

# Fundamentals of Computer Networks

## ECE 571



Course Operations  
Instructor: Ming Li

# D2L

Course will be D2L driven – All necessary material will be available in the D2L platform

- Syllabus and course schedule

- Announcements

- Video recordings and slides

- Homework assignments and submissions

- Textbook

- Grades

- Quizzes

Discussions will be in Piazza

Please familiarize yourselves with the D2L and Piazza features

# Textbook

The ebook version of the textbook and other resources are available via D2L

Google Calendar - Week of Dec... Course Navigation - ECE 478 571... Library Tools - ECE 471 571 SP19... Homepage - ECE 478 578 FA18... Top Hat... ECE 471/571 | Class Profile | Plac... +

https://d2l.arizona.edu/d2l/lp/navbars/756770/customlinks/external/17447

THE UNIVERSITY OF ARIZONA ECE 471 571 SP19 001 201

Course Home Content Assignments Discussions Quizzes Grades Classlist UA Tools Library Tools Course Admin

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Find journals, computing magazines and conference proceedings from the Association of Computing Machinery.

**IEEE Xplore**  
Find resources for computer science, electrical engineering, electronics engineering, and mechanical engineering.

**Ei Engineering Village**  
Find engineering information from GEOBASE, Ei Engineering, Inspec, GeoRef, Referex, CBNB and Chmica.

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Find articles, books, and conference proceedings in the sciences, arts, and humanities.  
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**Research & Writing Tools**

**Avoiding Plagiarism**  
Guide explaining what plagiarism is, how to avoid it, important terminology and concepts such as common knowledge, paraphrasing and quoting.

**Citation Style Guides**  
Provides detailed guides on the APA, MLA, and Chicago citation styles as well as subject-specific citation style guides. Also provides formatting and submission guides for UA dissertations and theses, and links to popular citation management software.

**RefWorks**  
Manage bibliographies by importing references from our online databases and other sources.

**Course eBook**

- ▶ [Antenna Theory : Analysis and Design](#)  
4th edition
- ▶ [Cryptography: theory and practice / Douglas R. Johnson and Maura B. Paterson.](#)
- ▶ [Introduction to modern cryptography / Jonathan Katz, Yehuda Lindell.](#)  
Previous edition: 2008
- ▶ [Network Security: Private Communication in a Public World](#)  
2nd edition

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**Science-Engineering Library**

**Science-Engineering Library:**  
8:00am-7:00pm  
744 N Highland Ave.  
(520) 621-6384  
Map

[More detailed hours ▶](#)

**Ask a Library Question**

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Engineering

# Syllabus and Course Schedule

Look under the content tab for the course syllabus and schedule

The screenshot displays the Canvas LMS interface for the course ECE 471 571 SP19 001 201. The top navigation bar includes the University of Arizona logo and the course ID. The main navigation menu on the left lists various course components, with 'Syllabus & Course Schedule' highlighted and circled in red. The right-hand panel shows the 'Syllabus & Course Schedule' section, which includes a search bar, a list of items, and a 'Table of Contents' section. The 'Table of Contents' section lists 'Syllabus & Course Schedule' with a count of 2, and 'Course Schedule' with a count of 1. The 'Syllabus' section contains a list of items: 'Course Description and Objectives', 'Course Material', 'Assignments, Course Project, Exam, and Assessments', and 'Course Operations and Policies'. The 'Course Schedule' section contains a list of items: 'ECE\_471\_and\_571\_Spring2019\_syllabus-Li' (PDF document) and 'CourseScheduleECE471-571'.

# Lecture Video Recordings

## Under Content>Weekly Material>Week X>Video Recordings

The screenshot shows the Canvas LMS interface for the course ECE 471 571 SP19 001 201. The left sidebar contains the course navigation menu, where 'Lecture Notes and Video' is highlighted with a red circle. The main content area displays 'Week 1 - Introduction to Information Security'. The page includes a search bar, a table of contents, and a list of activities. The 'Lecture Notes and Video' section is currently selected, showing a list of objectives and readings for Week 1.

**Course Navigation Menu:**

- Overview
- Bookmarks
- Course Schedule
- Table of Contents (4)
- Start Here
- Syllabus & Course Schedule (2)
- Essential Information
- Weekly Materials (2)
- Week 0 - Preliminaries (2)
- Week 1 - Introduction to Information Security**
- Overview and Reading Assignment
- Lecture Notes and Video**
- Assignments

**Week 1 - Introduction to Information Security**

Published

Add dates and restrictions...

Add a description...

Upload / Create Existing Activities Bulk Edit Expand All Collapse All

**Overview and Reading Assignment**

**For Week 1 of this course, you should study the content within:**

- Information security objectives
- Schematic of a secure communication system
- Formal definition of a cryptosystem and adv. models

**Readings:**

- Textbook sections: Chapter 1
- Stinson's Book: Chapter 1

Upload / Create Existing Activities

Drag and drop files here to create and update topics

Do not include the following symbols in your file names:  
< > : " / \ | ? \*  
They will not upload.

**Lecture Notes and Video**

# Lecture Video Recordings

Available via Zoom under UA tools:

The screenshot shows a web browser window with multiple tabs open. The active tab is a D2L course page for ECE 471 571 SP22 001 201 401. The page header includes the University of Arizona logo and the course ID. The navigation bar contains links for Course Home, Content, Assignments, Discussions, Quizzes, Grades, Classlist, UA Tools, Library Tools, and Course Admin. The UA Tools dropdown menu is open, showing options like Clickers, Panopto, VoiceThread, Playposit for Instructors, Examity v5, Zoom (highlighted with a red circle), Zoom For Students, D2L Help Pages, UA Email, and vCat. The main content area shows the Zoom interface with tabs for Upcoming Meetings, Previous Meetings, Personal Meeting Room, and Cloud Recordings. The Cloud Recordings tab is active, displaying a table of recordings. The table has columns for Topic, ID, Start Time, and File Size. A recording for ECE 471 571 SP22 001 201 401 is listed with ID 896 0303 0996 and a start time of Jan 12, 2022. The file size is 3 Files(330 MB). A Delete button is visible next to the recording.

zoom

Your current Time Zone and Language are (GMT-07:00) Arizona, English

Upcoming Meetings Previous Meetings Personal Meeting Room Cloud Recordings

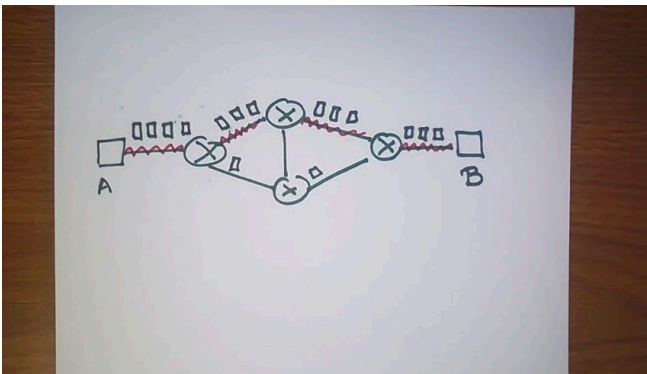
from Select date to 2022-01-14 Search by ID Search Export Show my course

Delete All

Topic	ID	Start Time	File Size
ECE 471 571 SP22 001 201 401	896 0303 0996	Jan 12, 2022	3 Files(330 MB)

1

Once in Panopto, click on any lecture video. Your view should be like this



Search this recording

Contents	Fundamentals of Computer Networks ECE 578	0:00
is	Module Overview	0:04
emarks	Common Network Topologies	0:23
ussion	A device used to physically and/or logically...	1:15
	Switched Networks	1:50
	Circuit-Switched Networks	2:56
	Packet-Switched Networks	4:02
	<b>Advantages of Circuit Switching</b>	<b>4:48</b>
	Disadvantages of Circuit Switching	6:01
	Advantages of Packet Switching	7:45
	Disadvantages of Packet Switching	9:22
	Multiplexing	10:11
	Multiplexing Methods	12:46
	Multiplexing Methods	15:05

## Advantages of Circuit Switching

### Guaranteed bandwidth (Quality of Service)

- Predictable bitrate and delay
- Good for delay-sensitive applications

### Reliable communication

- Rare packet loss
- Packets are delivered in order

### Simple data routing

- Forwarding based on time slot or frequency (multiplexing)
- No need to inspect a packet header for address

### Low per-packet overhead

- Forwarding based on time slot or frequency
- No IP (and TCP/UDP) header on each packet

# Assignments

Assignments are released according to the course schedule

Look under content and in announcements for new assignments

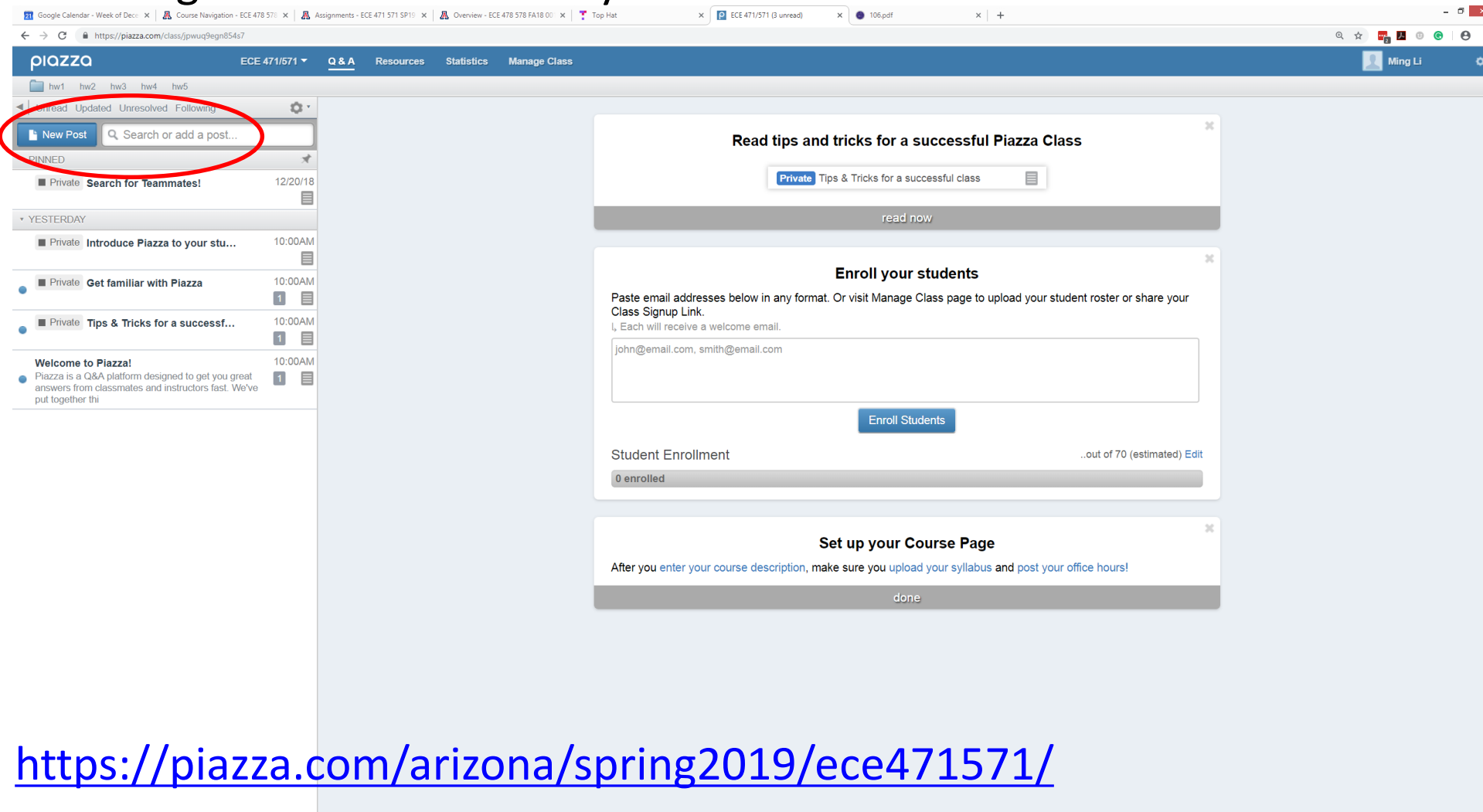
The screenshot displays the Blackboard LMS interface for a course. The top navigation bar includes links for Course Home, Content, Classlist, Discussions, **Assignments**, Grades, Quizzes, UA Tools, and Library Tools. The 'Assignments' link is circled in red. The left sidebar contains a search bar and a list of course topics: Overview, Bookmarks, Course Schedule, Table of Contents (111), Start Here, Syllabus & Course Schedule (1), Essential Information, Weekly Materials (82), Ask the Instructor (1), Discussions (2), **Assignments** (22), and Homework 1 (3). The 'Assignments' item is circled in red. The main content area is titled 'Assignments' and features a 'Print' button, 'Download', and 'Send to Binder' buttons. A progress bar indicates '0 % 0 of 22 topics complete'. Below the progress bar, a list of assignments is shown:

- Homework 1**
  - Due September 4 at 11:59 PM Starts Aug 26, 2018 11:30 PM
  - hwrk1 PDF document
- Homework 1**
  - Assignment
  - Due September 4 at 11:59 PM Starts Aug 28, 2018 12:30 AM Ends Sep 4, 2018 11:59 PM
- hw1sol**
  - PDF document



# Discussions

Discussions will be conducted via Piazza. Please register via the following link and familiarize yourself



The screenshot shows the Piazza website interface for a course. The browser's address bar displays the URL <https://piazza.com/class/jpwuq9egn8547>. The Piazza header includes the course name "ECE 471/571" and navigation links for "Q & A", "Resources", "Statistics", and "Manage Class". The user's name, "Ming Li", is visible in the top right corner.

On the left sidebar, the "New Post" button is circled in red. Below it, a search bar is labeled "Search or add a post...". The sidebar also shows a list of posts under the "PINNED" section, including "Search for Teammates!" (12/20/18), "Introduce Piazza to your stu..." (10:00AM), "Get familiar with Piazza" (10:00AM), and "Tips & Tricks for a successf..." (10:00AM). A "Welcome to Piazza!" message is also visible.

The main content area features three instructional cards:

- Read tips and tricks for a successful Piazza Class**: Includes a "Private" toggle and a "read now" button.
- Enroll your students**: Provides instructions on pasting email addresses, a text input field containing "john@email.com, smith@email.com", an "Enroll Students" button, and a progress bar showing "0 enrolled" out of 70 (estimated).
- Set up your Course Page**: Includes instructions to enter a course description, upload a syllabus, and post office hours, with a "done" button at the bottom.

The URL <https://piazza.com/arizona/spring2019/ece471571/> is displayed at the bottom of the page.

# Office hours

## Online students: Via Zoom: by appointment

Google Calendar - Week x ECE 478/578 (5 unread) x Zoom For Students - ECE x Top Hat x

Secure | <https://d2l.arizona.edu/d2l/lp/navbars/709128/customlinks/external/254079>

THE UNIVERSITY OF ARIZONA ECE 478 578 FA18 001 201

Course Home Content Classlist Discussions Assignments Grades Quizzes **UA Tools** Library Tools

**Zoom For Students**

Adobe Connect Information  
Clickers  
Panopto  
VoiceThread  
Examity  
UA Email  
D2L Help Pages  
**Zoom For Students**

Zoom meetings created by your instructor will appear as events within your D2L calendar. To open a meeting now click the appropriate link below. If you do not see the expected meeting go to your D2L calendar and open the event. If the event does not appear their either, please contact your instructor.

**Today's Zoom Calendar Events**

Title & Meeting URL	Start Time	End Time
No events scheduled.		

Team meetings will be made available in the coming weeks.

6. You may either create a calendar entry, or copy the join URL. Add your desired attendees to the invite, or be sure to send the copied link to your desired attendees

7. When the meeting time arrives, either click the link in your invite, or go to [arizona.zoom.us](https://arizona.zoom.us) and click the "Start" button

**Note:** If you record a meeting and wish to share it with your Instructor or other students, go to the My Recordings tab and copy the link.

For Student Zoom support call the 24/7 IT Support Center at (520) 626-8324

For Instructor Zoom support contact Joshua Butcher at [jbutcher@email.arizona.edu](mailto:jbutcher@email.arizona.edu) or the Academic Technology Team at [acad-tech-support@email.arizona.edu](mailto:acad-tech-support@email.arizona.edu). They will be happy to arrange a 1:1 consultation to walk through how to use Zoom with a teaching and learning focus.

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