CST 311: Intro to Computer Networks

Spring 2021 Course Syllabus

# Course Overview

## Course Description

Introduction to data communications technologies including Local Area Networks, Wide Area Networks, Internet and internetworking protocols including TCP/IP, network security and performance, emerging industry trends such as voice over the network, peer-to-peer networking and high-speed networking. (Prerequisite: CST 238 and MATH 130)

## Instructor Information

**Section 1:**

**Name**: Chandrika Satyavolu

Please call me **Dr./Prof. Chandrika Or Dr./Prof. Satyavolu or just Professor is fine.**

**Email**: [csatyavolu@csumb.edu](mailto:csatyavolu@csumb.edu)

**Office Hours:** Monday to Thursday – 4:00 pm to 4:30 pm

@ Zoom: <https://csumb.zoom.us/j/84453841693>

Or

By appointment: [Click here to make an appointment!](https://calendar.google.com/calendar/u/0/selfsched?sstoken=UUVQcnV2NGIxMGdSfGRlZmF1bHR8NzVhMWJjMTM4NGRjNzk3ZGQ3N2NiNzQyOWIzNDhiZWU)

**Section 2:**

**Name**: Michael McCann

Please call me **Professor McCann** or **Mike**

**Email**: mimccann@csumb.edu

**Office Hours:** MW 10-11 AM and MW 7:50-8:30 PM – Please[schedule an appointment](https://calendar.google.com/calendar/u/0/selfsched?sstoken=UUdpaFVYWUZyZ2tFfGRlZmF1bHR8MmM1MTFiMDU0ZDBmZjUyMzgzNWI0YjBiMjViODQ3ODI)

## Meeting time and place

**Class meeting time:**

Section 1:

Mondays/Wednesdays - 2:00 - 3:50pm @ Zoom: <https://csumb.zoom.us/j/87970625090>

Section 2:

Mondays/Wednesdays - 6:00 - 7:50pm @ Zoom: <https://csumb.zoom.us/j/81900727844>

## Textbook

“Computer Networks – A Top-Down Approach”, 7th Edition, J. Kurose, K. Ross ([Amazon link](https://www.amazon.com/Computer-Networking-Top-Down-Approach-7th/dp/0133594149/ref=dp_ob_title_bk)). A less expensive paperback “Global Edition” version of the 7th Edition is acceptable. The 6th Edition does not include important new material on Software Defined Networks – I highly recommend having your own copy of the 7th Edition textbook. There are copies of textbook on reserve at the library for short-term checkout – learning by reading is important for your success.

# Table of Contents

[Course Overview 1](#_Toc47014236)

[Course Description 1](#_Toc47014237)

[Instructor Information 1](#_Toc47014238)

[Meeting time and place 1](#_Toc47014239)

[Textbook 1](#_Toc47014240)

[Table of Contents 2](#_Toc47014241)

[Course Context 4](#_Toc47014242)

[Course Learning Outcomes 4](#_Toc47014243)

[*Knowledge outcomes:* 4](#_Toc47014244)

[*Skills/Abilities outcomes:* 4](#_Toc47014245)

[Technology Requirements 5](#_Toc47014246)

[Recommended Technology: 5](#_Toc47014247)

[Above and Beyond Computer Science (ABCS) 6](#_Toc47014248)

[Course Policies 7](#_Toc47014249)

[Prerequisites 7](#_Toc47014250)

[Course Activities and Resources 7](#_Toc47014251)

[Grade Scale and Distribution 9](#_Toc47014252)

[Communication 10](#_Toc47014253)

[Email 10](#_Toc47014254)

[Example Email 10](#_Toc47014255)

[Slack: Join #cst438\_fa20 https://join.slack.com/share/zt-f198fg3r-QzxUSAQNtXMH4571GXzyhw 11](#_Toc47014256)

[iLearn 11](#_Toc47014257)

[Late Work 12](#_Toc47014258)

[Missed quizzes 12](#_Toc47014259)

[Course Expectations 12](#_Toc47014260)

[Attendance 12](#_Toc47014261)

[Preparation 13](#_Toc47014262)

[Behavior 13](#_Toc47014263)

[University Policies 14](#_Toc47014264)

[Academic Honesty 14](#_Toc47014265)

[Accommodation 14](#_Toc47014266)

[Academic Support (CLC) 14](#_Toc47014267)

[Student Support Services 14](#_Toc47014268)

[Veterans and Active Duty Personnel 15](#_Toc47014269)

[Freedom from Discrimination and Harassment 15](#_Toc47014270)

[Wellness 16](#_Toc47014271)

[Privacy and Accessibility Statements 16](#_Toc47014272)

# Course Context

## Course Learning Outcomes

## *Knowledge outcomes:*

1. Be able to describe the advantages and disadvantages of layering, and the application of layering idea to TCP/IP networking.
2. Be able to use essential networking applications and describe how the applications work.
3. Be able to describe the functionality and inter-layer relationships of TCP/IP protocol suite including TCP, UDP, IP, ARP, routing protocols, and media access protocols.
4. Be able to describe some issues and possible solutions related to (Time-permitting)
   1. Wireless & mobile networking.
   2. Multimedia networking
   3. Security
5. Be able to describe the theory and practical aspects related to network management (Time-permitting).

## *Skills/Abilities outcomes:*

1. Achieve at least two of the following three outcomes:
   1. Develop simulation models to analyze the performance of computer networks.
   2. Develop simple software programs using sockets to achieve communication between two (or more) computers.
   3. List basic research methods. This will be useful if you are thinking of pursuing graduate school.
2. Be able to use simple analytical models to estimate network performance.

## Technology Requirements

* Consistent internet connectivity
* Dependable computer
  + Specifically, a computer capable of running Virtualization software
  + With at least 4GB of RAM to run multiple VirtualBox Virtual Machines
  + Preferably a Windows computer or a Macbook.
  + Chromebook will not be suitable for several labs in this course.
  + Linux machines may be used but be prepared to put in more time to figure out certain installations.
* Computer able to create and share screenshots
* Computer able to create and share screen recordings
  + specifically, recorded zoom sessions
* Access to a web browser like Chrome, Firefox, or Safari
* Ability to access use/create online programs in Google Apps
  + e.g. Google Sheets, Slides, YouTube
* Ability to access and consume online documentation
  + such as Stackoverflow.com, wikipedia.org, etc.

### Recommended Technology:

* Microphone
* Webcam

## Above and Beyond Computer Science (ABCS)

I strongly suggest that you sign-up and attend ABCS lessons on every Friday from 2:00-5:00p. The purpose of ABCS is to develop a professional portfolio (resume, LinkedIn profile, etc.), provide practice to ace the technical interview (i.e. networking, mock interviews, etc.), and gain assistance finding and applying for career-accelerating opportunities (i.e. internships, jobs, or graduate programs). ABCS will also feature guest talks, workshops, and skill-building opportunities from invited guests in the tech industry.

Please contact Prof. Sathya if you are interested to learn more about this program.

# Course Policies

## Prerequisites

* CST 238
* MATH 130
* Some experience with Python programming will be useful

## Course Activities and Resources

* **Lectures.** This course includes lectures and labs in each class. The lectures will cover course material and concepts in-depth.
  + Lectures will be recorded and posted within ~36 hours of class time.
* **Worksheets.** Every lecture’s content will be supplemented with worksheet/s. Some of the problems on the worksheet will be covered in the class. Remaining problems need to be finished by you after the class as homework. They need not be submitted for a grade. However, worksheet will help you follow the course contents more easily.
  + Solutions to the worksheets will be posted at the end of each week.
* **Assignments.** All assignments will be posted on iLearn ( <https://ilearn.csumb.edu/> ). Assignments will be given adequate time (1-2 weeks) for completion. However, if you wait until the last minute to work on the assignment, you will have difficulty completing it. Please start working on the assigned work as soon as you get it. Assignment may be of three types:
  + *Homework assignments.* Homework assignments will be in quiz format on iLearn. You will have one to two weeks to complete each homework assignment. These assignments must be completed individually.
  + *Lab assignments.* Each lab assignment will be in a quiz format. Some of the questions on the lab will require you to submit a pdf file with screenshots providing evidence for some questions on the lab assignment. You will have one to two weeks to finish lab assignments. Some lab assignments are based on Wireshark and others are in SDN (Software Defined Networking). Your very first lab assignment will help you setup Wireshark and understand how it works. These assignments must be completed individually.
  + *Programming Assignments.* You will be working in groups of 3-4 for the programming assignments. You will have about two weeks to finish programming assignments. Usually your programming assignments require you to code in python. Your program must compile/execute to get any credit. You must have good documentation (comments) explaining your code. The teams will be formed by your instructor. You must have names of all team members on the programming assignment. The week after the programming assignment is due, I will advertise appointments on my calendar. You will have to book an appointment and demonstrate your program to the instructor/TA. All team members must be present to demo the program. If you are unable to find a suitable appointment slot, talk to me. Do not wait for me to reach out to you to grade your assignment. If you do not demonstrate your assignment, you will not receive any credit for it (even if you submit it to iLearn by due date.)
* **Quizzes.** There will be a quiz at the beginning of each class. The quizzes must be answered on iLearn. You must be present in the class to take the quiz. You will receive the password for the quiz during the class. You will have 5-10 minutes to take the quiz.
* **Exams:** I try to make my exams relatively straight forward. A fair amount of the material in the exam will be related to the work that you have done in homework assignments/worksheets. If you do all the work (and understand it), there shouldn't be any big surprises on the exam and you should be able to get a decent grade. **All exams are open book. Keep a pen or pencil and an eraser and possibly a calculator handy because questions on the exam will need you to do problem solving.** The questions on the exams are shuffled and every student will see the questions in a different order.

There will be two midterms and a final in this course.

* + *Midterms.* This course will have two midterms (Midterm 1 and Midterm 2). The midterm exams are not comprehensive, meaning Midterm 1 will have questions from material covered from the beginning of the semester up to Midterm 1, Midterm 2 will have questions from material covered after Midterm 1 up to Midterm 2. The format of the midterms will be similar to questions on quizzes/assignments/worksheets. Each midterm will have 2 iLearn quizzes - a quiz with conceptual questions and another quiz with problem solving questions. There may be an extra credit section.
  + *Final.* The final exam will be comprehensive, i.e., it will stress on the material from the entire semester. The format of the final exam will be similar to the midterms, i.e., there will be 2 iLearn quizzes - a quiz with conceptual questions and another quiz with problem solving questions. There may be an extra credit section.

## Grade Scale and Distribution

|  |  |  |
| --- | --- | --- |
| Letter | Max | Min |
| A+ | ∞ | > 100% |
| A | 100% | 93% |
| A- | <93% | 89% |
| B+ | <89% | 86% |
| B | <86% | 83% |
| B- | <83% | 79% |
| C+ | <79% | 76% |
| C | <76% | 70% |
| D | <70% | 60% |
| F | <60% | 0% |

|  |  |
| --- | --- |
| Category | Percent |
| Homework | 15% |
| Labs | 20% |
| Programming Assignments | 20% |
| Attendance/Class participation | 5% |
| Quizzes | 5% |
| Midterm 1 | 10% |
| Midterm 2 | 10% |
| Final | 15% |
| Extra Credit | 5% |

## Communication

### Email

I prefer email communication. I will generally respond to an email within ~36 hours Sun – Thursday. Friday and Saturday are my ‘days off’ which means I only work about 4 hours those days, so I try not to spend it all on email. All email correspondence is expected to adhere to academic and professional guidelines, ‘text speak’ and/or other shortcuts may not receive a response.

* Include my name, the course name, your name, and clearly state your intentions in the email.
* If there is an issue with software or an assignment please clearly state what you have tried.

### Example Email

**Subject**: CST 311: Question about Homework 1(A): Introduce yourself

Hey Dr. Chandrika,

This is Jane Student from the M/W 2-4 section of CST311. I was wondering if it is okay if I include a picture of my dog as part of my introduction. I attempted to attach an image to the forum, but I got the error shown in the attached screenshot. I have tried clearing my cache, restarting Chrome, and restarting my computer.

Thanks!  
Jane

### Slack: Join [#cst311](https://join.slack.com/share/zt-g5xwz67q-ola35c_uH6TH0Ch3nVauxQ) <https://app.slack.com/client/T6LG86XDE/C01807NNBSQ/details>

[Use this link to join the CS-YOU Slack group](https://join.slack.com/t/cs-you-monterey/shared_invite/zt-9862gug5-PaoTBD2FKlZ0m6Jgh2HtBQ)

You are expected to join the Slack team outlined above. You are encouraged to ask and answer questions, debug problems, and help support one another, and to post extracurricular opportunities, readings, or notes/reflections to this group to build community as a class and with your peers. Here’s how they should be used:

* + Announcements to the whole class
  + Questions everyone in the class may be interested in
  + General chat without a topic
  + Last-minute need-to-talk-to-someone-now chat
  + Assignment communication (recommended)

There will also be a few assignments that require posting to Slack. Keep an eye out for those!

Posts or chats that are deemed inappropriate by course instructors will be removed and/or reported.

### iLearn

[**https://ilearn.csumb.edu/**](https://ilearn.csumb.edu/)**.** Readings, and assignments will be listed in the syllabus and on the course website hosted on CSUMB's iLearn learning management system. You will be expected to use your CSUMB login to access the course website frequently.

## Late Work

If an assignment has a due date, it needs to be done on that date[[1]](#footnote-1). If an assignment is not completed by the time it is supposed to ship there are consequences.

I **do NOT** accept late work. Late work is one the single largest sources of stress for me and so I have a zero-tolerance policy for late work. If the assignment portal is no longer accepting submissions, the opportunity to turn in work is GONE. Don’t ask.

**Late work will not be accepted for credit.**

Each student gets **one** free assignment extension for the semester. Send an email at least 12 hours **BEFORE THE DUE DATE**, and I will grant a one-time, 48-hour extension. This only applies to regular assignments, the extensions **may not** be used for exams or group assignments. **Unused extensions will confer bonus points towards extra credit.**

## Missed quizzes

Daily quizzes cannot be made up. Absences due to illness will be excused with a note from a physician.

# Course Expectations

## Attendance

You are expected to be regular and punctual with class attendance. Absences will impact the progress of your team on group assignments. If you cannot attend a lecture for any reason, you are expected to proactively communicate with faculty and your team no later than 24 hours in advance. If you miss a class during the group assignment, you alone (not the rest of the group members who are present) will be penalized by 5% of the group assignment grade for each absence. You must be present for at least 80% of lectures or may be subject to disciplinary action. **Note that this reflects real-life work policy.** If you don't show up to work, you get fired.

## Preparation

You are expected to show up on time, be ready at the start of class, and to be engaged and take good notes during lectures and finish worksheets after class. Your ability to be successful in this course will necessitate your attentiveness to detail, participation in discussion and collaboration with peers, and meeting outcomes/deliverables during lectures.

## Behavior

Treat yourself and others with respect. Show up on time, communicate and act like the professional you are! Be proactive and professional in your communications.

# University Policies

## Academic Honesty

Academic honesty is highly valued at CSUMB. Participants must always submit work that represents their original words, ideas, and design. Forms of academic dishonesty include: cheating, fabrication, plagiarism, and collusion in any of these activities. All relevant sources must be cited and, when appropriate, permission to use the work must be obtained.

We value informal resolution of academic integrity allegations; however, students discovered to have engaged in academic dishonesty will be sanctioned. Please see the CSUMB Catalog for more information about academic honesty, including consequences of academic dishonesty:<http://policy.csumb.edu/site/x20830.xml>

## Accommodation

The workshop and the resources utilized have been made accessible as possible. iLearn uses Moodle LMS which complies with all major international standards in the area of accessibility.

If you need accommodations please contact the SDR office in the first week of classes or sooner. For additional accessibility accommodations, please refer to Student Disability Resources at[http://sdr.csumb.edu/](http://sdr.csumb.edu/student-disability-resources) email: student\_disability\_resources@csumb.edu, phone

## Academic Support (CLC)

The Cooperative Learning Center (CLC), a campus-wide tutoring program, is free

and open to all students and offers peer tutoring services and workshops. It seeks to provide high-quality learning assistance in computer technology, math, science, writing, languages and study strategies aimed at enhancing learning needs at all ability levels. CLC works with students to expand their knowledge and abilities by empowering them to become independent learners. CLC tutors, staff, and faculty work together to design and offer effective, collaborative, and active learning experiences. We provide tutors with the opportunity to develop teaching, leadership, and communication skills.  CLC is located in the Library, 2nd floor, (831) - 582 - 4104  ([clc@csumb.edu](mailto:clc@csumb.edu))  <https://csumb.edu/academics/academic-support-services>

## Student Support Services

[Link](https://csumb.edu/library) to the Library

[Link](https://csumb.edu/library/articles-databases) to CSUMB Library Online Journal Articles

[Link](http://csumonterey.bncollege.com/webapp/wcs/stores/servlet/BNCBHomePage?storeId=19063&catalogId=10001&langId=-1) to the Bookstore

[Link](https://csumb.edu/clc) to Cooperative Learning Center

[Link](https://csumb.edu/health) to Student Health Center

[Link](https://csumb.edu/recreation) to Student Recreation Center

[Link](https://csumb.edu/outdoor) to Outdoor Recreation

[Link](https://csumb.edu/policy/enrollment-and-registration-policy) to Enrollment & Registration Policies

* [Affordable Learning Solutions](http://als.csuprojects.org/)
* [Food Pantry](https://csumb.edu/as/food-pantry)
* [Otter Eats](https://csumb.edu/basicneeds/otter-eats)
* [Basic Needs Referral Form](https://csumb.edu/basicneeds)
* [Otter Outfitters](https://csumb.edu/womensleadershipcouncil/otter-outfitters)
* [Campus Advocate](https://csumb.edu/campusadvocate)
* [On campus jobs for students](https://csumb.edu/career/otter-jobs-student-access)
* [Information from PGCC on supporting emotionally distressed students](https://csumb.edu/pgcc/emotionally-distressed-students-0)

## Veterans and Active Duty Personnel

Veterans, active duty military personnel with special circumstances (e.g., upcoming deployments, drill requirements, disabilities) are welcome and encouraged to communicate these, in advance if possible, to the instructor. (831) - 582-5720

## Freedom from Discrimination and Harassment

CSUMB is committed to creating and sustaining an environment free of discrimination, including sexual misconduct, dating and domestic violence, and stalking. If you experience discrimination of any kind, CSUMB encourages you to utilize the resources described below. Note that any CSUMB staff or faculty member, other than the campus advocate or PGCC counselors, who are told about student experiences of misconduct must report all known information to the Title IX/DHR office.

To report any type of discrimination:

*Title IX/DHR*(Discrimination, Harassment & Retaliation), 831-582-3510 email: wensmith@csumb.edu (Email is recommended for fastest response)

To report discrimination as a crime and/or safety assistance:

*University Police Department*, emergencies: 911, non-emergencies: 831-655-0268 For confidential support:

*Campus Advocate/Monterey County Rape Crisis Center*, call or text: 831-402-9477, 24 hour crisis line: 831-375-4357

*Personal Growth and Counseling Center (PGCC)*, call 831-582-3969

## Wellness

CSUMB believes that wellness matters. As a college student, you may sometimes experience problems with your wellness that interfere with academic success and negatively impact daily life. An important part of college is learning how to respond to these problems and seek guidance. To learn more about departments within Health & Wellness Services that can support you in achieving and maintaining physical, mental, emotional, and spiritual wellness, go to csumb.edu/hws.

Did you know that there are only 168 hours in a week? According to the Centers for Disease Control and Prevention (CDC), adults ages 18 to 60 years old need to be getting seven or more hours of sleep every night, which means there are only 119 hours to connect with family and friends, honor work and school responsibilities, exercise and eat, as well as pursue your passions. Make sure you are taking of yourself!

## Privacy and Accessibility Statements

For use of external technologies, you will find the following links to their **privacy policy:**

[YouTube Privacy Policy](https://www.youtube.com/static?gl=US&template=privacy_guidelines)

[Google Apps Privacy Policy](https://www.google.com/intl/en/policies/privacy/)

[FERPA](https://csumb.edu/iar/ferpa-glance/)

[For our LMS called iLearn which is Moodle](https://moodle.org/mod/page/view.php?id=8148)

**Accessibility** of materials in this course are as follows:

* Alt text is provided on all images
* Headings are used to facilitate screen readers
* YouTube Videos have closed captions (student examples use generic closed captions).
* [Google Apps like Docs and Sheets have accessibility features for screen readers](http://www.google.com/accessibility/all-products-features.html)
* Google Add Ons has a voice recognition feature

This is a free screen reader- Natural Reader a [Screen reader for Mac or Windows](http://www.naturalreaders.com/download.html)

[Introduction video on Natural Reader](https://vimeo.com/222434433)

Watch this [video on how Natural Reader can help.](https://www.youtube.com/watch?v=6qkqJNhmzFs)

[LMS (Moodle) Accessibility](https://docs.moodle.org/dev/Accessibility_notes#Web_Content_Accessibility_Guidelines_1.0)

Your instructor would like permission to use your coursework submissions for the purposes of educational, instructional and institutional scholarship in an effort to improve the class. An activity requesting your permission will be embedded in class called Acknowledgment Survey.

1. It should be ‘done’ done. Not Bethesda ‘done’. [↑](#footnote-ref-1)