Getting Started in Computer Science

Transfer Students

Department of Computer Science

http://cs.gmu.edu/

Volgenau School of Engineering
Agenda

PLEASE SIGN IN !!

• Department information
• General information
• Program information
  • The BS CS Degree Program
  • The BS ACS Degree Program
• What do I register for? **Patriot Scheduler**
• Questions?
Department Info

• The CS Department office is located in the Nguyen Engineering (ENGR) Building, Room 4300
  • Department Chair: Dr. Sanjeev Setia
  • Associate Chair: Dr. Pearl Wang and Dr. Jan Allbeck – oversees the undergraduate programs
  • CS Undergraduate Advisors: Ms. Kara Smith
  • There are 50 full time Faculty in the Department and their offices are located on the 4th and 5th floors of the ENGR building

• We’re part of the Volgenau School of Engineering (VSE) which contains the following Departments:
  • COMPUTER SCIENCE
    • Bioengineering
    • Civil & Environmental Engineering
    • Electrical and Computer Engineering
    • Information Sciences and Technology
    • Mechanical Engineering
    • Statistics
    • Systems Engineering & Operations Research

NO ONLINE OR NIGHT CLASSES!!!
General Information

- Activate your Mason ID and password at password.gmu.edu
  - All information to/from you and Mason is sent to your Mason email

- The CS Department website is cs.gmu.edu
  - It contains Student FAQs, contact information for faculty, course syllabi, jobs and student organization information

- The Mason Registration system is called PatriotWeb: patriotweb.gmu.edu
  - Use this website to register for classes
  - Using **Patriot Scheduler** will make registering much easier
  - Use this website to check your degree progress (DegreeWorks)
  - Use this website to check your advanced placement or transfer credit

- The Mason Catalog is online: catalog.gmu.edu
  - Check it frequently for reference to your degree requirements
• The Mason Transfer Admissions website is: admissions.gmu.edu/transfer
  • Check it for AP/IB and Transfer equivalencies: http://admissions.gmu.edu/transfer/transferCreditSearch.asp

• George Mason University has an Honor Code !!
  • Make sure you understand what your responsibilities are.
  • Go to the Mason Honor Code website:
    • oai.gmu.edu

• The Computer Science Department also has an Honor Code for Programming Projects.
  • It is strictly enforced!
Undergraduate Degree Programs

• We offer two undergraduate BS degrees:
  • BS Computer Science (BS CS)
  • BS Applied Computer Science (BS ACS)

• Both degrees require a minimum of 120 credit hours = 4 years full-time

• Other program options:
  • Software Engineering Minor (16 credit hours)
  • BS/Accelerated MS options (144 credit hours)
Course Policies

- Course designations at Mason:
  - 100 level courses are typically for freshmen
  - 200 level courses are typically for sophomores
  - 300 level courses are typically for juniors
  - 400 level courses are typically for seniors

- Courses must be taken in sequence
  - Almost every course has a prerequisite chain
  - Prerequisites are enforced by the registration system

- You must earn a C or better in a CS or MATH class in order to take the follow-on course

- Courses offered by the department may be taken at most three times; failure to pass a required Math or CS course after three attempts results in termination from the major
Selective Withdrawal:

Every GMU undergrad is allowed three selective withdrawals where you can to drop a course after the drop date (but before the selective withdrawal deadline) - use these wisely!

One C-/D rule:

Computer science majors are permitted to use one “C-” or “D” grade within Major coursework toward graduation, as long as that course is not a prerequisite for another class.
BS CS Educational Objectives

• The BS CS program is accredited by Computing Accreditation Commission of ABET (www.abet.org)

• The objectives of the BS CS degree are to provide our graduates with

  • A *foundation for successful careers in industry*:
    – graduates will have a broad understanding of the fundamental concepts, methodologies and tools, and applications of computer science.

  • A *foundation for graduate study*:
    – graduates of the program will have the academic preparation for successful completion of rigorous graduate programs.

  • *Professional preparation*:
    – graduates will have effective written and oral communication skills, and be able to work collaboratively in a professional and ethical manner.
The BS CS Curriculum

- Mason Core requirements (24 credits)
  - *Foundation*: English composition courses
  - Communications 100 - Public Speaking
  - *Core*: Literature, Western Civ., Social & Behavioral Sciences, Global Understanding, Fine Arts

- Major requirements (88 credits)
  - Required CS courses (35 credits)
  - Mathematics and Engineering courses (20 credits)
  - CS-Senior elective courses (15 credits)
  - CS-Related elective courses (6 credits)
  - Natural Sciences (12 credits)

- General Electives (8 credits)
  - Note: Remedial math classes do not count towards graduation
Major Requirements (CS Core)

• CS 110
  • Essentials of Computer Science

• CS 306
  • Synthesis of Ethics & Law for the Computing Professional

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

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

• CS 321
  • Software Engineering

• CS 330, 483
  • Formal Methods & Models, Analysis of Algorithms
Five CS-Senior electives:

- **CS 455 or 468 or 475**
- Four additional courses chosen from
  
  - 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 469 - Security Engineering
  - CS 471 - Operating Systems
  - **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 490 - Design Exhibition
  - CS 491 – Industry-Sponsored Senior Design Project (3 credits only)
  - CS 499 - Special Topics in Computer Science*
  - MATH 446 - Numerical Analysis I or OR 481 - Numerical Methods in Engineering
Course Prerequisite Chains

**Prerequisite Structure for CS Department Courses**

[C or better needed for all prerequisites]

- CS 112
- CS 262
- CS 110
- CS 211
- CS 310
- CS 330
- CS 367
- MATH 113
- MATH 125
- CS 325
- CS 351

Satisfaction of the prerequisites for MATH 113

CS 306

Junior Standing, COMM 100, ENGH 302
Prerequisite Chains
Major Requirements (Math & ECE)

- MATH 113, 114, 213
  - Calculus I, II, III
- MATH 125, 203, STAT 344
  - Discrete Math,
  - Linear Algebra
  - Prob/Stat for Engineers
Major Requirements (continued)

• **Natural Science:**
  
  12 credits that must include a two-semester laboratory sequence chosen from:

  • BIOL 103 (4), 104 (4)
  • CHEM 211 (3)/213 (1), 212 (3)/214 (1)
  • GEOL 101 (4), 102 (4)
  • PHYS 160 (3)/161 (1), 260 (3)/261 (1)

• **CS Related elective courses**
  
  • Two courses selected from an approved list of ECE, OR, PHIL, STAT, SWE, SYST, MATH, or CS courses (see catalog)
BS Applied CS Degree

• BS Applied Computer Science
  • Created for students who want to work in one of the many disciplines that require advanced computing techniques.
  • Concentrations: game design and software engineering
  • Students take foundation and core CS courses along with foundation and core courses in the concentration area.
BS ACS Degree Requirements

• All concentrations share the same common foundation requirements as the BS CS:
  – CS 110 (Essentials of Computer Science)
  – CS 112 (Introduction to Computer Programming)
  – CS 211 (Object-Oriented Programming)
  – MATH 113, MATH 114, MATH 125, MATH 203, STAT 344
    Calculus I, II, Discrete Mathematics, Linear Algebra, Prob & Stat for Engineers

• All concentrations share the same common core requirements as the BS CS:
  – CS 262 (Intro to Low-Level Programming)
  – CS 306 (Law and Ethics for the Computing Professional)
  – CS 310 (Data Structures) / CS 330 (Formal Methods and Models)
  – CS 367 (Computer Systems & Programming)
  – CS 321 (Software Engineering)
  – CS 471 (Operating Systems)
  – CS 483 (Analysis of Algorithms)

• All concentrations must include one additional CS course numbered above 400
Concentration Requirements

• Concentration in Computer Game Design*
  • Foundation: GAME 230, 306, 325, 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; SWE 432, 443
  • ENGL 388 & one of the following:
    (PSYC 333, COMM 320, COMM 335)

*Not all concentration courses are offered every semester
Transfer Student FAQs

• What courses transferred?
  • Check your transcript on PatriotWeb
  • Make sure your Associate’s Degree is recorded on your transcript if you have one.

• What should I do if a previous course didn’t transfer?
  • Submit course information to the CS Department Office if you did not receive a pre-approved transfer equivalency
  • Check with us after classes have started to make sure the paperwork is updated.

• Make sure Mason receives your most recent transcript from your previous school!!
What Do I Register For?

- **All** transfer students must take CS 110 (Essentials of Computer Science) their first semester at Mason

- If you have an Associate’s Degree in Computer Science from VCCS
  - Make sure Mason receives your final transcript
  - You must still take ENGH 302 (Advanced Composition) even if your Mason Core requirements might be ‘waived’
    - Only the **Natural Sciences** section of ENGH 302 is acceptable

- You may still need, CS 262 (Intro to Low-level Programming, MATH 125 (Discrete Mathematics), and/or COMM 100 (Public Speaking).

- See the Sample Schedule for students with A.S. degrees from VCCS
• If you do not have an AS or AA degree you should
  • Make sure Mason receives your final transcript
  • Register for foundation Math and CS classes
  • Work on your Mason Core classes
    • Consult the BS CS brochure or advising checklist and take the Mason Core that you haven’t completed
• If you are also an ACS major, register for classes needed for your ACS concentration
  • Consult the ACS concentration handouts or ACS advising checklists
Mason Core

• How do I select Mason Core courses?

• The catalog has a list of courses for each category: e.g. Fine Arts, Social & Behavioral Sciences, Literature, etc.

• Consult the online Mason catalog under Mason Core here:
  • catalog.gmu.edu
  • It lists the courses that qualify for each of the Core categories
Getting Help

• After classes begin, you will be assigned a CS Faculty Advisor. We will email you to let you know who your Faculty Advisor is.

• 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 are open 9 – 5pm every day.
  • Email: csug@gmu.edu
What Happens Next?

- Activate your Mason ID and password
- Use PatriotWeb to determine the day/times for the classes that you want to take
- Register on PatriotWeb. (Go to the registration site at the time and location listed for Orientation.)
- Use Patriot Scheduler
- Any questions?