

Course Syllabus

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IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

COM S 352 Introduction to Operating Systems

Sections A and B

Spring 2021

Lecture

Section A: Videos posted on Canvas and live Webex discussion 2:15PM - 3:05PM on Fridays

Section B: Videos posted on Canvas and live Webex discussion [12:05PM - 12:55PM on Fridays](https://iastate.webex.com/j.php?MTID=m9d2a56481aa0a86a53fdb881e8fe44d) [_ \(https://iastate.webex.com/iastate/j.php?MTID=m9d2a56481aa0a86a53fdb881e8fe44d\)](https://iastate.webex.com/j.php?MTID=m9d2a56481aa0a86a53fdb881e8fe44d)

Recitation (Starting February 4th)

Section Timing	Location	TA
Section 1: Thur 8:00 AM - 8:50 AM	Webex	TBD
Section 2: Thur 12:40 PM - 1:30 PM	Webex	TBD
Section 3: Thur 8:00 AM - 8:50 AM	CARVER 0074	TBD
Section 4: Thur 12:40 PM - 1:30 PM	LAGOMAR 1445	TBD
Section 5: Thur 4:10 PM - 5:00 PM	LAGOMAR 1445	TBD

Section 6: Thur 8:00 AM - 8:50 AM	LAGOMAR 1445	TBD
Section 7: Thur 4:10 PM - 5:00 PM	LAGOMAR 2441	TBD

Instructors

Section B	Section A
<ul style="list-style-type: none"> • Instructor: Mathew Tan Creti • Webex Lecture Discussion: Fri 12:05-12:55PM • Office Hours: Fri 1:00-2:00PM and by appointment • Webex Room: https://iastate.webex.com/meet/tancreti (https://iastate.webex.com/meet/tancreti) • Email: tancreti@iastate.edu (mailto:tancreti@iastate.edu) 	<ul style="list-style-type: none"> • Instructor: Jinu Susan Kabala • Webex Lecture Discussion: Fri 2:15-3:05PM • Office Hours: Thur 5:00-6:00PM and by appointment • Webex Room: https://iastate.webex.com/meet/jsusan (https://iastate.webex.com/meet/jsusan) • Email: jsusan@iastate.edu (mailto:jsusan@iastate.edu)

Teaching Assistants

Abdullah Abdullah

- Office Hours: by appointment
- Webex Room:
<https://iastate.webex.com/meet/mabdulah>
(<https://iastate.webex.com/meet/mabdulah>)
- Email: mabdulah@iastate.edu (<mailto:mabdulah@iastate.edu>)

Yuechuan Xue

- Office Hours: by appointment
- Webex Room:
<https://iastate.webex.com/meet/yuechuan>
(<https://iastate.webex.com/meet/yuechuan>)

Eshita Zaman

- Office Hours: by appointment
- Webex Room:
<https://iastate.webex.com/meet/ezaman>
(<https://iastate.webex.com/meet/ezaman>)
- Email: ezaman@iastate.edu (ezaman@iastate.edu)

Tianshuang Gao

- Office Hours: by appointment
- Webex Room:
<https://iastate.webex.com/meet/tsgao>
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- Email: yuechuan@iastate.edu (<mailto:yuechuan@iastate.edu>)
- Email: tsgao@iastate.edu (<mailto:tsgao@iastate.edu>)

Prerequisites

COM S 321 or CPR E 381, COM S 327 or CPR E 288, ENGL 250

(The completed Prereq Waiver Form must be sent to csadvising@iastate.edu no later than Wednesday August 26, 2020 by 5 pm).
Contact the instructor of the section you are registered to if you have questions.

Textbook

Operating Systems Concepts, Enhanced eText, 10th Edition, Silberschatz, Gagne, Galvin, 2018.

Course Description

This course introduces the internal operation of operating systems. In particular, the course will cover role of operating system, processes and threads, process synchronization, CPU scheduling, deadlocks, memory management, file systems, security and protection, and the basics of networking.

Recitations

Recitations start in week two. Recitations will be used to clarify lectures, discuss topics relevant to assignments, solve problems, and discuss homework solutions. Attendance to recitations are encouraged but not required.

Homework

There will be 11 homeworks, typically posted on a Friday and due the next Friday. Homework must be typed and submitted on canvas.

Programming Projects

There will be two programming projects using the C programming language. The following policies will be applied to both projects:

- Source code must include proper documentation to receive full credit.
- All projects require the use of makefiles, such that the TAs will be able to build your executable programs by simply typing “make” command.
- Source code must compile and run on the Linux server pyrite.cs.iastate.edu, which will be used for grading. Programs that do not

compile and run on pyrite will receive zero points.

- Project statements will provide specifications. However, implementation details may not be specified. It will be your responsibility to figure out the implementation approaches.
- You are responsible for thoroughly testing and debugging your code. Samples given in the project descriptions are for illustration purposes only. The graders may try to break your code by subjecting it to bizarre test cases.

Exams

There will be two midterm exams and one final exam. The final exam will be given in the final exam week according to the university's final exam schedule. The final exam will cover the entire course, but is weighted more heavily toward the material covered after the second midterm exam.

Grading

Your letter grade in this course will be based on homework, programming projects, and exams.

Homework	30%
Programming projects	20%
Midterm exams	30%
Final exam	20%

Letter grades are assigned relative to overall class performance, with borderline cases influenced by participation in class and recitation.

Late policy

Late homework are penalized 5% per day for up to 3 days. Homework more than 3 days late will not be accepted.

Late programming projects are penalized 5% per day for up to 5 days. Programming projects more than 5 days late will not be accepted.

Grade Appeal Policy

You may appeal a grade within **ONE WEEK** of grade announcement. Appeals for exam grades will be handled by the instructor.

Appeals for homework and programming projects grades will be handled by the TA who graded your work. If you disagree with TA's decision, you may appeal to the instructor within **ONE WEEK** of receiving TA's decision.

Academic Honesty

Homework and programming projects are individual efforts, not group efforts. While discussion of homework and programming projects with other students is encouraged, a level of discussion that produces identical work is prohibited.

For programming projects, you may not

- write code with another student
- give code to another student (via email, printouts, etc.)
- post code in a publicly accessible location

A student found responsible for academic dishonesty will receive zero points for the work in which the dishonesty occurred. In addition, the student is subject to sanctions according to the university policy on academic dishonesty, which can be found [here](http://catalog.iastate.edu/academic_conduct/#academicdishonestytext) (http://catalog.iastate.edu/academic_conduct/#academicdishonestytext).

COVID-19 health and safety requirements

Students are responsible for abiding by the university's [COVID-19 health and safety expectations](https://www.dso.iastate.edu/guidance-for-supporting-community-expectations-during-covid-19-pandemic) (<https://www.dso.iastate.edu/guidance-for-supporting-community-expectations-during-covid-19-pandemic>). All students attending this class in-person are required to follow university [policy](https://web.iastate.edu/sites/default/files/safety/COVID-19/fall/ISU%20COVID%20face%20covering%20policy.pdf) (<https://web.iastate.edu/sites/default/files/safety/COVID-19/fall/ISU%20COVID%20face%20covering%20policy.pdf>) regarding health, safety, and face coverings:

- wear a cloth face covering in all university classrooms, laboratories, studios, and other in-person instructional settings and learning spaces. Cloth face coverings are additionally required to be worn indoors in all university buildings, and outdoors when other people are or may be present where physical distancing of at least 6 feet from others is not possible. Students with a documented health or medical condition that prevents them from wearing a cloth face covering should consult with [Student Accessibility Services](https://sas.dso.iastate.edu/) (<https://sas.dso.iastate.edu/>) in the Dean of Students Office.
- ensure that the cloth face covering completely covers the nose and mouth and fits snugly against the side of the face.
- practice physical distancing to the extent possible.
- assist in maintaining a clean and sanitary environment.
- not attend class if you are sick or experiencing symptoms of COVID-19.

- not attend class if you have been told to self-isolate or quarantine by a health official.
- follow the instructor's guidance with respect to these requirements. Failure to comply constitutes disruptive classroom conduct. Faculty and teaching assistants have the authority to deny a non-compliant student entry into a classroom, laboratory, studio, conference room, office, or other learning space.

These requirements extend outside of scheduled class time, including coursework in laboratories, studios, and other learning spaces, and to field trips. These requirements may be revised by the university at any time during the semester.

In accordance with university policy, instructors may use a face shield while they are teaching as long as they are able to maintain 8 feet of physical distance between themselves and students during the entire instructional period. Some form of face covering must be worn at all times in learning spaces regardless of the amount of physical distancing.

Faculty may refer matters of non-compliance to the Dean of Students Office for disciplinary action, which can include restrictions on access to, or use of, university facilities; removal from university housing; required transition to remote-only instruction; involuntary disenrollment from one or more in-person courses; and other such measures as necessary to promote the health and safety of campus.

It is important for students to recognize their responsibility in promoting the health and safety of the Iowa State University community, through actions both on- and off-campus. The university's faculty asks that you personally demonstrate a commitment to our [Cyclones Care campaign](https://www.care.iastate.edu/) [\(https://www.care.iastate.edu/\)](https://www.care.iastate.edu/). Iowa State University's faculty support the Cyclones Care campaign and ask you personally to demonstrate a commitment to our campaign. Your dedication and contribution to the campaign will also protect your family, classmates, and friends, as well as their friends and families. Our best opportunity for a successful fall semester with in-person learning and extramural activities requires all of us to collaborate and fully participate in the Cyclones Care campaign.

Free Expression

Iowa State University supports and upholds the First Amendment protection of [freedom of speech](https://www.studentconduct.dso.iastate.edu/know-the-code-resources/resources-for-students/harassment-and-free-speech/free-speech) [\(https://www.studentconduct.dso.iastate.edu/know-the-code-resources/resources-for-students/harassment-and-free-speech/free-speech\)](https://www.studentconduct.dso.iastate.edu/know-the-code-resources/resources-for-students/harassment-and-free-speech/free-speech) and the principle of [academic freedom](https://www.iowaregents.edu/plans-and-policies/board-policy-manual/39-academic-freedom) [\(https://www.iowaregents.edu/plans-and-policies/board-policy-manual/39-academic-freedom\)](https://www.iowaregents.edu/plans-and-policies/board-policy-manual/39-academic-freedom) in order to foster a learning environment where open inquiry and the vigorous debate of a diversity of ideas are encouraged. Students will not be penalized for the content or viewpoints of their speech as long as student expression in a class context is germane to the subject matter of the class and conveyed in an appropriate manner.

Accessibility Statement

Iowa State University is committed to assuring that all educational activities are free from discrimination and harassment based on disability status. Students requesting accommodations for a documented disability are required to work directly with staff in Student Accessibility Services (SAS) to establish eligibility and learn about related processes before accommodations will be identified. After eligibility is established, SAS staff will create and issue a Notification Letter for each course listing approved reasonable accommodations. This document will be made available to the student and instructor either electronically or in hard-copy every semester. Students and instructors are encouraged to review contents of the Notification Letters as early in the semester as possible to identify a specific, timely plan to deliver/receive the indicated accommodations. Reasonable accommodations are not retroactive in nature and are not intended to be an unfair advantage. Additional information or assistance is available online at www.sas.dso.iastate.edu (<http://www.sas.dso.iastate.edu>), by contacting SAS staff by email at accessibility@iastate.edu (<mailto:accessibility@iastate.edu>), or by calling 515-294-7220. Student Accessibility Services is a unit in the Dean of Students Office located at 1076 Student Services Building.

Discrimination and Harassment

Iowa State University does not discriminate on the basis of race, color, age, ethnicity, religion, national origin, pregnancy, sexual orientation, gender identity, genetic information, sex, marital status, disability, or status as a U.S. Veteran. Inquiries regarding non-discrimination policies may be directed to Office of Equal Opportunity, 3410 Beardshear Hall, 515 Morrill Road, Ames, Iowa 50011, Tel. 515-294-7612, Hotline 515-294-1222, email eooffice@iastate.edu (<mailto:eooffice@mail.iastate.edu>)

Prep Week

This class follows the Iowa State University Prep Week policy as noted in section 10.6.4 of the [Faculty Handbook](http://www.provost.iastate.edu/resources/faculty-handbook) (<http://www.provost.iastate.edu/resources/faculty-handbook>).

Religious Accommodation

Iowa State University welcomes diversity of religious beliefs and practices, recognizing the contributions differing experiences and viewpoints can bring to the community. There may be times when an academic requirement conflicts with religious observances and practices. If that happens, students may request the reasonable accommodation for religious practices. In all cases, you must put your request in writing. The instructor will review the situation in an effort to provide a reasonable accommodation when possible to do so without fundamentally altering a course. For students, you should first discuss the conflict and your requested accommodation with your

professor at the earliest possible time. You or your instructor may also seek assistance from the [Dean of Students Office](http://www.dso.iastate.edu/sa/) (<http://www.dso.iastate.edu/sa/>) at 515-294-1020 or the [Office of Equal Opportunity](http://www.eoc.iastate.edu/) (<http://www.eoc.iastate.edu/>) at 515-294-7612.

Contact Information for Academic Issues (<mailto:academicissues@iastate.edu>)

If you are experiencing, or have experienced, a problem with any of the above statements, email academicissues@iastate.edu (<mailto:academicissues@iastate.edu>) (<mailto:academicissues@iastate.edu>)

(Important note to faculty: The email address for contact information is monitored and answered through the Office of the Senior Vice President and Provost)

Tentative Class Schedule

Week (Dates)	Textbook readings	Module Topics	Homework/Programming Project/Exam deadlines
Week 01 Jan 25 - 29	Section 1.1-1.6 Section 2.1-2.3	Introduction, Operating System Structures	HW 0 (Jan 29)
Week 02 Feb 1 - 5	Section 3.1-3.3, 3.7.4	Processes	HW 1 (Feb 5)
Week 03 Feb 8 - 12	Section 4.1-4.4	Threads and concurrency	HW 2 (Feb 12)
Week 04 Feb 15 - 19	Section 5.1-5.3	CPU Scheduling	HW 3 (Feb 19)

Week 05 Feb 22 - 26	Section 5.7.1	CPU Scheduling	Midterm Exam 1 (Feb 26, 6:45pm-8:00pm)
Week 06 Mar 1 - 5	Section 6.1-6.7	Synchronization Tools	HW4 (Mar 5)
Week 07 Mar 8 - 12	Section 7.1, 7.3	Synchronization Examples	Project 1 (Mar 8) HW 5 (Mar 12)
Week 08 Mar 15 - 19	Section 8.1-8.6	Deadlocks	HW 6 (Mar 19)
Week 09 Mar 22 - 26	Section 9.1-9.2, 9.3.1	Main Memory	Midterm Exam 2 (Mar 26, 6:45pm-8:00pm)
Week 10 Mar 29 - Apr 2	Section 10.1-10.6	Virtual Memory	HW 7 (Apr 2)
Week 11 Apr 5 - 9	Section 13.1-13.3 Section 14.1, 14.4-14.5.1, 14.5.2	File-System Interface, File-System Implementation	HW 8 (Apr 9)
Week 12 Apr 12 - 16	Section 16.1-16.3, 16.4.1 Section 17.1-17.2, 17.4-17.6	Security Protection	Project 2 (Apr 12) HW 9 (Apr 16)

Week 13
Apr 19 - 23

Section 19.1-19.3

Networking and
Distributed Systems

HW 10 (Apr 23)





Week 14
Apr 26 - 30









Exam Review









Week 15
May 3 - 6









Final Exam

Course Summary:

Date	Details	
Mon Jan 25, 2021	 Lecture Session: COM S 352 Section B (https://canvas.iastate.edu/calendar?event_id=383169&include_contexts=course_79144)	12:05pm to 12:55pm
Wed Jan 27, 2021	 Lecture Session: COM S 352 Section B (https://canvas.iastate.edu/calendar?event_id=383172&include_contexts=course_79144)	12:05pm to 12:55pm
Fri Jan 29, 2021	 Lecture Session: COM S 352 Section B (https://canvas.iastate.edu/calendar?event_id=383173&include_contexts=course_79144)	12:05pm to 12:55pm
	 Discussion: Section B, Friday, January 29, 12:05PM (Join Here) (https://canvas.iastate.edu/courses/79144/assignments/1358941)	due by 12:05pm

Date	Details
	<div data-bbox="600 185 1276 289">  Discussion: Section A, Friday, January 29, 2:15PM (Join Here) (https://canvas.iastate.edu/courses/79144/assignments/1359914) </div> <div data-bbox="1808 224 1990 248">due by 2:15pm</div>
	<div data-bbox="600 355 1260 459">  Lecture Discussion (COM S 352 Section A) (https://canvas.iastate.edu/calendar?event_id=385838&include_contexts=course_79144) </div> <div data-bbox="1766 394 1990 418">2:15pm to 3:05pm</div>
	<div data-bbox="600 526 1255 630">  Reading: Chapter 1 Section 1.1-1.6 (https://canvas.iastate.edu/courses/79144/assignments/1322694) </div> <div data-bbox="1793 565 1990 589">due by 11:59pm</div>
	<div data-bbox="600 696 1255 800">  Reading: Chapter 2 Section 2.1-2.3 (https://canvas.iastate.edu/courses/79144/assignments/1322695) </div> <div data-bbox="1793 735 1990 760">due by 11:59pm</div>
Mon Feb 1, 2021	<div data-bbox="600 867 1260 971">  Lecture Session: COM S 352 Section B (https://canvas.iastate.edu/calendar?event_id=383175&include_contexts=course_79144) </div> <div data-bbox="1736 906 1990 930">12:05pm to 12:55pm</div>
Wed Feb 3, 2021	<div data-bbox="600 1037 1260 1141">  Lecture Session: COM S 352 Section B (https://canvas.iastate.edu/calendar?event_id=383174&include_contexts=course_79144) </div> <div data-bbox="1736 1073 1990 1097">12:05pm to 12:55pm</div>
Fri Feb 5, 2021	<div data-bbox="600 1203 1260 1307">  Lecture Session: COM S 352 Section B (https://canvas.iastate.edu/calendar?event_id=383171&include_contexts=course_79144) </div> <div data-bbox="1736 1242 1990 1266">12:05pm to 12:55pm</div>
	<div data-bbox="600 1373 1260 1477">  Lecture Discussion (COM S 352 Section A) (https://canvas.iastate.edu/calendar?event_id=385836&include_contexts=course_79144) </div> <div data-bbox="1766 1412 1990 1437">2:15pm to 3:05pm</div>

Date	Details
Mon Feb 8, 2021	 Lecture Session: COM S 352 Section B (https://canvas.iastate.edu/calendar?event_id=383167&include_contexts=course_79144) 12:05pm to 12:55pm
Wed Feb 10, 2021	 Lecture Session: COM S 352 Section B (https://canvas.iastate.edu/calendar?event_id=383168&include_contexts=course_79144) 12:05pm to 12:55pm
Fri Feb 12, 2021	 Lecture Session: COM S 352 Section B (https://canvas.iastate.edu/calendar?event_id=383170&include_contexts=course_79144) 12:05pm to 12:55pm
	 Lecture Discussion (COM S 352 Section A) (https://canvas.iastate.edu/calendar?event_id=385835&include_contexts=course_79144) 2:15pm to 3:05pm
Mon Feb 15, 2021	 Lecture Session: COM S 352 Section B (https://canvas.iastate.edu/calendar?event_id=383166&include_contexts=course_79144) 12:05pm to 12:55pm
Fri Feb 19, 2021	 Lecture Discussion (COM S 352 Section A) (https://canvas.iastate.edu/calendar?event_id=385834&include_contexts=course_79144) 2:15pm to 3:05pm
Fri Feb 26, 2021	 Lecture Discussion (COM S 352 Section A) (https://canvas.iastate.edu/calendar?event_id=385830&include_contexts=course_79144) 2:15pm to 3:05pm
Fri Mar 5, 2021	 Lecture Discussion (COM S 352 Section A) (https://canvas.iastate.edu/calendar?event_id=385833&include_contexts=course_79144) 2:15pm to 3:05pm

Date	Details	
Fri Mar 12, 2021	 Lecture Discussion (COM S 352 Section A) (https://canvas.iastate.edu/calendar?event_id=385829&include_contexts=course_79144)	2:15pm to 3:05pm
Fri Mar 19, 2021	 Lecture Discussion (COM S 352 Section A) (https://canvas.iastate.edu/calendar?event_id=385828&include_contexts=course_79144)	2:15pm to 3:05pm
Fri Mar 26, 2021	 Lecture Discussion (COM S 352 Section A) (https://canvas.iastate.edu/calendar?event_id=385837&include_contexts=course_79144)	2:15pm to 3:05pm
Fri Apr 2, 2021	 Lecture Discussion (COM S 352 Section A) (https://canvas.iastate.edu/calendar?event_id=385839&include_contexts=course_79144)	2:15pm to 3:05pm
Fri Apr 9, 2021	 Lecture Discussion (COM S 352 Section A) (https://canvas.iastate.edu/calendar?event_id=385831&include_contexts=course_79144)	2:15pm to 3:05pm
Fri Apr 16, 2021	 Lecture Discussion (COM S 352 Section A) (https://canvas.iastate.edu/calendar?event_id=385832&include_contexts=course_79144)	2:15pm to 3:05pm
Fri Apr 23, 2021	 Lecture Discussion (COM S 352 Section A) (https://canvas.iastate.edu/calendar?event_id=385840&include_contexts=course_79144)	2:15pm to 3:05pm
Fri Apr 30, 2021	 Lecture Discussion (COM S 352 Section A) (https://canvas.iastate.edu/calendar?event_id=385827&include_contexts=course_79144)	2:15pm to 3:05pm