

# Abridged Syllabus: Operating Systems

## Contents

<b>1</b>	<b>Details</b>	<b>2</b>
1.1	Course Description . . . . .	2
1.2	Course Objectives . . . . .	2
<b>2</b>	<b>Grading Components</b>	<b>3</b>
<b>3</b>	<b>Grades</b>	<b>3</b>
<b>4</b>	<b>Important Brooklyn College Policies</b>	<b>3</b>
4.1	Keeping Our Community Safe . . . . .	3
4.2	Center for Student Disability Services . . . . .	4
4.3	Nonattendance Because of Religious Beliefs . . . . .	4
4.4	Brooklyn College Policy on Academic Integrity . . . . .	5
4.5	Brooklyn College Bereavement Policy . . . . .	5
4.6	Brooklyn College Library . . . . .	5
4.7	More Information: Bulletin . . . . .	5
<b>5</b>	<b>Important Dates</b>	<b>6</b>
<b>6</b>	<b>Schedule</b>	<b>6</b>



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# 1 Details

<b>Course &amp; Section:</b>	<i>Operating Systems</i> , CISC 3320, TR3
<b>Days &amp; Time:</b>	Tuesdays, Thursdays (TuTh), 03:40 PM – 04:55 PM
<b>Location:</b>	Ingersoll Addition (New Ingersoll), Room 432 (IA-432 in short)
<b>Instructor:</b>	Miriam Briskman
<b>E-mail:</b>	<a href="mailto:briskman@sci.brooklyn.cuny.edu">briskman@sci.brooklyn.cuny.edu</a>
<b>Response Time:</b>	Within 25 hours on weekdays and 29 hours on weekends
<b>Office Hours:</b>	Tuesdays, 11:00 AM – 12:00 PM, online through Blackboard and at Old Ingersoll, office room 2112b. Alternatively, please email me to schedule an appointment.
<b>Course Materials:</b>	<p>[Free] <i>Computer Science from the Bottom Up</i>, by Ian Wienand. Link: <a href="https://www.bottomupcs.com/csbu.pdf">https://www.bottomupcs.com/csbu.pdf</a>.</p> <hr/> <p>[Free] <i>Course Notes for "Operating Systems"</i>, by Professor John Bell. Link: <a href="https://www.cs.uic.edu/~jbell/CourseNotes/OperatingSystems/index.html">https://www.cs.uic.edu/~jbell/CourseNotes/OperatingSystems/index.html</a>.</p> <hr/> <p>[Free] <i>Operating Systems and Middleware: Supporting Controlled Interaction</i>, by Max Hailperin. Link: <a href="https://gustavus.edu/mcs/max/os-book/osm-rev1.3.1.pdf">https://gustavus.edu/mcs/max/os-book/osm-rev1.3.1.pdf</a>.</p> <p><b>Note:</b> This course uses only free, open-source materials.</p>
<b>Prerequisites:</b>	<a href="#">CISC 3130</a> (Data Structures); and <a href="#">CISC 3305</a> (Computer Organization); or <a href="#">CISC 3310</a> (Principles of Computer Architecture); or <a href="#">CISC 3315</a> (Digital Computer Systems)
<b>Tools/Resources:</b>	Blackboard; Access to a computer (OS doesn't matter)

## 1.1 Course Description

(3 hours; 3 credits) Design and implementation of operating systems for large computers. Multiprogramming, multiprocessing, time sharing. Resource allocation and scheduling. Communications, conversational computing, computer networks. Memory protection, interrupts, segmentation, paging, and virtual memories. (Taken from CUNYFirst.)

## 1.2 Course Objectives

By the end of this course, you will master the following skills:

- Familiarity with the functions and tasks of an operating system and the development history of current techniques.
- Understanding process handling, including interrupts, CPU scheduling, processes and threads, inter-process communication, semaphores, and deadlock.

- Understanding primary and secondary storage management, including memory management, multiprogramming, and virtual memory.
- Definition and appreciation of a computer's security and protection.
- Independent searching and verbal expression of answers based on given sources or your opinion.

Please refer to the Required Electronic Tools and Resources section at the end of the full version of the syllabus for information about how to obtain the software required for this course (for free, of course.)

## 2 Grading Components

The course's grade is influenced by the following components:

<b>Attendance</b>	10%
<b>Participation</b>	15%
<b>Homework</b>	20%
<b>Midterm</b>	25%
<b>Final</b>	30%
<b>Extra Credit</b>	5%

## 3 Grades

Students will receive a letter grade for the course according to the following score distribution established by CUNY:

<60	60-62	63-66	67-69	70-72	73-76	77-79	80-82	83-86	87-89	90-92	93+
F	D-	D	D+	C-	C	C+	B-	B	B+	A-	A

A grade of A+ will be granted for numerical grades of 97 or higher after all extra credit points you received are applied to the grade.

## 4 Important Brooklyn College Policies

### 4.1 Keeping Our Community Safe

Below (Figure 4.1) is a brochure summarizing Brooklyn College's guidelines regarding Covid-19 and feeling sick. Remember you'll either get full credit for missed assignments or a sufficient extension to submit missing work if you notify me about the situation via email, so don't hesitate to act to keep our community safe!

The link to the **COVID-19 Case Collection Form** is <https://www.brooklyn.cuny.edu/web/about/initiatives/initiatives/return/resources/case-collection-form.php>.

**IF YOU HAVE TESTED POSITIVE FOR COVID-19: STAY HOME.**

**IF YOU ARE FEELING SICK OR HAVE BEEN EXPOSED TO COVID-19: GET TESTED, THEN STAY HOME.**


- 1  Use the **COVID-19 Case Collection Form** to report positive test results, close contact exposure, or symptoms.
- 2 Brooklyn College will contact you with further instructions within 12 to 24 hours.
- 3 Inform your supervisor/professor that you are not feeling well.

Figure 1: Covid-19 Infographic: What to do if you got Covid or feel sick. (Credit: Brooklyn College)

## 4.2 Center for Student Disability Services

The Center for Student Disability Services (CSDS) is committed to ensuring students with disabilities enjoy an equal opportunity to participate at Brooklyn College. In order to receive disability-related academic accommodations students must first be registered with CSDS. Students who have a documented disability or suspect they may have a disability are invited to schedule an interview by calling (718) – 951 – 5538 or emailing [Josephine.Patterson@brooklyn.cuny.edu](mailto:Josephine.Patterson@brooklyn.cuny.edu). If you have already registered with CSDS, email [Josephine.Patterson@brooklyn.cuny.edu](mailto:Josephine.Patterson@brooklyn.cuny.edu) or [testingcsds@brooklyn.cuny.edu](mailto:testingcsds@brooklyn.cuny.edu) to ensure the accommodation email is sent to your professor.

## 4.3 Nonattendance Because of Religious Beliefs

The Brooklyn College undergraduate Bulletin for the years 2021 – 2022 states:

The New York State Education Law provides that no student shall be expelled or refused admission to an institution of higher education because he or she is unable to attend classes or participate in examinations or study or work requirements on any particular day or days because of religious beliefs. Students who are unable to attend classes on a particular day or days because of religious beliefs will be excused from any examination or study or work requirements. Faculty must make good-faith efforts to provide students absent from class because of religious beliefs equivalent opportunities to make up the work missed; no additional fees may be charged for this consideration.

Based on the description above, if you are incapable of attending a class because of religious observance, you should e-mail me at least 48 hours before that class so that proper accommodations could be made. If this is an exam day, we will schedule a make-up exam when it is convenient to you, and if an assignment is due, the due date will be extended, and I will tell you when the new due date is.

#### 4.4 Brooklyn College Policy on Academic Integrity

The faculty and administration of Brooklyn College support an environment free from cheating and plagiarism. Each student is responsible for being aware of what constitutes cheating and plagiarism and for avoiding both.

The complete text of the CUNY Academic Integrity Policy and the Brooklyn College procedure for implementing that policy can be found at this site: <https://www.brooklyn.cuny.edu/bc/policies>.

If a faculty member suspects a violation of academic integrity and, upon investigation, confirms that violation, or if the student admits the violation, the faculty member **MUST** report the violation. Students should be aware that faculty may use plagiarism detection software.

**This means that if you cheat on a test or assignment, I MUST file a report which will initiate academic penalties. Additionally, the assignment in which you cheat will get an unfortunate score of 0.**

#### 4.5 Brooklyn College Bereavement Policy

Students who experience the death of a loved one should refer to:

<https://www.brooklyn.cuny.edu/web/about/initiatives/policies/bereavement.php>

#### 4.6 Brooklyn College Library

New student? Returning to campus? Looking for materials for your class or research? Check out the plethora of resources that the Brooklyn College Library is providing to you:

<https://library.brooklyn.cuny.edu/resources/>

You will certainly find something useful there!

#### 4.7 More Information: Bulletin

For more information about the policies of Brooklyn College and other essential information, please refer to the Bulletin, which you can find on the following web-page:

<https://www.brooklyn.cuny.edu/web/about/administration/enrollment/registrar/bulletins.php>

## 5 Important Dates

**August 25 (Th):** Start of Fall 2022 Term

**August 25 (Th):** First lecture of CISC 3320, section TR3

**August 31 (We):** Last day to add a course

**September 02 – 04 (Fr – Su):** No classes scheduled

**September 05 (Mo):** Labor Day: College Closed

**September 15 (Th):** Grade of W is assigned for officially withdrawing from a course

**September 26 – 27 (Mo – Tu):** No classes scheduled

**September 29 (Th):** Conversion Day: Classes follow Monday schedule

**October 04 – 05 (Tu – We):** College Closed: No classes scheduled

**October 10 (Mo):** College Closed

**October 11 (Tu):** Holiday: **No CISC 3320, TR3 lecture!** [Our section only!]

**October 18 (Tu):** Holiday: **No CISC 3320, TR3 lecture!** [Our section only!]

**November 24 – 27 (Th – Su):** Thanksgiving: No classes scheduled

**December 14 (We):** Reading Day; Last day to withdraw from a course with a grade of W

**December 15 – 21 (Th – We):** Week of Final Examinations for the Fall 2022 Term

Please refer to the Brooklyn College Academic Calendar for the Fall 2022 semester to view other important dates not mentioned above:

<https://www.brooklyn.cuny.edu/web/about/administration/enrollment/registrar/bulletins/fall22/calendar.php>

## 6 Schedule

Note that the schedule below is tentative; if changes are made, I will notify you and will post the updated syllabus/schedule on Blackboard.

**All assignments, excluding the exams, are due at 11:59 PM EST, on Blackboard.**

Week	Date	Topics, Exams, and Assignment Deadlines
1	08/25 (Th)	<b>Welcome!</b> Syllabus Review
2	08/30 (Tu)	Topic 1: Overview of operating systems
	09/01 (Th)	Topic 1: Overview of operating systems – Cont'
3	09/06 (Tu)	Topic 2: Functions & Services of an OS
	09/08 (Th)	Topic 2: Functions & Services of an OS – Cont'
4	09/13 (Tu)	Topic 3: I/O and Interrupts
	09/15 (Th)	Topic 3: I/O and Interrupts – Cont' • Homework 1 on Topic 1 due
5	09/20 (Tu)	Topic 4: Processes
	09/22 (Th)	Topic 4: Processes – Cont'

Week	Date	Topics, Exams, and Assignment Deadlines
6	09/27 (Tu)	No classes scheduled: <b>No CISC 3320, TR3 lecture!</b>
	09/29 (Th)	Conversion Day: <b>No CISC 3320, TR3 lecture!</b>
7	10/04 (Tu)	College Closed: <b>No CISC 3320, TR3 lecture!</b>
	10/06 (Th)	Topic 5: Threads <ul style="list-style-type: none"> <li>• Homework 2 on Topics 2 and 3 due</li> </ul>
8	10/11 (Tu)	Holiday: <b>No CISC 3320, TR3 lecture!</b> [Our section only!] Video posted on Topic 5: Threads – Cont'
	10/13 (Th)	Topic 6: CPU Scheduling
9	10/18 (Tu)	Holiday: <b>No CISC 3320, TR3 lecture!</b> [Our section only!] Video posted on Topic 6: CPU Scheduling – Cont'
	10/20 (Th)	Topic 5: Threads – Cont'
10	10/25 (Tu)	–
	10/27 (Th)	– <ul style="list-style-type: none"> <li>• Homework 3 on Topics 4 and 5 due</li> </ul>
11	11/01 (Tu)	Topic 6: CPU Scheduling – Cont'
	11/03 (Th)	<b>Midterm Exam: 03:40 PM – 04:55 PM, at WEB 1st Floor</b>
12	11/08 (Tu)	Topic 6: CPU Scheduling – Cont'
	11/10 (Th)	Topic 7: Memory Management
13	11/15 (Tu)	Topic 8: Virtual Memory
	11/17 (Th)	Topic 8: Virtual Memory – Cont'
14	11/22 (Tu)	Topic 9: Process Coordination & Semaphores
	11/24 (Th)	Thanksgiving: College Closed, <b>No CISC 3320, TR3 lecture!</b>
15	11/29 (Tu)	Topic 9: Process Coordination & Semaphores – Cont'
	12/01 (Th)	Topic 10: Deadlock
16	12/06 (Tu)	Topic 10: Deadlock – Cont'
	12/08 (Th)	Topic 11: File Management <ul style="list-style-type: none"> <li>• Homework 4 on Topics 6, 7, and 8 due</li> </ul>
17	12/13 (Tu)	Topic 11: File Management – Cont' <ul style="list-style-type: none"> <li>• Final Exam Preparation/Review</li> </ul>
Reading Day	12/14 (We)	<b>No CISC 3320, TR3 lecture!</b>
Finals	12/15 (Th)	<b>Final Exam: 03:30 PM – 05:30 PM, at WEB 1st Floor</b>

– End of CISC 3320 Abridged Syllabus –