



Getting Started in Computer Science

Computer Science Department

School of Computing

College of Engineering and Computing

<http://cs.gmu.edu/>



**Access these slides
via the QR code**

Agenda

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



Access these slides
via the QR code

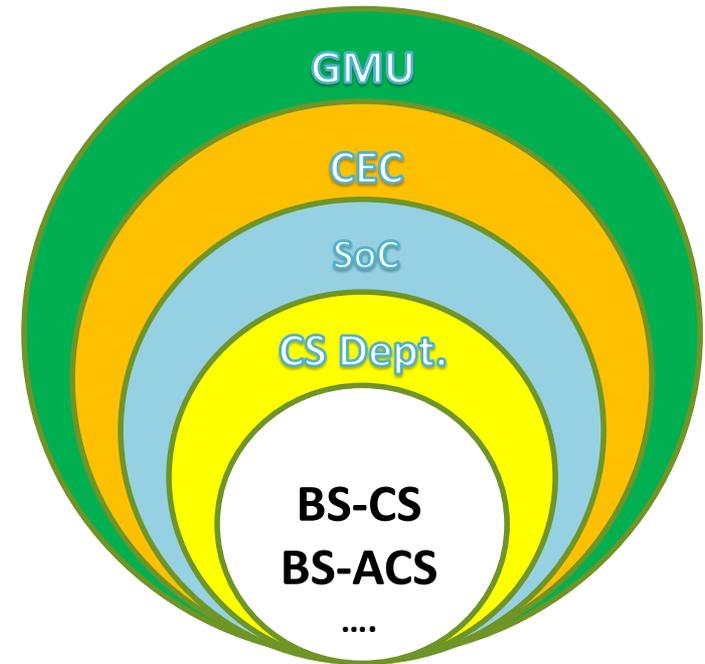
Find these slides and materials at:

- <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	
Undergraduate CS office	Buchanan D215
<i>Graduate CS Office</i>	<i>ENGR 4300</i>
advising appointments (physical and virtual)	Weekdays: 10am-12pm 1p-4pm
contact email:	csug@gmu.edu
contact phone:	703-993-1530

People	
Chair:	Dr. David Rosenblum
Undergraduate Associate Chairs:	Dr. Elizabeth White Dr. Mark Snyder
Undergraduate Advisors:	Joshua Fletcher Linda Sheridan Vernell Wilks Kristi Morrow



College of Engineering and Computing (CEC)

Computer Science

Information Sciences and Technology

Statistics

Bioengineering

Civil & Environmental Engineering

Electrical and Computer Engineering

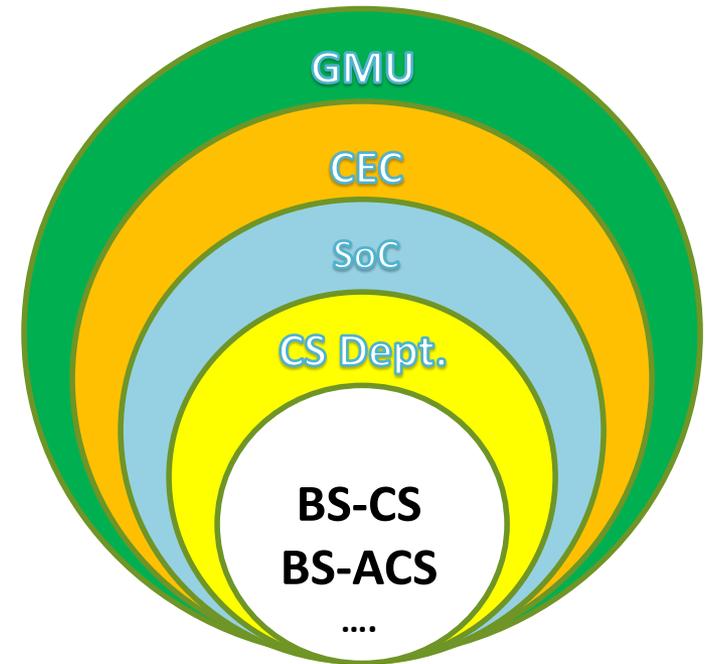
Mechanical Engineering

Systems Engineering & Operations Research

Cyber Security Engineering

Quick Facts

- BS-CS is ABET-accredited
<https://www.abet.org>
- daytime CS classes
 - vast majority are face-to-face



Sites to know

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

cs.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

Examples	
email	gmason76@gmu.edu
netID	gmason76
G#	G01234567

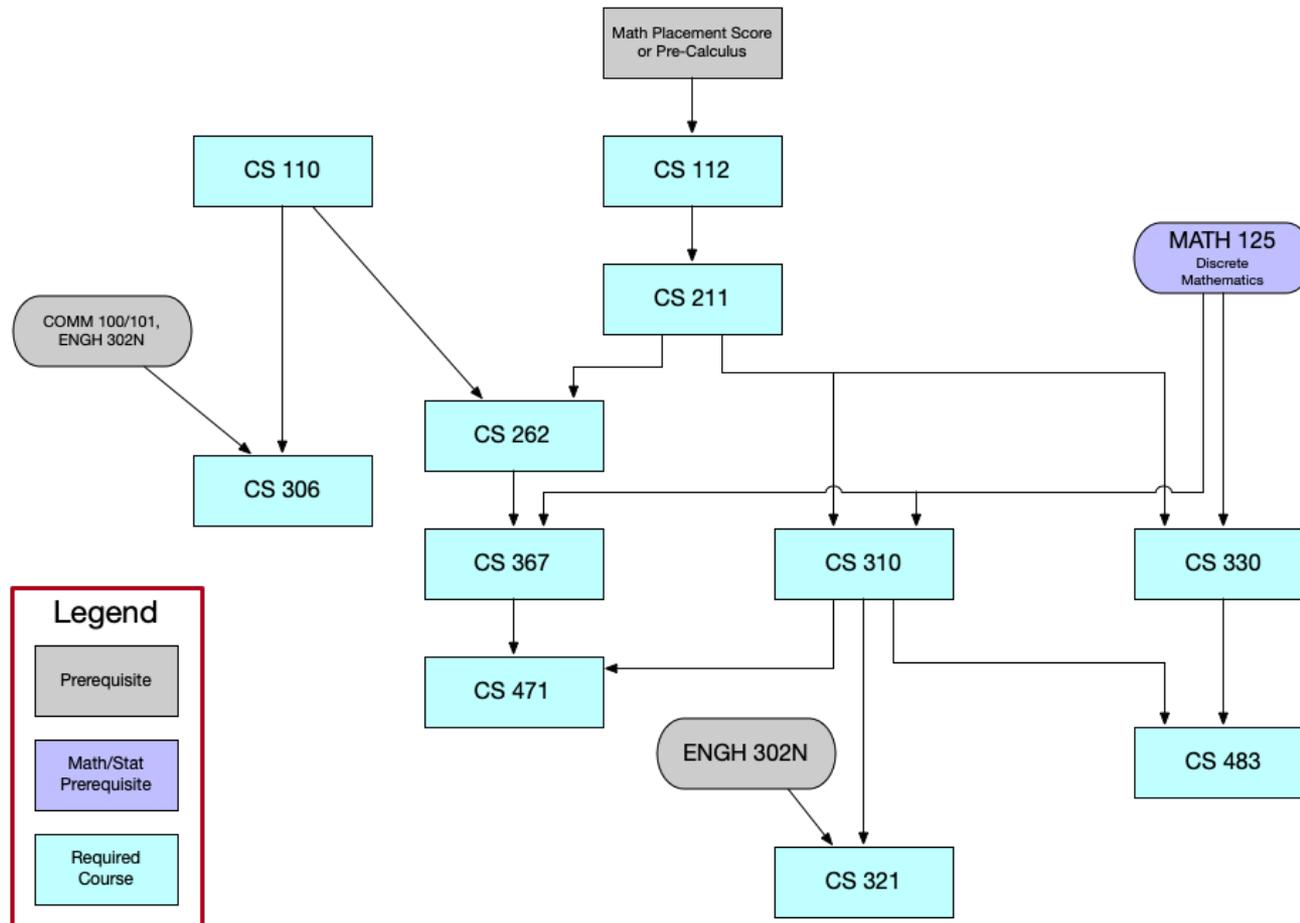
Policies to Know

Catalog Years

- The **catalog** is published yearly.
 - you meet all requirements for **your** catalog year: **2023-2024**
 - 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



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! <https://oai.gmu.edu/full-honor-code-document/>

Study Elsewhere Constraints

- Once you begin at GMU, your transferrable coursework is complete. **you cannot take more courses elsewhere and transfer them in later.**
- Example: if you take extra courses at NVCC and ask to transfer them in, the answer will be "no".
- To request an exception to this policy, **ahead of time**, you need to fill out a Study Elsewhere request form.
 - Some denied reasonings:
 - any attempts (including W) at the course at GMU
 - already have 60+ transferred credits
 - financial hardship
 - online version of a natural science with lab
 - also offered at GMU and open seats

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)

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

Mason Core (24cr)

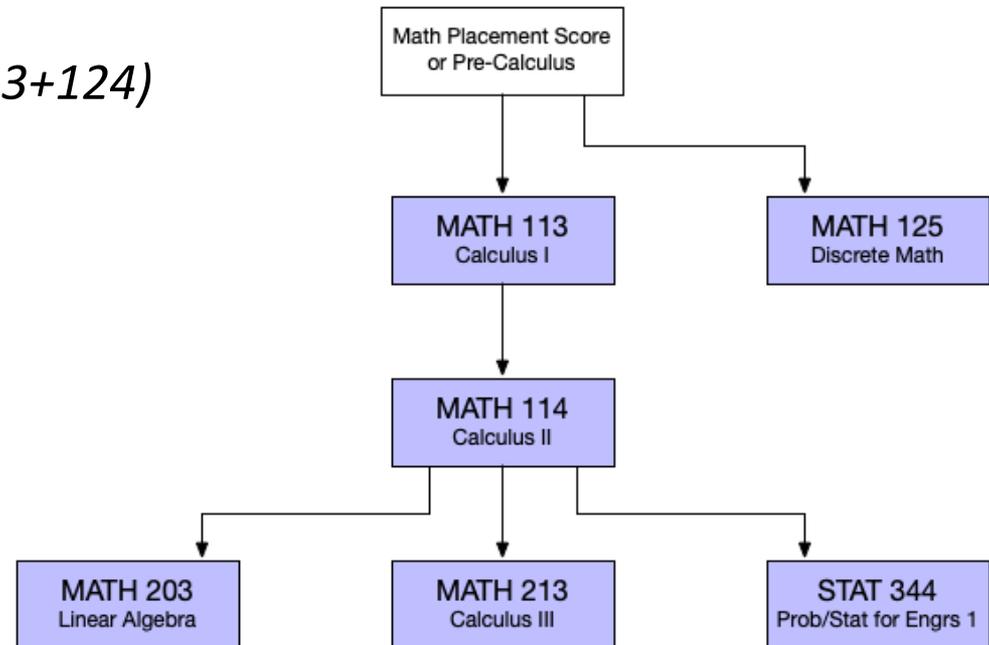
- COMM 101 – oral communication
- ENGH 100/101 – composition
- ENGH 302N – advanced composition
 - Natural Science sections only!
- Additional Mason Core
 - One course from each list:
 - Arts
 - Global Understanding
 - Literature
 - Social and Behavioral Science
 - Global History (HIST 125)
 - *Search lists of Mason Core courses on catalog.gmu.edu*
- *All other Mason Core 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
 - *New! CS 108 + CS 109 is a two-course replacement for CS 112.*
- **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
(*more info on overrides at the end of this talk*)

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)
 - *Last 4cr: different-subject lab science from Mason Core, or use your sequence as prereqs.*
 - *Example: sequence of BIOL 102(4) & 103(3)/105(1), and PHYS 160(3)/161(1) == 12cr.*

Field	First	Second	Third
Biology	102	103/105	
Chemistry	211/213	212/214	313/315 (or 314/218)
Geology	101/103	102/104	
Physics	160/161	260/261	262/263

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 452 – Virtual Reality

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 478 – Natural Language Processing

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
- ECE 301, 231/232, 350, 446, 447, 511
- SWE ≥ 300 *e.g. 419, 432, 437, 443*
- MATH > 300 *except 351*
- CS > 300 *more CS-senior electives*

General Electives (8cr)

- can't count remedial math (e.g. MATH 105) or some MLSC courses
- may count up to 3cr of RECR
- **university requires 120 credits total to graduate; no exceptions**

BS Applied Computer Science

- Concentrations: SWE, CGDS, GINF, BMGT, BMKT, TCHP
 - *Please declare your concentration during this orientation.*
- 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)** *(no calc III)*
 - **ACS Elective: one additional course CS \geq 400** *(except CS 498)*

ACS Concentrations

- Concentration in **Computer Game Design (CGDS)**
 - 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 (SWE)**
 - Foundation: STAT 344; CS 306
 - Core: SWE 205, 301, 401; SWE 419, SWE 437
 - Five courses chosen from:
 - CS 450, 455, 463, 465, 468, 475, 477, 491; SWE 432, 443
 - ENGH 388 & one of the following:
 - (PSYC 333, COMM 320, COMM 335)

- Concentration in **Geoinformatics (GINF)**
 - Foundation: CS 306, GGS 102, 103, 110, 300; STAT 250
 - Core: GGS 310, 311, 366, 379
 - four courses from GGS 354, 411, 416, 422, 426, 429, 462, 463, 470

ACS Concentrations

new!

- Concentration in **Business Management (BMGT)**
 - Foundation: STAT 250; CS 306; BUS 100; PSYC 100; MGMT 303; MKTG 303
 - Core: MGMT 313, 321, 451, 453
 - three courses chosen from MGMT 300-499
- Concentration in **Business Marketing (BMKT)**
 - Foundation: STAT 250; CS 306; BUS 100; PSYC 100; MGMT 303; MKTG 303
 - Core: MKTG 312, 351, 471
 - four courses chosen from MKTG >300
- Concentration in **Technology Policy (TCHP)**
 - Foundation: GOVT 101/103, 134, 150, 300
 - Core: GOVT 352, 363, 366/7/8, 426, 460, GOVT490/CS306
 - four courses chosen from GOVT 304, 312, 318, 351, 369, 400, 414, 435, 444, 446, 461, 462, 464, 480

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>
- **Remember: once starting courses at GMU, GMU students cannot take coursework elsewhere for GMU credit (without PRIOR permission).**
 - As an example, 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. Rarely approved with only a syllabus.

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)
 - Mason Core *(e.g. approved Mason Core Literature course, COMM 100/101)*

Not calculus ready yet?

- CS 108 *(covers first half of CS 112)*
- CS 110
- proscribed next Math course (105, 123)
- Mason Core *(e.g. approved Mason Core Literature course, COMM 100/101)*

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, 203, STAT 344)
- next natural science or mason core
- 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

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 offer appointments every workday.
(10am-12pm, 1pm-4pm)

<https://go.gmu.edu/cs-ug-advising>



- Email: csug@gmu.edu
 - Contact us by email – for questions, sending forms, requesting 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!)

What Happens Next

- Activate your Mason ID/password
- Take the Math Placement Test if needed https://math.gmu.edu/placement_test
- Use PatriotWeb/PatriotScheduler to plan your semester
 - patriotweb.gmu.edu → Student Services → Registration
- 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

Advising

csug@gmu.edu

Buchanan D215

10am-12pm. 1-4pm weekdays

<https://go.gmu.edu/cs-ug-advising>

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

More Useful Orientation Links

These slides: (or via QR code to the right →)

cs.gmu.edu/media/uploads/programs/undergraduate/files/cs_orientation.pdf



Access these slides
via the QR code

Math Placement Test & Override Request:

science.gmu.edu/academics/departments-units/mathematical-sciences/mathematical-sciences-testing-center

Info about AP Scores:

www2.gmu.edu/admissions-aid/apply-now/how-apply/transfer/transfer-credit-policy#exams

George Mason Course Catalog: catalog.gmu.edu

How to Register for Classes:

- video: <https://registrar.gmu.edu/wp-content/uploads/8E519658-EC8A-4DE5-ADA7-515A28693764-.mp4>
- pdf: https://registrar.gmu.edu/wp-content/uploads/Registration-Instructions_4-2-21.pdf

Adding yourself to a Waitlist:

- <https://registrar.gmu.edu/students/patriot-web-tutorials/interactive-demo-adding-yourself-to-waitlists/>