

COMP 3000 A (Fall 2023): Operating Systems

General Course Information

- **Course Registration Number (CRN):** 31280 (https://central.carleton.ca/prod/bwysched.p_display_course?wsea_code=EXT&term_code=202330&disp=19032158&crn=31280)
- **Classes run:** Sep 06, 2023 to Dec 08, 2023
- **Weekly schedule:** Mondays and Wednesdays, 01:05pm to 02:25pm
- **Room:** Minto Centre 2000 (MC2000).
- **Instructor:** Prof. AbdelRahman Abdou (abdou at scs.carleton.ca)
- **Office hours:** by appointment; email me.
- **TAs:** Ali Jahromi, Nareen Khurshid, Nilofar Mansourzadeh, Ethan Thompson
- **Tutorials.**
 - COMP 3000 A1: Tue: 08:35 - 09:55 at Loeb 270 (LA270).
 - COMP 3000 A2: Fri: 11:35 - 12:55 at St. Patrick's 303 (SP303).
 - COMP 3000 A3: Thu: 08:35 - 09:55 at St. Patrick's 303 (SP303).
- **Material and resources:** Operating Systems: Three Easy Pieces (<https://pages.cs.wisc.edu/~remzi/OSTEP/>), 2018. Springer. (Textbook by Remzi H. Arpaci-Dusseau and Andrea C. Arpaci-Dusseau).
- **Prerequisite(s):** COMP 2401 with a minimum grade of C- and COMP 2402.

Course Summary

Operating system implementation course stressing fundamental issues in design and how they relate to modern computer architectures. Assignments involve the modification and extension of a multitasking operating system.

Grading Scheme

- 9 tutorials: 20%, 2.22% each.
 - With the assigned TAs, check in in person (0.5% each).
 - Submission of answers (1.5% each).
- 4 assignments: 20%, 5% each.
 - Hands-on tasks + short answer questions.
- Midterm exam, in-class : 25%
- Final exam, during the final exam period: 35%

Course Outline

Week	Date (2023)	Topic
Week 1	Sep 6	(No class)
	Sep 8	Intro to course: Building a small computer
Week 2	Sep 11	Introduction to Operating Systems
	Sep 13	
Week 3	Sep 18	Abstraction
	Sep 20	
Week 4	Sep 25	Facilities for Users/Programmers
	Sep 27	
Week 5	Oct 2	File Systems and Storage Management
	Oct 4	
Week 6	Oct 9	Thanksgiving (No class)
	Oct 11	File Systems and Storage Management
Week 7	Oct 16	
	Oct 18	Mid-term test (in class)
Week 8	Oct 23	Fall Break (No classes)
	Oct 25	
Week 9	Oct 30	Inter-Process Communication and Concurrency
	Nov 1	
Week 10	Nov 6	Kernel Modules
	Nov 8	
Week 11	Nov 13	Memory Management
	Nov 15	
Week 12	Nov 20	Containerization and Virtualization
	Nov 22	
Week 13	Nov 27	Security and Additional OS Topics
	Nov 29	
Week 14	Dec 4	
	Dec 6	
Week ∞	TBD	Final Exam

If you are unsure of the expectations regarding academic integrity (how to use and cite references, if unauthorized collaboration with lab- or classmates is permitted (and, if so, to what degree), then you must ASK your instructor. Sharing assignment or quiz specifications or posting them online (to sites like Chegg, CourseHero, OneClass, etc.) is ALWAYS considered academic misconduct. You are NEVER permitted to post, share, or upload course materials without explicit permission from your instructor. Academic integrity offences are reported to the office of the Dean of Science. Information, process and penalties for such offences can be found on the ODS webpage (<https://science.carleton.ca/students/academic-integrity/>).

Late assignments are never accepted for any reason. Assignments submissions are handled electronically (i.e., through Brightspace) and there is no "grace period" with respect to a deadline - an assignment submitted even one minute after the deadline is late and will receive a mark of zero.

Notes on AI Tools

Many of the assessed activities in this course were designed to be completed by an individual working alone. Unless it is explicitly stated otherwise, the use of any will be considered academic misconduct. This includes, but is not limited to, chatbots (e.g., ChatGPT, Google Bard, Bing Chat), research assistants (e.g., Elicit), and image generators (e.g., Stable Diffusion, Dall-E).

References to any material you use but did not originate must use the IEEE/APA/MLA citation style. Failure to reference materials correctly can result in severe penalties, and the use of manufactured (i.e., falsified) or misleading references will be treated as evidence of plagiarism and considered academic misconduct.

Everything you submit for evaluation (e.g., assignments, quizzes, tutorials, and examinations) must be the result of your own work and only your own work. If you use more than five consecutive words from a single source without providing a valid reference, then that is considered plagiarism and an example of academic misconduct.

School of Computer Science Policies

Undergraduate Academic Advisor The Undergraduate Advisor for the School of Computer Science is available in Room 5302C HP; or by email at scs.ug.advisor@cunet.carleton.ca (mailto:scs.ug.advisor@cunet.carleton.ca). The undergraduate advisors can assist with information about prerequisites and preclusions, course substitutions/equivalencies, understanding your academic audit and the remaining requirements for graduation. The undergraduate advisors will also refer students to appropriate resources such as the Science Student Success Centre, Learning Support Services and Writing Tutorial Services.

Graduate Academic Advisors The Graduate Advisors for the School of Computer Science are available in Room 5302 HP; or by email at grad.scs@carleton.ca (mailto:grad.scs@carleton.ca). The graduate advisors can assist with understanding your academic audit and the remaining courses required to meet graduation requirements.

University Policies

Academic Accommodations. Carleton is committed to providing academic accessibility for all individuals. Please review the academic accommodation available to students here (<https://students.carleton.ca/course-outline/>).

Academic Integrity.

Student Academic Integrity Policy: Every student should be familiar with the Carleton University Student Academic Integrity policy. A student found in violation of academic integrity standards may be sanctioned with penalties which range from a reprimand to receiving a grade of F in the course, or even being suspended or expelled from the University. Examples of punishable offences include plagiarism and unauthorized collaboration. Any such reported offences will be reviewed by the office of the Dean of Science. More information on this policy may be found on the ODS Academic Integrity page (<https://carleton.ca/registrar/academic-integrity/>).

Plagiarism: As defined by Senate, "plagiarism is presenting, whether intentional or not, the ideas, expression of ideas or work of others as one's own". Such reported offences will be reviewed by the office of the Dean of Science. More information and standard sanction guidelines can be found here (<https://science.carleton.ca/students/academic-integrity/>).

Unauthorized Collaboration: Senate policy states that "to ensure fairness and equity in assessment of term work, students shall not co-operate or collaborate in the completion of an academic assignment, in whole or in part, when the instructor has indicated that the assignment is to be completed on an individual basis".