

## 1.1 CONTACT INFORMATION

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<b>Office:</b>	GITC 4213, 4th floor
<b>@NJIT "Office" Hours:</b>	Mon/Wed 10-10:40am, Wed 4:10-5:30pm
<b>Assistant:</b>	Check course web-page
<b>Class Hours/Place:</b>	See Registrar course schedule
<b>LMS:</b>	Learning Management System to be used is canvas.njit.edu
<b>Web-Page:</b>	<a href="http://www.cs.njit.edu/~alexg/courses/cs332/index.html">http://www.cs.njit.edu/~alexg/courses/cs332/index.html</a>
<b>Web-Page:</b>	<a href="http://web.njit.edu/~alexg/courses/cs332/index.html">http://web.njit.edu/~alexg/courses/cs332/index.html</a>

## 1.2 COURSE ADMINISTRATION

**CourseWork:** 3 exams, 6 Homeworks (HW), Verification of Presence (VoP).

Points:  $1020\text{points} = \text{Ex1}(235) + \text{Ex2}(235) + \text{Ex3}(350) + \text{HW}(180) + \text{VoP}(20)$   
(1pt would be subtracted from the VoP for each SelfAssessment not submitted.)

**HW:** Six homeworks due **before 12 o'clock noon i.e. 12PM for Canvas** and submission through canvas.njit.edu; see Calendar Sec. 1.4. for dates and Appendix 1 for further information.

**Exams:** See Appendix D.2 and also Document P in canvas Announcements. Dates in Calendar 1.4. Exam1 and Exam2 in classroom, in canvas, 75min. Exam3 (final) where and when as specified by the Registrar, in paper, and 120min. All closed everything; Ex1 and Ex3 cumulative. A math calculator is allowed but is a waste of time! For Ex1 and Ex2 use your computer and make sure it is charged to last the exam time. NJIT computer policies apply; see link at the end of this section. A student who leaves the exam room before the preannounced departure time and without explicit permission by the instructor gets a 0 in the exam. An OARS-requested accommodation results in a paper exam at an OARS location. *In case NJIT declares an emergency (e.g. Covid), an exam will become, time permitting, a canvas exam using ProctorU Record+ for proctoring. You are thus expected before 18:00 of the 3rd Friday of the semester to either acquire ProctorU credentials or check that your existing credentials still work with NJIT, and also test that your equipment still works with the ProctorU setup. Hopefully this option will not be exercised. But you and I should be prepared for the possibility of using it! Read DocumentP about canvas and ProctorU.*  
*NJIT computer policies:* <https://list.njit.edu/student-computers>.

## 1.3 BASELINE COURSE SYLLABUS

**Course:** CS332. Principles of Operating Systems.

**Credits:** 3 credits.

**Prerequisites:** CS 114 or CS 116 or IT 114.

**Description:** Organization of operating systems covering structure, process management and scheduling; interaction of concurrent processes; interrupts; I/O, device handling; memory and virtual memory management and file management.

**Textbook:** [Required/Recommended, designated] Operating Systems: Internals and Design Principles, 9th edition, William Stallings, Pearson. ISBN-13: 978-0-13-467095-9, ISBN-10: 0134670957

**Learning Outcomes:**

1. Be able to describe and discuss the basic components of a modern computer-based operating system and their interactions.
2. Be able to define and explain the operating systems concepts of process, thread, files, and file systems, synchronization etc.
3. Learn how different CPU and Disk scheduling algorithms work, compare and explain their relative merits.
4. Understand internal and external memory organization, physical and virtual memory, and be able to describe their usage and relative merits and trade offs in their usage.

**Topics (with references to chapters of the designated textbook):**

Every topic's slides are in a document known as Subject, and it is available in PDF. Every Subject has a SelfAssessment canvas-based quiz autograded by canvas that can be submitted as many times as desired. Not for credit but no submission generates a mild point penalty.

**T01.** Computer system overview (chap 1)

**T02.** Operating system overview (chap 2)

**T03.** Processes (chap 3)

**T04.** Threads (chap 4)

**T05.** Scheduling (chap 9)

**T06.** Multiprocessor scheduling (chap 10)

**T07.** Memory management (chap 7)

**T08.** Virtual memory (chap 8)

**T09.** I/O Management and disk scheduling (chap 11)

**T10.** File management (chap 12)

**T11.** Process Synchronization (chap 5)

**T12.** Concurrency and deadlocks (chap 6)

**T13.** OS security (chap 13)

**Provost statement.**

"Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found at:

<http://www5.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf>. Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university. If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at [dos@njit.edu](mailto:dos@njit.edu)." Also, the following link is provided

[http://www5.njit.edu/provost/sites/provost/files/lcms/docs/Best\\_Practices\\_related\\_to\\_Academic\\_Integrity.pdf](http://www5.njit.edu/provost/sites/provost/files/lcms/docs/Best_Practices_related_to_Academic_Integrity.pdf)

## 1.4 CALENDAR

Fall 2023					
Week	M	W	R	Out	In/Comments
W01	—	09/06	09/07		Classes start Wed.
W02	09/11	09/13	09/14	HW1 out on 09/11	
W03	09/18	09/20	09/21		HW1 in on 09/21 before noon
W04	09/25	09/27	09/28	HW2 out on 09/25	
W05	10/02	10/04	10/05		HW2 in on 10/05 before noon
W06	10/09	10/11	10/12		<b>Exam 1 on Wed 10/11</b>
W07	10/16	10/18	10/19	HW3 out on 10/16	
W08	10/23	10/25	10/26	HW4 out on 10/23	HW3 in on 10/26 before noon
W09	10/30	11/01	11/02		HW4 in on 11/02 before noon
W10	11/06	11/08	11/09		<b>Exam 2 on Wed 11/08</b>
W11	11/13	11/15	11/16	HW5 out on 11/13	
W12	11/20	NOCLASS	THNKD	HW6 out on 11/20	Wed is NJIT Friday
W13	11/27	11/29	11/30		HW5 in on 11/30 before noon
W14	12/04	12/06	12/07		HW6 in on 12/07 before noon
W15	12/11	12/13	RDAY1		Classes end Wed.
W16	—	—	—		For <b>Exam 3:Check Registrar</b>

**Any modification/deviation from the calendar and its items will be done in consultation with the attending a class students and be posted on the course web-page. It is imperative that students check the course web-page regularly and frequently. Exceptions are as announced by the Provost's Office.**

## 1.5 COURSE POLICIES

**OARS:** If you need special accommodations, contact the Office of Accessibility Resources and Services, KUPF 201, to discuss your specific needs. A Letter of Accommodation Eligibility from OARS authorizing your accommodations will be required and should be received by us at least two weeks plus two days before the first exam, if it also relates to a ProctorU exam, otherwise seven days before the first non ProctorU exam.

**MISSING:** If you miss a class, you make up for lost time. No HW extensions for any reason, medical or otherwise; submit early. If you miss an exam you **MUST CONTACT** the Dean of Students (DOS) within 2 working days from the day the reason for the absence is lifted with all necessary documentation and send an email of your intent and absence. Do not submit documentation to the instructor: it is a private matter between you and the Dean of Students. The maximum accommodation period will be the number of missing days to the exam date: it is imperative then that you contact DOS even before the 2 working day period has expired if the accommodation period would be shorter. For Exam1, a DOS approval will get you a scaled Exam2 plus Exam3 grade for Exam1. For Exam 2 a scaled Exam3 grade will be used. No makeup exam for a ProctorU exam.

## 1.5 COURSE POLICIES (continued)

**Grading:** For paper exams if you use pencils to write down your answers do not complain about grading AFTER the EXAM. No Scratch paper. Work submitted will be graded for clarity, conciseness and correctness: be brief and to the point.

**Grades:** Check marks and report errors promptly. **Resolve any issues WITHIN 2 CALENDAR WEEKS and before the first Reading Day** starting from the day an exam or homework is released or returned. For the final, within 3 calendar days from the day grades are posted in canvas or Banner. Talk to the grader first, and then to the instructor. The final grade is decided on a 0 to 1000 point scale (VOP pts are additive). Assuming no violation of the Collaboration policy: around 850 points or more is an A, less than 500 points is F or D, and thus 500 points or more is C or better.

**Incomplete:** A grade of I(incomplete) is given in rare cases where work cannot be completed during the semester due to documented long-term illness or absence (e.g. unexpected national guard duty). A student needs to be in good standing (i.e. passing the course before the absence). An email (in lieu of a written letter) with a timeline of what is needed to be done will be sent to the student and the Department Chairperson. Not showing up in the final will probably get you an F rather than an I.

**Collaboration:** **Collaboration of any kind (in HW, Exams, etc) is PROHIBITED. Students must turn in work that has fully been composed and written by them and no-one else. Finding an answer on the Internet, Web, on a piece of paper, or otherwise, or it is product of someone else's work, or it is (partly or fully) common with another student submission, in the same or other section/course risks punishment as outlined by the University. All parties of such interaction receive a 0 and letter grade is lowered by one or two levels. The work you submit must be the result of your own mental effort.**

**Devices:** Power down (equivalent to removing battery) and switch off (not just silence) mobile and other devices including wearables (e.g. iwatch) and place them in a zippered bag or zippered backpack or on the floor screen facing down. (See article XI, student contact code.) **IF A STUDENT GETS CAUGHT TOUCHING SUCH A DEVICE (on or off) during an exam, the exam receives a 0. DEVICES MUST BE OFF and NOT ON YOU. For ProctorU exams "ON YOU" means anywhere viewable including at a distance of less than 6ft. A not completely powered down device of yours is assumed to be "ON YOU" independently of proximity.** Note that the use of a device without the express permission of the instructor is considered cheating (Article XI).

**Email/SPAM:** Use an NJIT e-address to send email to the course email address (Appendix G).

**Canvas Note:** Canvas assigns points to non CourseWork. Ignore canvas grade aggregations. Because of canvas synchronization issues, all point-assigned material released through canvas will be of limited availability and visibility. **Make backups if needed (e.g. take screenshots).**

**The NJIT Academic Integrity Code will be upheld with violations reported to the Dean of Students.** ■