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

Mooney: Researching reputation system for Skyrim-like game.

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!
  - Look for it on the Honor Code page of the CS website: *http://cs.gmu.edu/wiki/pmwiki.php/HonorCode/HomePage*

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
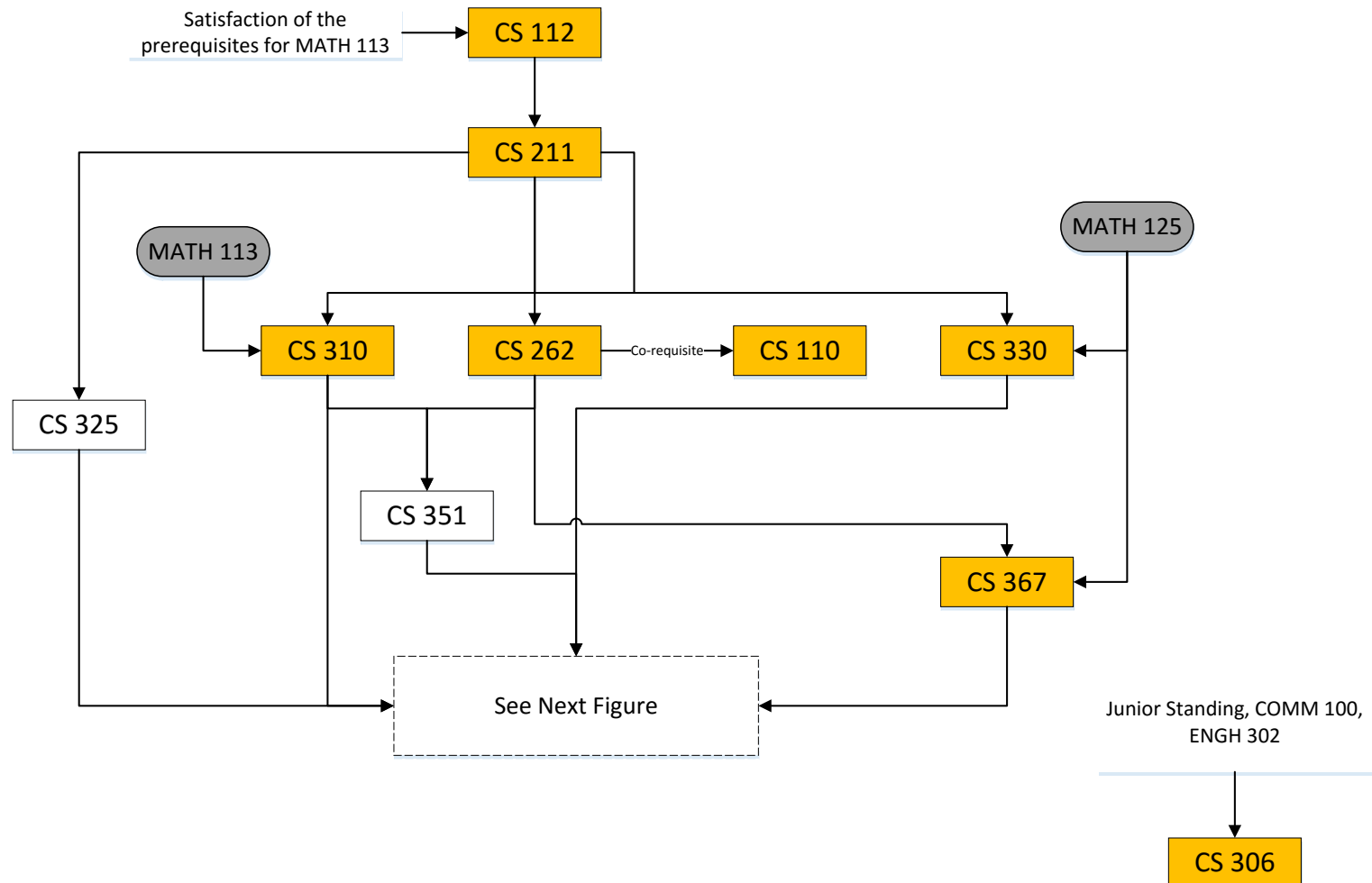
Major Requirements (CS Core)

- 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
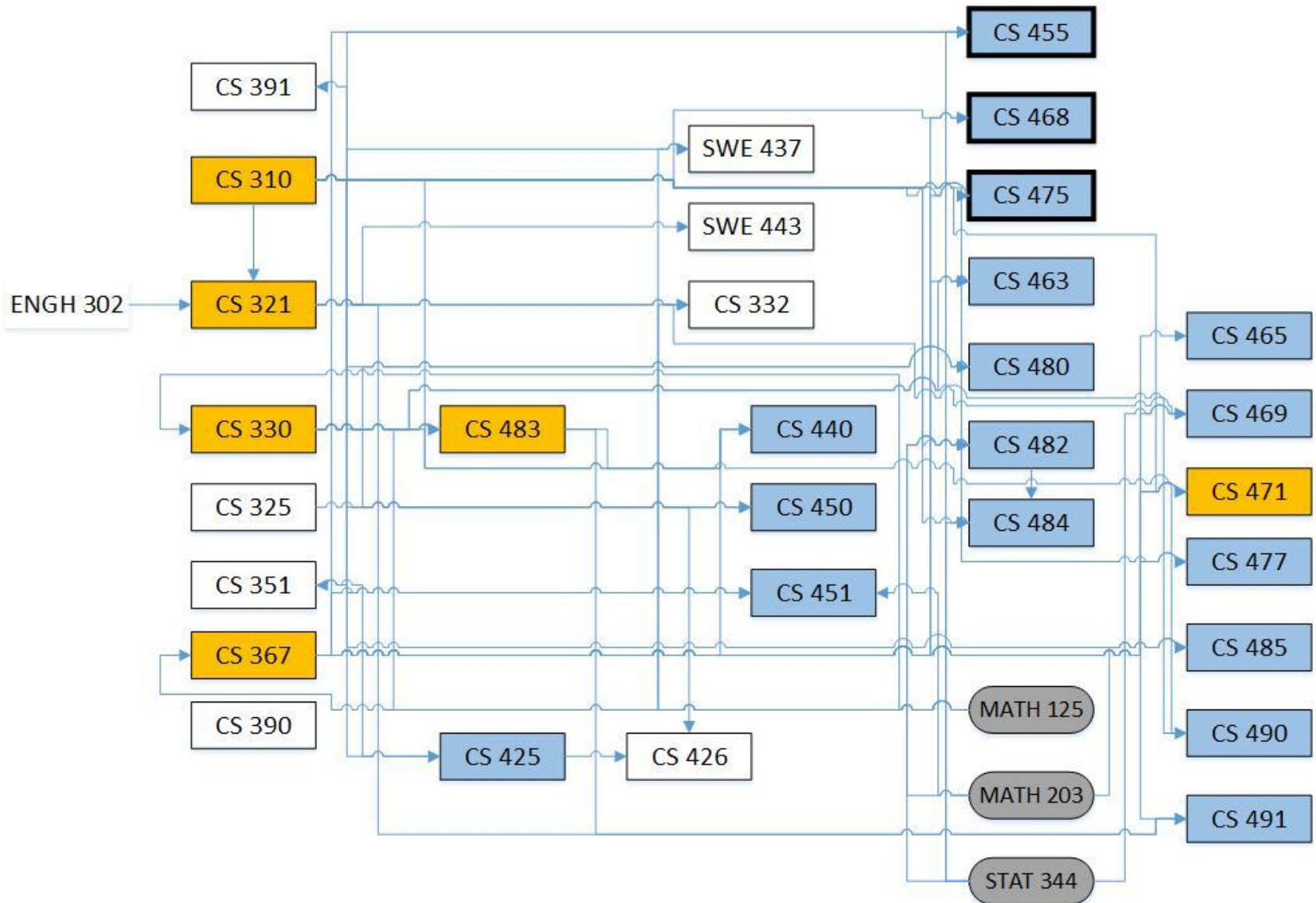 - Formal Methods & Models, Analysis of Algorithms

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

2017-18
Prerequisite Structure for CS Department Courses
[C or better needed for all prerequisites]

Satisfaction of the prerequisites for MATH 113 → CS 112

CS 112 → CS 211

MATH 113

MATH 125

CS 310   CS 262 —Co-requisite→ CS 110   CS 330

CS 325

CS 351

CS 367

See Next Figure
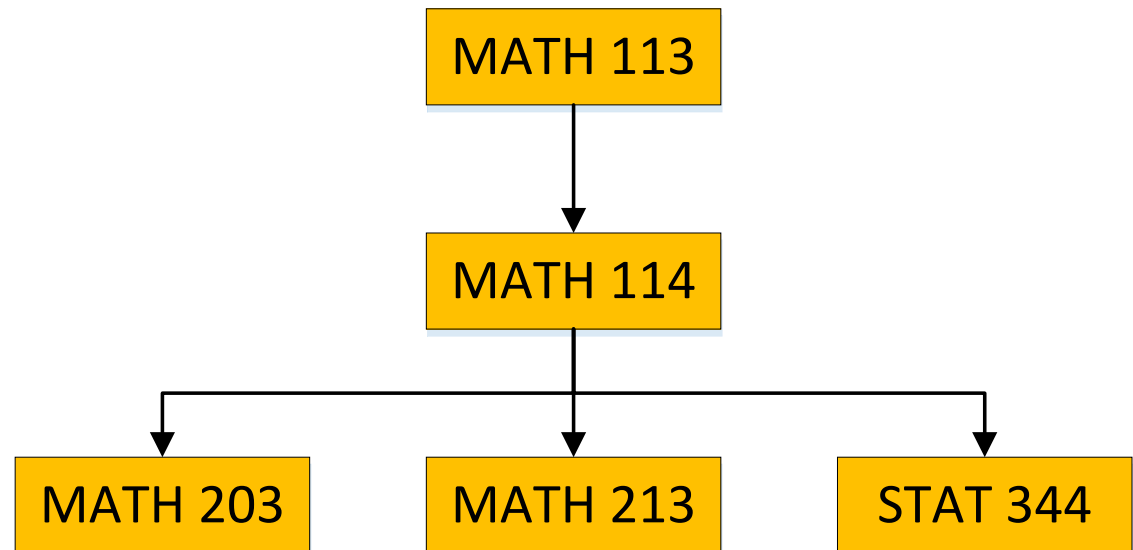
Junior Standing, COMM 100, ENGH 302

CS 306

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

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                    ┌──────────┐
                    │ MATH 114 │
                    └────┬─────┘
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          ▼              ▼              ▼
    ┌──────────┐   ┌──────────┐   ┌──────────┐
    │ MATH 203 │   │ MATH 213 │   │ STAT 344 │
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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 <u>foundation</u> 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 <u>core</u> 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 <u>one</u> 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 <u>most recent transcript</u> from your previous school !!

What Do I Register For?

- <u>All</u> 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 <u>Natural Sciences</u> section of ENGH 302 is <u>acceptable</u>
  - 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?