Fall 2019

MATH 326-001: Discrete Analysis for Computer Engineers

J. Ratnaswamy

NJIT New Jersey's Science & Technology University

THE COLLEGE OF SCIENCE AND LIBERAL ARTS

THE DEPARTMENT OF MATHEMATICAL SCIENCES

MATH 326: Discrete Analysis for Computer Engineers
Fall 2019 Course Syllabus

NJIT Academic Integrity Code: All Students should be aware that the Department of Mathematical Sciences takes the University Code on Academic Integrity at NJIT very seriously and enforces it strictly. This means that there must not be any forms of plagiarism, i.e., copying of homework, class projects, or lab assignments, or any form of cheating in quizzes and exams. Under the University Code on Academic Integrity, students are obligated to report any such activities to the Instructor.

COURSE INFORMATION

Course Description: An introduction to mathematical logic, Boolean algebra, and Karnaugh maps. Other topics include functions, equivalence relations and partially ordered sets, counting, graph theory and finite state machines. The emphasis is on computation but proofs will be addressed. Students cannot receive credit for both MATH 226 and MATH 326.

Number of Credits: 3

Prerequisites: MATH 112 with a grade of C or better or MATH 133 with a grade of C or better.

Course-Section and Instructors

Course-Section	Instructor
Math 326-001	Professor J. Ratnaswamy
Math 326-003	TBA

Office Hours for All Math Instructors: Fall 2019 Office Hours and Emails

Required Textbook:

Title	*A Beginners Guide to Discrete Mathematics*
Author	W.D. Wallis
Edition	2nd
Publisher	Birkhäuser
ISBN #	978-0817682859

University-wide Withdrawal Date: The last day to withdraw with a **W** is **Monday, November 11, 2019**. It will be strictly enforced.

POLICIES

DMS Course Policies: All DMS students must familiarize themselves with, and adhere to, the Department of Mathematical Sciences Course Policies, in addition to official university-wide policies. DMS takes these policies very seriously and enforces them strictly.

Grading Policy: The final grade in this course will be determined as follows:

Quizzes	15%
Midterm Exam I	25%
Midterm Exam II	25%
Final Exam	35%

Your final letter grade will be based on the following tentative curve. **NOTE**: This course needs to be passed with a grade of C or better in order to proceed to Math 426.

A	89.1 - 100	**C**	69.1 - 75
B+	85.1 - 89	**D**	60 - 69
B	79.1 - 85	**F**	0 - 59
C+	75.1 - 79		

Attendance Policy: Attendance at all classes will be recorded and is **mandatory**. Please make sure you read and fully understand the Math Department's Attendance Policy. This policy will be strictly enforced.

A grade of zero will be assigned for class participation every time you are absent from class. Absences from class will inhibit your ability to fully participate in class discussions and problem solving sessions and, therefore, affect your grade. Tardiness to class is very disruptive to the instructor and students and will not be tolerated. Each student should have contact information of several fellow students to get homework assignments and class notes when absent. You are responsible for everything that happens in class whether you are present or not.

Homework: Homework problems will be assigned in class.

Exams: There will be two midterm exams held in class during the semester and one comprehensive final exam. Exams are held on the following days:

Midterm Exam I	Tuesday, October 1, 2019
Midterm Exam II	Tuesday, November 5, 2019
Final Exam Week	December 14 - 20, 2019

The final exam will test your knowledge of all the course material taught in the entire course. Make sure you read and fully understand the Math Department's Examination Policy. This policy will be strictly enforced.

Makeup Exam Policy: There will be **NO MAKE-UP QUIZZES OR EXAMS** during the semester. In the event an exam is not taken under rare circumstances where the student has a legitimate reason for missing the exam, the student should contact the Dean of Students office and present written verifiable proof of the reason for missing the exam, e.g., a doctor's note, police report, court notice, etc. clearly stating the date AND time of the mitigating problem. The student must also notify the Math Department Office/Instructor that the exam will be missed.

Cellular Phones: All cellular phones and other electronic devices must be switched off during all class times.

ADDITIONAL RESOURCES

Math Tutoring Center: Located in the Central King Building, Lower Level, Rm. G11 (See: Fall 2019 Hours)

Further Assistance: For further questions, students should contact their instructor. All instructors have regular office hours during the week. These office hours are listed on the Math Department's webpage for Instructor Office Hours and Emails.

All students must familiarize themselves with and adhere to the Department of Mathematical Sciences Course Policies, in addition to official university-wide policies. The Department of Mathematical Sciences takes these policies very seriously and enforces them strictly.

Accommodation of Disabilities: Disability Support Services (DSS) offers long term and temporary accommodations for undergraduate, graduate and visiting students at NJIT.

If you are in need of accommodations due to a disability please contact Chantonette Lyles, Associate Director of Disability Support Services at 973-596-5417 or via email at lyles@njit.edu. The office is located in Fenster Hall Room 260. A Letter of Accommodation Eligibility from the Disability Support Services office authorizing your accommodations will be required.

For further information regarding self identification, the submission of medical documentation and additional support services provided please visit the Disability Support Services (DSS) website at:

- https://www.njit.edu/studentsuccess/accessibility/

Important Dates (See: Fall 2019 Academic Calendar, Registrar)

Date	Day	Event
September 3, 2019	T	First Day of Classes
September 13, 2019	F	Last Day to Add/Drop Classes
November 11, 2019	M	Last Day to Withdraw
November 26, 2019	T	Thursday Classes Meet
November 27, 2019	W	Friday Classes Meet
November 28-29, 2019	R-F	Thanksgiving Recess
December 11, 2019	W	Last Day of Classes
December 12, 13 2019	R & F	Reading Days
December 14-20, 2019	F - R	Final Exam Period

Course Outline

Week	Sections	Topic
1	1.1, 1.2 (omit p. 11-14), 1.3	Properties of Numbers
2	2.1, 2.2, 2.3	Sets , Data Structures and Propositional Logic
3	2.4, 2.5, 3.1	(continued) + Boolean Algebra
4	4.1, 4.2	Relations and Functions
5	4.1, 4.2, 4.3	(continued) EXAM 1
6	5.1, 5.2, 5.3,	The Theory of Counting

7	5.5 (omit p. 144-148), 5.7(omit derangements)	(continued)
8	6.1, 6.2	Probability
9	6.3(omit derangements) 6.4, 6.5	(continued)
10	7.1, 7.2, 7.3(omit connectivity)	Graph Theory EXAM 2
11	7.4, 7.5, 7.6	(continued)
12	9.1, 9.2	Number Theory and Cryptography
13	9.3, 9.5	(continued)
14	Optional	(continued)
	9.6, 9.7	
15	**REVIEW**	REVIEW FOR FINAL EXAM