu.edu
Current Students→Undergraduates
Unofficial Transcript (on Patriotweb)
Catalog: BS CS policies