

**Script:**

Module 1

**Objective:**

- Create a strong understanding of what foundational courses are
- Focus student on which foundational course to take in their first year at OMSCS

[Overview]

Hello, this is [name]. In this video, we will give you some advice on choosing your first courses in OMSCS. We will also provide you with some additional resources that will be very useful throughout the program.

[Disclaimer]

All information in this tutorial is accurate through the Fall 2016 semester of the OMSCS program at Georgia Tech. For the most recent and up-to-date information on foundational courses, please consult the official OMSCS Current Courses web page

[ GRAPHIC: SHOW THIS WWW] at: <http://www.omscs.gatech.edu/current-courses>.

[Introduction]

Congratulations on your admission to the OMSCS program! As a new student, you might wonder, which courses should you start off with?

First, you should take a look at the official OMSCS current [courses](#) page. [screenshot showing the page] Current course offerings cover a lot of different topics.

As you can see, several of the courses here are marked with an asterisk. A course marked with an asterisk means that it is a foundational course. So What is a foundational course? Well this is very important, so let's discuss that now.

#### [Why are foundational courses important?]

According to the [admissions requirements](#) of OMSCS, all new students begin the program as conditionally admitted until they complete 2 foundational courses, both with a grade of B or better. You must accomplish this within the first 12 months, or the first 3 semesters, to continue in the program. Also, as long as that requirement is not satisfied, you will be able to enroll into foundational courses only, and at most 2 classes per semester. After you satisfy this requirement, you will become fully admitted into the program, meaning that you can start taking non-foundational courses, and may take up to 3 classes per semester. Please note that you can only take 1 class in Summer semester.

As you can see, most of the courses are foundational, so the requirement of 2 foundational courses within 1 year is not too difficult to satisfy. If you do not fulfill this requirement, a hold will be placed on your account which will prevent you from registering for any future courses.

#### [Course research]

So as we just mentioned, as a new student you will only be able to enroll in foundational courses when you begin the program. There are a few steps to take when choosing your first courses. First, review the official websites for these courses. A typical course page includes a brief overview of the subject matter, prerequisites, and other useful information. If you don't feel prepared or fully comfortable with the prerequisites, you should consider taking an lesser demanding. You may also want to try self-studying as preparation: Many OMSCS courses are freely available on Udacity; you can access them by creating a separate, non Georgia Tech account. You'll probably want to check out the lectures for the class you are interested in prior to enrolling in it. We will provide you with some additional resources in a later video.

The next step in choosing a foundational course is to go to the [unofficial course survey page](#) and check out the reviews. Consider your course based on its rating, required skills for the

assignments, difficulty, and average hours per week. Finally, take a look at the [Course Specialization Matrix](#) from the Google+ Community. This matrix provides further details on the courses, including what programming languages they use, their project and exam formats, and also the Udacity difficulty rating.

#### [Foundational courses and specialization]

Another thing you'll want to consider is the specialization that you plan to pursue. Ideally, you would choose your foundational courses in the context of your desired specialization. [On the screen: [CPR](#) 2 required + 3 electives, [CS](#) 3+3, [II](#) 3+2, [ML](#) 2+3]

To graduate, you need to take 10 courses and meet the specialization requirements. Depending on the specialization you choose, you'll have to take 5 or 6 courses as some combination of core courses and elective courses from the list for that specialization. That leaves you with about 5 courses that you can choose freely from the all OMSCS courses.

It would be a good idea to choose a foundational courses that fulfills either a core or elective course from your chosen specialization. This way you can kill two birds with one stone.

We will discuss specializations in more detail in a later video.

#### [Strategies for choosing foundational courses]

Some students prefer to start with lesser-demanding courses during their first few semesters. These courses allow you to get comfortable with the format of OMSCS without committing too many hours. This is a good strategy for students who may not have a vast experience in computer science, and also those who have had a long break from formal education before OMSCS.

On the other hand, if you have an extensive Computer Science or Math background, you may prefer to start with more difficult classes.

Finally, check out the topics of the courses. Would you rather study something that is closely aligned to what you already do everyday, or do you want to step out of your comfort zone and

learn something completely different? For example, if you are a database administrator, would you take Database Systems Concepts and Design because it may help you perform better at your job, or would you take something like Advanced Operating Systems to expand your overall Computer Science knowledge? These choices are entirely up to you.

### [Course Recommendations]

Are you still not sure which class to choose? We have compiled a short list of suggestions.

[show slide with this list: CS 6300 Software Development Process, CS 6250 Computer Networks, CS 7637 Knowledge-Based Artificial Intelligence, CS 8803-O02 Introduction to Operating Systems, and CS 6400 Database Systems Concepts.]

### [CS 6300 Software Development Process]

Software Development Process is one of the most highly recommended courses to take at the beginning of the OMSCS program. It covers many useful areas of software engineering, such as version control, unit testing, and design processes. All assignments use Github and Java, and students will build their own Android app in a group project.

To succeed in this class, you should be familiar with Java, and preferably Android as well because of the group project. If you want to get ahead you can also familiarize yourself with JUnit and Git, however you will probably be able to learn these from scratch as you go through the course.

The topics covered in this course will teach students to use tools like Git and software development methodologies for the projects in other classes. It also prepares students for more advanced software development courses like CS 6310 Software Architecture and Design and CS 6340 Software Analysis and Testing.

### [CS 6250 Computer Networks]

Computer Networks has been labeled by many as one of the least demanding courses in the program, and is therefore recommended to be taken either as an introductory course or alongside a more demanding course (such as Machine Learning, Computer Vision, KBAI, or Advanced Operating Systems). In this course you will learn about the seven OSI layers as well as a general history of computer networking.

The three main components of classwork are:

Udacity lectures mixed with external papers and articles.

Several programming assignments in python (about 10 total)

And about 4-5 quizzes.

In this class you will use a virtual machine installed with Mininet (which is a self-contained network testing environment). Prior experience with Python, Networking, and a general understanding of Mininet is a plus.

This class prepares students to take other Computing Systems classes like CS 6035 Introduction to Information Security and CS 6290 High-Performance Computer Architecture.

#### [CS 7637 Knowledge-Based Artificial Intelligence]

Knowledge-Based Artificial Intelligence is one the most popular courses in the program. The main goal here is to acquaint you with a range of artificial intelligence ideas and techniques, and at the same time let you build an AI agent that can perform well on a human IQ test - Raven's Progressive Matrices [show slide with example of Raven's matrix from the class?].

You will work on your agent throughout the semester, and you will have a lot of freedom in applying new ideas that you learn in the class. You will also have several written assignments, and provide feedback on other students' assignments as well.

KBAI projects require a lot of programming; as of Fall 2016, you're given the option of using either Java or Python, so be sure to choose one and brush up on your skills prior to starting the class.

#### [CS 8803-002 Introduction to Operating Systems]

In IOS you will learn the details of Operating Systems including how they are designed and implemented. This course focuses on processes and process management, threads and concurrency, resource management, distributed and non-distributed services, and also data center and cloud software [slide from P1L1/Course Topics of IOS].

IOS will provide you a great opportunity to show off your C programming skills in Linux. This is a very challenging class, but it is also very rewarding. If manual memory management is something that doesn't scare you, go for it!

#### [CS 6400 Database Systems Concepts and Design]

In Database Systems Concepts and Design, you will learn the details of designing and implementing databases and web applications. The course focuses on relational database design, documentation, and implementation. Groups will work together to submit projects in phases which will culminate into a web application outlined by the course instruction team. For example, in Fall 2016, the project was to design an emergency resource allocation system for users including individuals, government employees, or private company employees.

There are 4 exams throughout the semester that will test your knowledge on readings and lectures. If you've never built a database or web application before, this course will help you connect the dots with front-end, back-end, and database elements. A knowledge of GIT and a programming language will aid your success in this class.

#### [Where can I find more information about the courses?]

You can find information on these and other courses using the following resources.

The individual course pages from the official OMSCS website

(<https://www.omscs.gatech.edu/current-courses>) will give a brief overview of all courses, including information on prerequisites, grading policy, and recommended course readings.

The unofficial OMSCS Course Review Survey (<https://omscentral.com/reviews>) has crowdsourced data on course difficulty, time commitment, grade distribution, and comments from students who have taken the classes.

You can also read posts on various social media communities, such as [Google+ OMSCS community](#) and the OMSCS subreddit. In addition, the Google+ community provides a comprehensive FAQ that can answer a lot of questions new and prospective students may have, as well as the course specialization matrix that we mentioned in a previous video. There are many more Google+ communities for specific groups, such as students from particular regions and also students with specific specialization interests. These communities provide the means for you to get dependable answers to questions from your classmates.

Reddit has its own OMSCS community, and there you can find OMSCS FAQ (<https://www.reddit.com/r/OMSCS/wiki/index>). Be sure to check it out!

Finally, the OMSCS [Slack community](#) provides a platform for current and past students to communicate with each other. To gain access, login with your Georgia Tech email account. There are many channels, which including dedicated channels for each OMSCS course. Later on, you can create your own channels for group assignments in the program.

### [Conclusion]

In this video series, we introduced you to foundational courses, basic strategies on selecting them, suggested some foundational courses that are highly-recommended by your OMSCS classmates. Finally, we provided some of the resources that can help you make some important decisions. Thank you for watching, I hope that you found this information helpful. Good luck in your first classes.