Abridged Syllabus: Introduction to Discrete Structures

Contents

1 Details

Course & Section:	*Introduction to Discrete Structures,* CISC 2210, MW3
Days & Time:	Mondays, Wednesdays (MoWe), 03:40 PM – 04:55 PM
Location:	Ingersoll Hall, Room 1127 (IH-1127 in short)
Instructor:	Miriam Briskman
E-mail:	miriam.briskman@brooklyn.cuny.edu
Response Time:	Within 24 – 48 hours, between 12 PM to 9:30 PM
Office Hours:	Wednesdays, 07:30 PM – 09:30 PM, online through Zoom. Alternatively, please email me to schedule an appointment.
Course Materials:	[Free] *Discrete Math*, by Mohamed Jamaloodee et al.. Link: https://ggc-discrete-math.github.io/. [Free] *A Cool Brisk Walk Through Discrete Mathematics*, by Davis Stephen. Link: http://stephendavies.org/brisk.pdf. [Free] *Introduction to Discrete Mathematics: An OER for MA-471*, by Mathieu Sassolas. Link: https://academicworks.cuny.edu/cgi/viewcontent.cgi?article=1183&context=qb_oers. [Free] *Discrete Mathematics: An Open Introduction*, by Oscar Levin. Link: https://discrete.openmathbooks.org/dmoi3/. [Free] *Notes on Discrete Mathematics*, by James Aspnes. Link: https://www.cs.yale.edu/homes/aspnes/classes/202/notes.pdf. [Free] *Applied Discrete Structures*, by Al Doerr and Ken Levasseur. Link: https://discretemath.org/ads-latex/ads.pdf. [Free] *CS202: Discrete Structures*, by Saylor Academy. Link: https://learn.saylor.org/course/view.php?id=67. **Note**: This course uses only free, open-source materials.
Prerequisites:	(CISC 1110 or CISC 1115 or (both CISC 1113 and CISC 1114) or CISC 1170 or CISC 1180 or CISC 1215) and (MATH 1011 or MATH 1012 or assignment to MATH 1201)
Tools/Resources:	Brightspace; Access to a computer (OS doesn't matter); A pdfLaTeX compiler or Overleaf; Adobe Acrobat Reader DC

1.1 Course Description

(3 credits) Elementary set theory, functions, relations, and Boolean algebra. Switching circuits, gating networks. Definition and analysis of algorithms. Applications of graph theory to computer science. Related algorithms. Introduction to combinatorial computing and counting arguments. Introduction to error analysis.

(Taken from CUNYFirst.)

1.2 Course Objectives

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

- Introduction to multiple math topics and tools that a Computer Scientist will benefit from knowing and using.
- Practice typesetting math with LaTeX and compilation of PDF documents.
- Simple proofs of mathematical statements (mathematical induction, indirect arguments) and logical propositions (including quantifiers).
- Functional and relational properties (one-to-one, onto, reflexive, symmetric, transitive, equivalence, partial ordering), and operations (composition, transitive closure).
- Counting principles, countable and uncountable sets. Basic probability theory and applications.
- Big-$\mathcal{O}$ Notation. Recursive definitions and solutions of simple of recurrence relations.
- Fundamental concepts of set theory and Boolean Algebra.
- Application of matrices, graphs, and trees as data structures/containers.
- 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:

Attendance	10%
Participation	27%
Homework	8%
Midterm	25%
Final	30%
Extra Credit	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 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. If you have already registered with CSDS, email Josephine.Patterson@brooklyn.cuny.edu or testingcsds@brooklyn.cuny.edu to ensure the accommodation email is sent to your professor.

4.2 Nonattendance Because of Religious Beliefs

The Brooklyn College undergraduate Bulletin for the years 2024 – 2025 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.

4.3 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 can be found at this site:

https://www.cuny.edu/about/administration/offices/legal-affairs/policies-resources/academic-integrity-policy/

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.

4.4 Brooklyn College Bereavement Policy

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

https://www.brooklyn.edu/policies/bereavement/

4.5 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!

4.6 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.edu/registrar/bulletins/

5 Important Dates

August 26 (Tu): Start of Fall 2025 Term
August 27 (We): First lecture of CISC 2210, section MW3
August 30 – 31 (Sa – Su): No classes scheduled
September 01 (Mo): Labor Day: College Closed
September 01 (Mo): Registrar drops everyone waitlisted for Fall 2025 courses
September 01 (Mo): Last day to add a course

September 16 (Tu): Grade of W is assigned for officially withdrawing from a course
September 22 – 24 (Mo – We): No classes scheduled
October 01 – 02 (We – Th): No classes scheduled
October 07 – 08 (Tu – We): Holiday: **No CISC 2210, MW3 lecture!** [Our section only!]
October 13 (Mo): Columbus Day: College Closed
October 14 – 15 (Tu – We): Holiday: **No CISC 2210, MW3 lecture!** [Our section only!]
October 14 (Tu): Conversion Day: Classes follow Monday schedule
October 20 (Mo): No classes scheduled
October 24 (Fr): Conversion Day: Classes follow Monday schedule
November 06 (Th): Last day to withdraw from a course with a grade of W
November 27 – 28 (Th – Fr): Thanksgiving: No classes scheduled
November 29 – 30 (Sa – Su): Thanksgiving: No classes scheduled
December 15 (Mo): Last day of classes!
December 16 – 22 (Tu – Mo): Week of Final Examinations for the Fall 2025 Term

Please refer to the Brooklyn College Academic Calendar for the Fall 2025 semester to view other important dates not mentioned above:

https://www.brooklyn.edu/events/tag/Fall-2025-main-academic-calendar/list/?tribe_organizers%5B0%5D=8878

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 Brightspace.

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

Week	Date	Topics, Exams, and Assignment Deadlines
1	08/27 (We)	**Welcome!** Syllabus Review
2	09/01 (Mo)	College Closed: **No CISC 2210, MW3 lecture!**
	09/03 (We)	Topic 1: Discrete Structures: Overview
3	09/08 (Mo)	Topic 1: Discrete Structures: Overview – Cont'
	09/10 (We)	Topic 1: Discrete Structures: Overview – Cont'
4	09/15 (Mo)	Topic 2: Sets & Sequences
	09/17 (We)	Topic 2: Sets & Sequences – Cont'
5	09/22 (Mo)	No classes scheduled: **No CISC 2210, MW3 lecture!**
	09/24 (We)	No classes scheduled: **No CISC 2210, MW3 lecture!**
6	09/29 (Mo)	Topic 2: Sets & Sequences – Cont'
	10/01 (We)	No classes scheduled: **No CISC 2210, MW3 lecture!**

Week	Date	Topics, Exams, and Assignment Deadlines
7	10/06 (Mo)	Topic 2: Sets & Sequences – Cont' • Homework 1 on Topics 1 and 2 due
	10/08 (We)	Holiday: **No CISC 2210, MW3 lecture!** [Our section only!] • You aren't required to cover any material on your own today.
8	10/13 (Mo)	College Closed: **No CISC 2210, MW3 lecture!**
	10/14 (Tu)	Conversion Day: We should've had a lecture today, but: Holiday: **No CISC 2210, MW3 lecture!** [Our section only!] • You aren't required to cover any material on your own today.
9	10/15 (We)	Holiday: **No CISC 2210, MW3 lecture!** [Our section only!] • You aren't required to cover any material on your own today.
10	10/20 (Mo)	No classes scheduled: **No CISC 2210, MW3 lecture!**
	10/22 (We)	Topic 3: Logic & Simple Proof Methods
	10/24 (Fr)	Conversion Day: **We have a lecture today!** Topic 3: Logic & Simple Proof Methods – Cont'
11	10/27 (Mo)	Topic 3: Logic & Simple Proof Methods – Cont'
	10/29 (We)	Topic 3: Logic & Simple Proof Methods – Cont'
12	11/03 (Mo)	Topic 3: Logic & Simple Proof Methods – Cont' • Homework 2 on the 1st part of Topic 3 due
	11/05 (We)	Topic 3: Logic & Simple Proof Methods – Cont'
13	11/10 (Mo)	Topic 4: Relations
	11/12 (We)	Topic 4: Relations – Cont'
14	11/17 (Mo)	Topic 4: Relations – Cont'
	11/19 (We)	**Midterm Exam: 03:40 PM – 04:55 PM, at the West End Building (WEB), 1st floor, computers M123 – M189**
15	11/24 (Mo)	Topic 5: Functions
	11/26 (We)	Topic 5: Functions – Cont'
16	12/01 (Mo)	Topic 6: Counting & Combinatorics
	12/03 (We)	Topic 7: Discrete Probability
17	12/08 (Mo)	Topic 7: Discrete Probability – Cont'
	12/10 (We)	Topic 8: Recurrence & Recursion
18	12/15 (Mo)	Topic 8: Recurrence & Recursion – Cont'
Finals	12/17 (We)	**Final Exam: 03:30 PM – 05:30 PM, at the West End Building (WEB), 1st floor, computers M123 – M189**

– End of CISC 2210 Abridged Syllabus –