

Welcome to CSC369H: Operating Systems. The course covers principles of operating systems with a focus on systems programming in C. In this course, you will gain:

- 1. Experience working with systems code written in C.
- 2. Theoretical knowledge of and practical experience with:
  - Processes and Threads (address spaces, system calls, scheduling)
  - Synchronization (algorithms and structures like locks, semaphores, and monitors)
  - Virtual Memory (paging, page tables, eviction, segmentation)
  - File Systems (the file abstraction, directory structures, and disk I/O)

This material is "core" CS. Past students have indicated that the assignments in this course provided them with examples for interviews and that OS concepts featured prominently in interview problems.

CSC369 is structured around a series of programming assignments covering key topics: system calls, virtual memory, and file systems. The "lectures" provide a historical and theoretical context for the assignments. However, they are not traditional lectures; while some material will be presented, significant class time will be spent in small group activities. I and your classmates will expect you to be an active participant; to do so, you must keep up with the readings and begin the assignments promptly.



Instructor	Andrew Petersen	
Lecture	Monday, 9:10-11:00	
Tutorials	Wednesday, 9:10-10:00 or 10:10-11:00	
Website	Via the Portal or https://mcs.utm.utoronto.ca/~peters43/369	
Office Hours	Priority for 369 students: Monday and Wednesday 11:10-12:00	
DH3096	Priority for 108 students: Monday, Wednesday, and Friday 4:10-5:00	
	(and by appointment and open door policy)	
Email	andrew [dot] petersen [at] utoronto.ca	

- Website and Discussion Board: The course website contains lecture notes, assignment handouts, and, most importantly, a link to the discussion board. The board can get you fast, accurate response to your questions but it only works if everyone participates! We will also use the boards to post announcements and updates, so the discussion board is required daily reading.
- Email: Please use email for personal issues and the discussion board for all other course-related questions. I try to respond to email by the end of the next day. However, due to volume, it may take longer, especially on weekends and near CSC108 due dates.
- Anonymous Feedback: The web page includes a link to anonymous email for you to provide course feedback. Since the sender cannot be determined, comments sent through the feedback system are considered public and may receive a response at the beginning of class or on the discussion board.

Marking Scheme

- **Exercises (20%)** For each class meeting and tutorial, you will be asked to turn in a small piece of work or to work on an activity in class. There will be 24 of those opportunities, worth 3 points each, and full credit will be considered to be 60 points. This provides 12 points (4 exercises) of leeway in case you miss a class or are unable to complete an out of class exercise.
- Assignments (30%) Over the term, you will complete 3 assignments worth 10% each. All three assignments are individual work. To submit your assignment, check your work into the SVN repository you receive for this course.
- Midterm (10%) and Final Exam (40%) The midterm is scheduled in class in week 7 and covers the material in the first six weeks of the course. The final exam is comprehensive, 3 hours, and held during the exam period. You must obtain a 40% on the exam to pass the course; otherwise, your final mark will be set no higher than 48%.



M-F Dates	Торіс	Work Due
8–12 Sep	Intro to Operating Systems and	
	Single-Threaded Processes	
15–19 Sep	System Calls	
22–26 Sep	Threads and Intro to Concurrency	
29 Sep-3 Oct	Synchronization	
6–10 Oct	Scheduling	A1: System Calls (10%)
13–17 Oct	No lecture (Thanksgiving)	
	Tutorial: A2 Intro	
20–24 Oct	Midterm in Lecture	Midterm $(10\%)$
	Tutorial: Intro to Virtual Memory	
27–31 Oct	Paging and Faults	
3–7 Nov	Efficient Page Tables and Swapping	A2: Virtual Memory (10%)
10–14 Nov	Intro to Filesystems	
17–21 Nov	Filesystem Examples	
24–28 Nov	Disk I/O and Security	
1–5 Dec	Wrap-up and Review	A3: File Systems (10%)
???? Dec	Exam	You must obtain $\geq 40\%$ on the exam to pass the course

Late Work Late work is generally not accepted. If you anticipate having trouble meeting a due date (due to assignments in other courses, for example), please let me know as soon as possible. With sufficient lead time, the 369 assignment due date could be adjusted for everyone in the class.

- **Religious Holidays** If a religious holiday will keep you from completing any assigned work, please let me know as soon as possible but no later than two weeks before the due date, and we will work out a mutually agreeable accommodation.
- **Emergencies** In the event of an illness or other catastrophe, obtain appropriate documentation (e.g., medical certificate) and contact me by email within 48 hours of the due date. It is always easier to make alternate arrangements before a due date, so please inform me as soon as you know that you will need accommodation.
- Marking Reviews If a piece of work has been mismarked or if you believe the rubric used to evaluate the work is not appropriate, you may request a marking review. To request a marking review, within a week of the work being returned, send me an email that contains a concise and clear summary of your reasons for requesting that the work be reviewed. Please focus on the areas of the work that you believe were mis- or unfairly marked. Be prepared for the entire work to be reevaluated and for the mark to be adjusted up *or* down after the reevaluation.



Policies

The University of Toronto expects you to be a full member of the academic community and to observe the rules and conventions of academic discourse. In particular, all of the work you submit must be your own and your work must not be submitted by someone else. Plagiarism is a form of academic fraud, and the department uses software that compares submissions for evidence of similarity. The full text of the policy that governs Academic Integrity at U of T (the "Code of Behaviour on Academic Matters") can be found at:

## http://www.governingcouncil.utoronto.ca/policies/behaveac.htm

Here are a couple of guidelines to help you avoid plagiarism:

- Never look at another student's assignment solution or *idea* for a solution, whether it is on paper or on the computer screen, and don't allow your solution to be viewed by or come into the possession of another student. Maintain absolute control of your work including notes and partial solutions at all times.
- We encourage you to discuss course concepts and to study for exams with other students, but any work that is submitted should be your own. The easiest way to avoid plagiarism is to only discuss submitted work with the TA or instructor. Similarly, google (and wikipedia) may help you with course material, but do not use the internet to look for solutions to the assignment problems.