1 - Welcome to Computer Networking  
  
Welcome to networking. I'm Nick and I'll be your teacher in this course. >> And I'm Josh. Nick and I have prepared a set of fun projects for you to tackle. >> We have an awesome coursed prepared for you. We'll be covering advanced concepts in networking. Such as software defined networking, data center networking and content distribution. >> You'll complete projects using a state of the art network emulator called mini-net to understand and explore these advanced concepts. Leading up to a final project replicating actual networking research.

2 - Computer Networking  
  
Welcome to the graduate course on computer networking. The primary goal of this course is to provide a survey of the necessary tools, techniques, and concepts to perform research in computer communications. This is a project based course, and there will be significant emphasis on hands-on experience. In networking, perhaps more than many other subjects, realization is key. You can read about concepts or techniques in a textbook, but really the most effective way to learn networking is by doing. So, you'll gain a lot of hands on experience in this course. Through the assignments. In comparison to an introductory networking course, which you may have taken, this course will provide more in depth coverage of networking topics. And, it will also offer a crash course in some of the available tools that are now available for performing research in computer networking. You will gain experience, with many of these tools, through the project based assignments in the course.

3 - Two Components  
  
The course has essentially two components. In the lectures you will learn about cutting edge research problems in computer networking and you'll also gain the ability to come up with your own problems. We'll pick up the basics along the way as necessary. In addition to the lectures there are also a number of problem sets or assignments that you will work through. As you work your way through the course. The problem sets and assignments in the course will give you proficiency with the tools and technologies that are state of the art in the research community. That will allow you to follow through on the research ideas that you may come up with as we work through various topics in the course. There are tons of exciting tools to use, and the problem sets and assignments will help you gain proficiency with them.

4 - What the Course is NOT About  
  
It's also worth bearing in mind what this course is not about. The course is not an introduction to networking, so there are a number of basic topics that won't be covered in this course. In particular, we'll assume that you're already familiar with the basics of things like TCP, Socket programming, and so forth. Anything that you might have picked up in an introductory networking course. We are just going to assume as a prerequisite for this course. So before you proceed, it may be worth revisiting some of your old undergraduate networking course material. The course is also not providing any introduction to programming. However, many assignments in the course will make use of some amount of programming. So, some knowledge of scripting languages like Ruby, Python or Perl will certainly be helpful in some assignments. We'll be making a lot of use of a network emulation toolkit called Mininet and to use that tool most effectively, You will certainly want to learn some Python if you don't already know it. Don't worry if you don't know these languages already though. There's plenty of time to learn, in the course. Since the deadlines are fairly spread out, and the assignments aren't focused on knowledge of programming per say. But rather, the concepts that you are going to realize in the programming languages.

5 - Course Structure  
  
The course is broken into three smaller sub-courses. The first course will cover topics including architectural principles, switching, routing, naming, addressing, and forwarding. The second part of the course will cover congestion control, streaming, rate limiting, and content distribution. And the third part of the course will have modules on, software defined networking, traffic engineering, and network security. There will about three assignments per sub course, plus a final project.