

Computer Networks - Summer 2018

This course focuses on advanced topics in computer networks. The goal of this class is to give students an in-depth understanding of advanced concepts through lectures, readings, discussions and hands-on projects.

Prerequisites

Background: A prior course in computer networking is not a prerequisite. However, this is an advanced course. Many things that would be covered in an introductory undergraduate course will not be covered in this course beyond a "review" level. Having a prior understanding of *basic* networking concepts is expected.

Programming skills: We will be completing the project assignments in **Python 2.7** (many of the tools we're using like mininet and pyretic are language-dependent on Python). An intermediate level of skill with Python is adequate for the projects in this course. If you have a beginner level of skill, but have programmed something more complex than "Hello World" in Python before, then you should be able to learn what you need to about the language as you go through the course — it may just take you a little more time, and a willingness to search the Python documentation and other Internet sources to teach yourself how to do some things.

If you have never programmed in Python before (or have only written "Hello World" or only completed a basic tutorial on that level), then you may find it better to take some time to learn Python (a course is available on Udacity for this!) prior to the start of the course. If you have experience learning new computer languages and feel comfortable teaching yourself a new language from scratch in a short period of time, then you may find extra time and effort will be enough to be successful.

Class Schedule

The class schedule is posted on Canvas. It contains the following information (and more):

Lectures & Readings: The lectures and accompanying readings for each week. Students are responsible for watching and reading this material.

Projects: Project start and end dates are provided on the schedule. Note that instructions are provided on Canvas.

Tests: We will be having tests administered through Proctortrack software.

Piazza discussions: We will be discussing topics that are in focus for each one of the three parts of the course (3 Piazza discussions in total through the semester). Each discussion will have two threads; One is a research oriented thread that will focus on open research questions about the topic, and the

other is an experience oriented discussion thread that will focus on exchange of ideas/information about practical aspects (eg operational issues, common practices, etc).

Academic calendar: Major Institute events are documented, but students should check the official academic calendar (found [here](#)) for a comprehensive list of dates and deadlines such as registration dates, withdrawal deadline, school holidays, etc.

Schedule changes: Changes to the class schedule/projects/etc will be announced on Piazza. Please be sure to check Piazza on a daily basis for updates.

Course Virtual Machine

[Download here](#). (~2.2 GB). The username and password for the system is `mininet`. Please double-check that you have a complete download:

- MD5Sum: 2400b77aa455c366146e9dbfff8090d7
- SHA-1: 352b2b669ba58125eed99f6f2ff4f17fafc140b5
- SHA-256: c618bed91750596d220ed3b18a68814e2ffa404fe855e76c49faeb1d8ea36d2c

Projects throughout the course will be released and graded, on this VM. We recommend using [VirtualBox](#) to run your VM so that we can provide support for your VM configuration. If you are willing to self-support then you may use any virtualization system that supports importing .OVA files. *We do not recommend building your own* virtual machine due to specific software packages required.

Textbook

There is no required textbook for this class. The tests will be based on the lectures and readings provided, rather than material outside of these. As an optional reference resource, we suggest:

Computer Networking: A Top-Down Approach by Kurose & Ross, ISBN-10: 0132856204 ISBN-13: 978-0132856201

Communications

All communications for the class will take place within Piazza (class page [here](#)). This includes, but is not limited to the following:

Student Questions: Students are strongly encouraged to post their questions related to the lectures, readings, weekly discussions, test preparation, or projects on Piazza. Due to the large volume of this class, we do not recommend emailing directly the instructor or the TAs.

Private Posts: Students are able to post privately to the teaching staff on Piazza. This is appropriate when a student needs to ask a question about a personal matter or request a regrade. Students may also post privately to ask questions about material when the question would violate academic integrity rules if posted publicly. An example of this would be asking a question about their code submission for a project that requires posting the code.

Instructor/TA Announcements: Announcements within Piazza will be used to communicate updates to projects, grades being posted, and other administrative information. Students should be active on the Piazza forums, and are responsible for reading announcements within 24 hours, as the information typically will be time sensitive. While the teaching staff will make every effort to update resources/descriptions on Canvas in the event of a policy or project change, it is ultimately the responsibility of the student to obtain updates on Piazza. This includes all posts, whether they have been pinned by the teaching staff or not.

Email announcements through Piazza: Particularly important announcements may occasionally be sent by email. We will use Piazza to do this, so you will receive these announcement emails at whatever email address you have in your Piazza account. This may be your Georgia Tech email address, or some other email address if you prefer. However, whichever you use, you are responsible for checking it daily in case of such announcements.

Piazza code of conduct: Please review the Piazza code of conduct for this class on the policies document, located at Canvas.

Emailing the Instructor: Students may directly email the instructor - mkonte@gatech.edu - if there is an issue that has not been resolved through communication on Piazza. Due to the large volume of students, direct emails may take longer to be answered. Students are strongly encouraged to post on Piazza first.

Office Hours

The office hours schedule for Summer 2018 is as follows:

- **Piazza w/ Instructor Maria Konte.** These Piazza-based sessions are mostly focused on lectures, readings, research/ discussion threads and test preparations questions. Interaction will be mostly through Piazza.
- **Thursdays at 7 PM ET with Head TA Stacia Stokes.** These sessions are mostly focused on projects questions.
- **Chat Sessions.** In addition to the above, the class TAs will hold 30 min chat sessions, 1 to 5 times per week, to help students with project questions. We will be announcing the schedule of these per week, depending on the TAs availability.

Student participation: We expect that students will be leading/driving these sessions through their participation. If the students are not able to participate at the time of the office hours, they are strongly encouraged to post their questions in advance.

Format: We will be holding office hours online using Google Hangouts on Air via YouTube Live. A link to the hangout will be posted on Piazza in advance, and students are encouraged to post their questions as follow ups to the office hours announcement both before office hours begins and during the live broadcast. After office hours have completed, a recording of the office hours will be available via the same link. By entering questions in advance and viewing the recording afterwards, students may participate in office hours even if they are not able to attend live.

Privacy concerns: Only people with the link will be able to view the recorded office hours (or join live). However, since anyone with the link can view them, we ask that students do *not* share or copy the link. Be aware that anyone who watches live or posts a question in the Q&A tool will have their Google account appear in the recording. If you are particularly concerned about privacy, you might consider creating a dummy account that does not identify you personally. However, watching the video recording afterwards will obviously not record your Google account in the video.

Class Policies

The course policies are outlined on Canvas. The students are responsible for reading and abiding by the class policies throughout the semester.

Minimum Technical Requirements

Minimum requirements for optimal student experience on Udacity:

- Browser and connection speed: An up-to-date version of Chrome or Firefox is strongly recommended. We also support Internet Explorer 9 and the desktop versions of Internet Explorer 10 and above (not the metro versions). 2+ Mbps recommended; at minimum 0.768 Mbps download speed
- Operating system: PC: Windows XP or higher with latest updates installed Mac: OS X 10.6 or higher with latest updates installed Linux: Any recent distribution that has the supported browsers installed
- Georgia Tech's [Office of Student Computer Ownership](#) issues the following [Minimum Hardware Requirements](#) to incoming undergraduates. We recommend that you meet or exceed these guidelines to ensure you have sufficient computing power to complete all coursework and projects.

Technical support

For any technical questions, problems or concerns with with Udacity, lecture videos, Piazza, Canvas, or other Georgia Tech IT resources please find email contacts below. The instructor/TAs will not be able to assist you with this.

- For Udacity site support and technical issues with the lecture videos please email gtn-support@udacity.com
- For OIT (Georgia Tech IT dept.) support, including technical support for Canvas, please email support@oit.gatech.edu
- For technical support with Piazza, please email help@piazza.com