



# CS473/CS573 - Computer Networks

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Spring 2020

## Syllabus and Information

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## General Information

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### Contact Your Instructor

**Name:** Jeff Kinne

**Email:** [jkinne@cs.indstate.edu](mailto:jkinne@cs.indstate.edu)

**Office:** Root Hall A-140D

**Instructor Office Hours:** MW noon-3pm and TR 10:30am-noon in A-140D

### Lecture, Exam

**Lecture:** MWF 10-10:50am in Root Hall - A-019

**Exams:**

- Exam1: 4th or 5th week?
- Exam2: 10th to 12th week?
- Final exam: Wed May 6, 10-11:50am

**GA Tutoring:** We have a few student assistants who will be in the computer science Unix lab, room A-015 in the basement of Root Hall (normal hours are M 10am-5pm, TWR 9am-5pm, F 9am-noon). You can go to this lab to work on your programs. The computers are Linux machines, and you can use the cs####xx log-in that will be given to you during the first week of class to use them. Or, you can bring your laptop to work on. Either way, you can ask the student assistants to look at your programs, and you can work with any other CS students that are there (you should use the lab as a regular meeting place to work with your classmates). The regular hours that the lab will be open will be posted on the CS homepage.

## Prerequisites

C or better in CS 202

## Standard text

Free online sources - An Introductory 4.4BSD Interprocess Communication Tutorial, Beej's Guide to Network Programming, and others

## Course Announcements

Announcements regarding the course will be made both during class and via email to your @sycamores.indstate.edu email address. You should regularly check this email account or have it forwarded to an account that you check regularly. You can set the account to forward by logging into your indstate.edu email from Internet Explorer (the "light" version of the webmail client that opens up from Firefox or Chrome does not give the option to forward email).

## Classroom conduct

You may not use cell phones, iPods/music players, etc. during class. You should be civil and respectful to both the instructor and your classmates, and you should arrive to class a few minutes before the scheduled lecture so you are ready for lecture to begin on time. You may use your computer during class if you are using it to follow along with the examples that are being discussed. You may not check email, Facebook, work on other courses, etc. during class.

## Course Description

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The catalog description for this course is: "The course is an introduction to networking and includes detailed study of Internet protocols and socket programming. Topics include a study of IP, UDP, and TCP protocols, as well as application layer protocols such as HTTP and SMTP. Students learn to program both a client and server."

## Course Outline

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### \*\* Unit 1

- Interprocess communication (BSD IPC paper)
  - Processes, pipes, signals, socketpairs, asynch I/O

- Threads, shared memory, etc.

- Exam1

## \*\* Unit 2

- Network protocols, the Internet
  - IPv4, IPv6, UDP, TCP
  - Routing
  - Client/server, ARP, DNS, HTTP, SSL
  - Security, encryption
- Exam2

## \*\* Unit 3

- Selected topics

## \*\* Week 16

- Final exam (Exam3)

## Learning Outcomes

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- Understanding of data flow on the internet.
  - Can give precise details (diagrams, trace through examples, explain tradeoffs) of how data is transmitted between programs on a single machine and on different machines via the Internet.
- Understanding the fundamentals of network security and encryption.
- Ability to write client and server programs.
  - Completed multiple different client/server and related programs independently, can explain the overall design of the programs and the details of how they are implemented.

## Grading and Assignments

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The students of this course have the following responsibilities: read assigned readings before lecture, attend lecture, complete homework assignments, take in class quizzes, take exams, and possibly complete a project. The final grade consists of:

Your total/final grade will be computed as -

Exams - 40%

- If we have two exams plus a final, the weighting will be 10% exam1, 15% exam2, 25% final exam.
- Earlier exams will be dropped if you do better on later exams - if exam1 is lower than the others it will be dropped, if the final is higher than exams1&2 then only the final will count.
- No late exams will be given.

Quizzes and HWs- 40%

- Quiz / Program / HW/grade will be calculated proportionally - assignments with more points will count more towards the grade.

Attendance - 20%

- Calculated based on the number of times you were present as a fraction of the days that attendance was taken.
- If you are late to class or leave early, you will miss these points.

## Late Homework

HW's that are turned in late will be penalized 10% per day and do not count for any credit more than one week later than the due date.

## Start Homework Early

I suggest attempting a homework assignment the day it is given, or the day after, so that if you have a problem you can ask early. If you continue to have problems in trying to complete the assignment, you will have time to ask again. Many of the homework assignments require thought and problem solving, which takes "time on the calendar" not just "time on the clock". By that I mean that spending an hour on 3 consecutive days is likely to be more productive than trying to spend 3 hours at once on the assignment.

## Expected Amount of Work

This is a senior-level programming-intensive course. Some weeks you will just show up to lecture and that will be good enough. Some weeks we'll have a project due, and the A students will spend 20-40 hours on the project that week.

**Note - your classes should be more important than your part-time job.**

## Grade Cutoffs

Homework assignments and exams are designed so that a standard cutoff for grades will be close to what you deserve. After the first exam I will create a grade in Blackboard called "Letter Grade" that is what your letter grade would be if the semester ended today. Initially, I will assign the following grades: 93-100 A, 90-93 A-, 87-90 B+, 83-87 B, 80-83 B-, 77-80 C+, 73-77 C, 70-73 C-, 67-70 D+, 63-67 D, 60-63 D-, 0-60 F

My goal is that the different grades have the following rough meaning.

### **A+/A**

You understand everything and probably could teach the course yourself.

### **B+/A-**

You understand nearly everything, and should be all set to use this knowledge in other courses or in a job.

### **C/C+/B-/B**

Some things you understand very well and others you don't (more towards the former for a B and more towards the latter for a C).

### **D-/D+/C-**

You did put some effort in, and understand many things at a high level, but you haven't mastered the details well enough to be able to use this knowledge in the future.

### **F**

Normally, students that get an F simply stopped doing the required work at some point.

## Blackboard

The course has a blackboard site. Click <https://blackboard.indstate.edu/> to go to blackboard. You should see this course listed under your courses for the current term. The blackboard site is only used for giving you your grades. All course content, schedule, etc. is kept in this web site (which you are currently viewing).

## CS Course Policies

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Note that this course follows all standard CS course policies. In particular, **(a)** cheating/plagiarism by graduate students results in an F in the course, **(b)** missing 20% of the classes results in an F for any student, and **(c)** there will be no makeup exams. See <https://cs.indstate.edu/wiki/index.php/Policies> for details.

## Academic Integrity

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Follow the standard CS course policies in terms of what is and is not allowed on assignments: <https://cs.indstate.edu/wiki/index.php/Policies> Please ask the instructor if you have doubts about what is considered cheating in this course.

## Special Needs / Disability Services

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*Standard language included in the syllabi for ISU courses.*

Indiana State University recognizes that students with disabilities may have special needs that must be met to give them equal access to college programs and facilities. If you need course adaptations or accommodations because of a disability, please contact us as soon as possible in a confidential setting either after class or in my office. All conversations regarding your disability will be kept in strict confidence. Indiana State University's Student Support Services (SSS) office coordinates services for students with disabilities: documentation of a disability needs to be on file in that office before any accommodations can be provided. Student Support Services is located on the lower level of Normal Hall in the [Center for Student Success](#) and can be contacted at 812-237-2700, or you can visit the ISU website under A-Z, [Disability Student Services](#) and submit a Contact Form. Appointments to discuss accommodations with SSS staff members are encouraged.

Once a faculty member is notified by Student Support Services that a student is qualified to receive academic accommodations, a faculty member is obligated to provide or allow a reasonable classroom accommodation under ADA.

## Disclosures Regarding Sexual Misconduct

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*Standard language included in the syllabi for ISU courses.*

Indiana State University fosters a campus free of sexual misconduct including sexual harassment, sexual violence, intimate partner violence, and stalking and/or any form of sex or gender discrimination. If you disclose a potential violation of the sexual misconduct policy I will need to notify the Title IX Coordinator. Students who have experienced sexual misconduct are encouraged to contact confidential resources listed below. To make a report or the Title IX Coordinator, visit the Equal Opportunity and Title IX website: <http://www.indstate.edu/equalopportunitytitleix/titleix>.

### The ISU Student Counseling Center

HMSU 7 th Floor  
812-237-3939  
[www.indstate.edu/cns](http://www.indstate.edu/cns)

### The ISU Victim Advocate

Trista Gibbons, [trista.gibbons@indstate.edu](mailto:trista.gibbons@indstate.edu)  
HMSU 7 th Floor  
812-237-3939 (office)  
812-230-3803 (cell)

**Campus Ministries United**

Campus Ministries  
812-232-0186  
<http://www2.indstate.edu/sao/campusministries.htm>  
[www.unitedcampusministries.org](http://www.unitedcampusministries.org)  
[ucmminister2@gmail.com](mailto:ucmminister2@gmail.com)  
321 N 7 th St., Terre Haute, IN 47807

For more information on your rights and available resources  
<http://www.indstate.edu/equalopportunitytitleix/titleix>