

Fall 2018 1



## Getting Started in Computer Science Freshmen Students

Department of Computer Science  
<http://cs.gmu.edu/>  
 Volgenau School of Engineering

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## 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?
- Questions?

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## Department Info

- The CS Department office is located in the Nguyen Engineering (ENGR) Building, Room 4300
  - Department Chair: Dr. Sanjeev Setia
  - Associate Chairs: Dr. Mark Snyder; Dr. Elizabeth White
    - They oversee the undergraduate programs
  - CS Undergraduate Advisors: Ms. Lauren Reyna, Ms. Linda Sheridan
  - There are 50 full time Faculty in the Department and their offices are located on the 4<sup>th</sup> and 5<sup>th</sup> 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



Mooney: Researching reputation system for Skyrim-like game.

**NO ONLINE OR NIGHT CS CLASSES!!!**

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## General Information

- Activate your Mason ID and password at [password.gmu.edu](http://password.gmu.edu)
  - All information to/from you and Mason is sent to your Mason email
- The CS Department website is [cs.gmu.edu](http://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](http://patriotweb.gmu.edu)
  - Use this website to register for classes
  - 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](http://catalog.gmu.edu)
  - Check it frequently for reference to your degree requirements

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- The Mason Transfer Admissions website is: [admissions.gmu.edu/transfer](http://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](http://oai.gmu.edu)
- The Computer Science Department also has an Honor Code for Programming Projects.
  - It is strictly enforced!
  - Look for it on the Honor Code page of the CS website:
    - <http://cs.gmu.edu/resources/honor-code/>

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## 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)

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## 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

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### Repeat Limits & Termination

Courses offered by the VSE departments may be taken at most three times. Failure to pass a required Math or CS course after three attempts results in termination from the ACS or CS majors

### 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.

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## BS CS Educational Objectives

- The BS CS program is accredited by Computing Accreditation Commission of ABET ([www.abet.org](http://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.

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## The BS CS Curriculum

- **Mason Core requirements (24 credits)**
  - *Foundation:* English composition courses
  - Communications 100 - Public Speaking (3 credits)
  - *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

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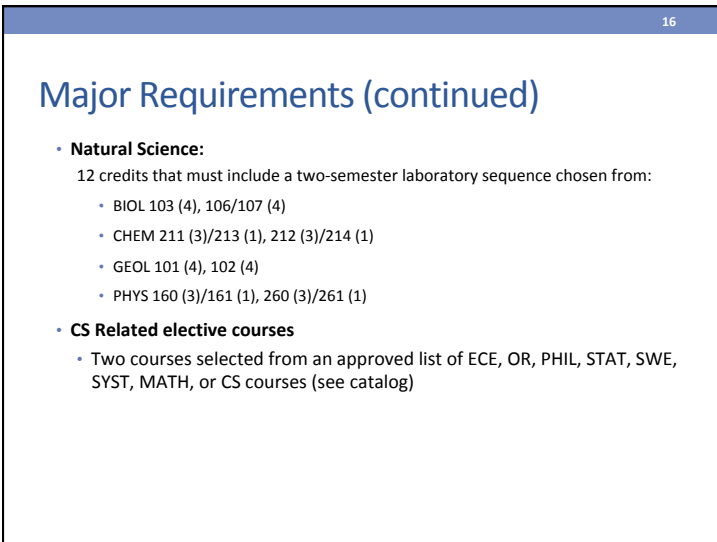
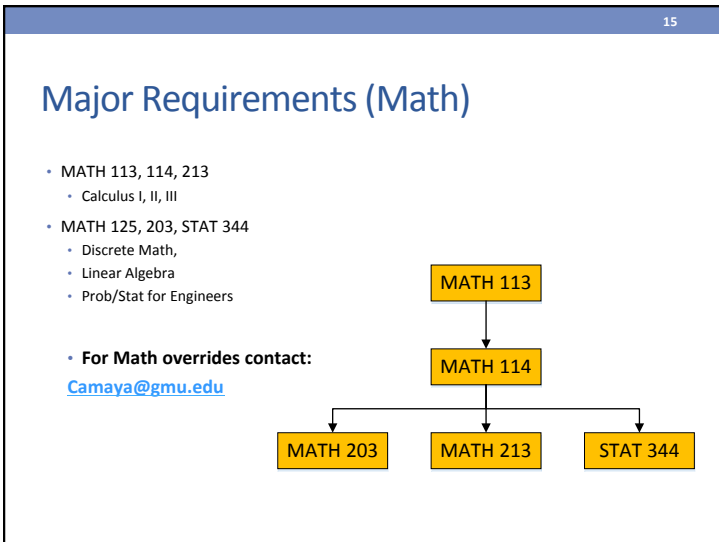
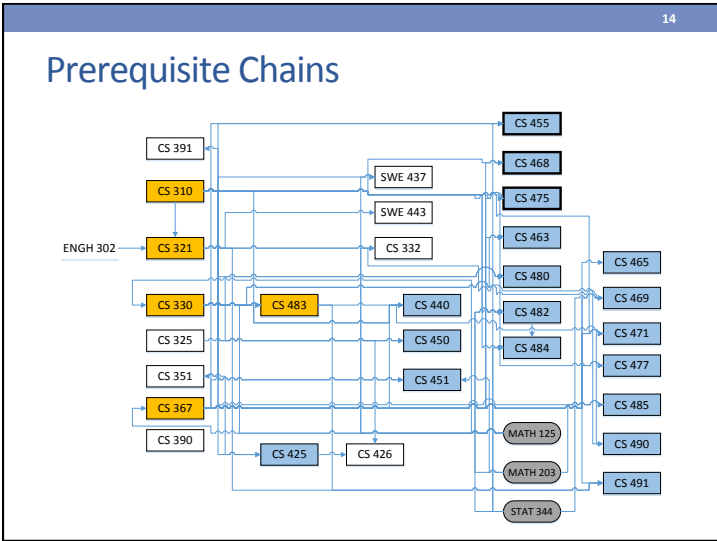
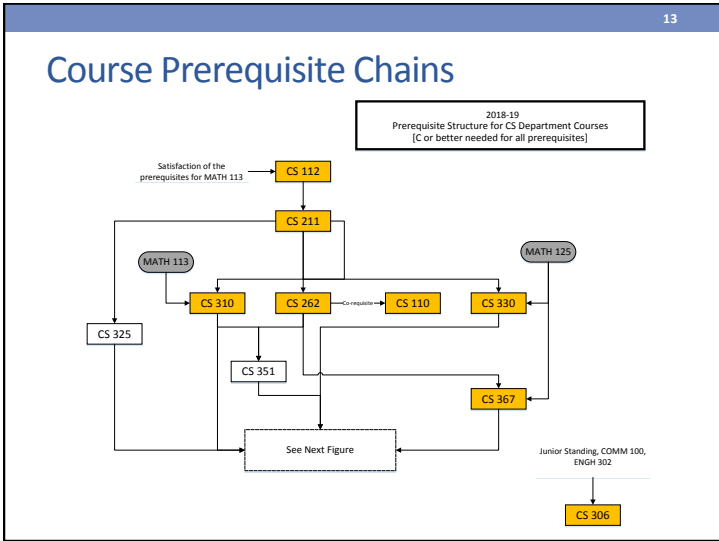
## Major Requirements (CS Core)

- 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

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## 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 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 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



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## 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.

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## 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

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## Concentration Requirements

- 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)

\*Not all concentration courses are offered every semester

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## What Do I Register For?

- If your Math Placement Score qualifies you for MATH 113 (Calculus I), then you should sign up for
  - CS 110 (Essentials of Computer Science), *in Spring 2019*
  - CS 112 (Introduction to Computer Science)
  - MATH 113 (Calculus I)
  - Mason Core classes (See the Sample Schedule handouts)
  - Classes needed for your ACS concentration (See the Sample Schedules handouts) if you are ACS major
- If your score does not qualify you for MATH 113, then
  - CS 110 (Essentials of Computer Science), *in Spring 2019*
  - You should register for MATH 105 (Pre-Calculus) or MATH 104 (Trig & Transcendental Functions) or MATH 123 (Calculus with Algebra/Trig Part A) as appropriate
  - You should register for courses that satisfy the Mason Core requirements (see the Sample Schedule handout for students who start with Math 104 or 105)
  - Next semester, if you have earned a C or better in MATH 104/105/123 or passed the Placement Test, you should register for
    - CS 112
    - MATH 113
    - ...

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## Freshman FAQs

- What should I do if I had AP or IB coursework in High School?
  - Depending on your score,
    - You might receive Mason credit for CS 112 if you took the AP Computer Science exam
    - You might receive Mason credit for MATH 113 if you took the AP Math exams
    - Check the [admissions.gmu.edu/transfer](https://admissions.gmu.edu/transfer) website for score equivalencies
  - Make sure Mason has evidence that you received AP or IB credit or you will not be able to register for follow on courses

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## 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](https://catalog.gmu.edu)
  - It lists the courses that qualify for each of the Core categories

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## 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 accept walk-ins 10 – 4 pm every day.
  - Email: [csug@gmu.edu](mailto:csug@gmu.edu)
    - Contact us by *email* for CS course overrides
    - Send from your Mason email account
    - Include your G number on all correspondence

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## What Happens Next?

- Activate your Mason ID and password
- Take the Math Placement Test
- 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.
- Any questions?