# MATH 326: Discrete Analysis for Computer Engineers
## *Fall 2021 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 |

**Office Hours for All Math Instructors**: Fall 2021 Office Hours and Emails

**Required Textbook**:

| Title | *zyBook Discrete Math* |
|---|---|
| Notes | *1. Sign in or create an account at learn.zybooks.com* <br> *2. Enter zyBook code: NJITMath326RatnaswamyFall2021* <br> *3. (A subscription is $58.)* |

**University-wide Withdrawal Date**: The last day to withdraw with a **W** is **Wednesday, November 10, 2021**. 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:

| | |
|---|---|
| **Homework, Quizzes, and Class Performance** | 30% |
| **Exam I** | 20% |
| **Exam II** | 20% |
| **Final Exam** | 30% |

Your final letter grade will be based on the following tentative curve.

| | | | |
|---|---|---|---|
| A | 90 - 100 | C | 69 - 74 |
| B+ | 85 - 89 | D | 60 - 68 |
| B | 79 - 84 | F | 0 - 59 |
| C+ | 75 - 78 | | |

**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 | Week 5 ( September 27, 2021) |
| Midterm Exam II | Week 10 ( November 1, 2021) |
| Final Exam Period | December 15 - 21, 2021 |

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 2021 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.

**Accommodation of Disabilities**: The Office of Accessibility Resources and Services (OARS) 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 Scott Janz, Associate Director of Disability Support Services at 973-596-5417 or via email at scott.p.janz@njit.edu. The office is located in Kupfrian Hall, Room 201. A Letter of Accommodation Eligibility from the Office of Accessibility Resources and 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 Office of Accessibility Resources and Services (OARS) website at:

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

**Important Dates** (See: Fall 2021 Academic Calendar, Registrar)

| Date | Day | Event |
|---|---|---|
| September 1, 2021 | Wednesday | First Day of Classes |
| September 4, 2021 | Saturday | Saturday Classes Begin |
| September 6, 2021 | Monday | Labor Day |
| September 8, 2021 | Wednesday | Monday Classes Meet |
| September 8, 2021 | Wednesday | Last Day to Add/Drop Classes |
| November 10, 2021 | Wednesday | Last Day to Withdraw |
| November 25 to November 28, 2021 | Thursday to Sunday | Thanksgiving Recess - Closed |
| December 10, 2021 | Friday | Last Day of Classes |
| December 13 and December 14, 2021 | Monday and Tuesday | Reading Days |
| December 15 to December 21, 2021 | Wednesday to Tuesday | Final Exam Period |

## Course Outline

| Week | Chapters | Topic |
|---|---|---|

| | | |
|---|---|---|
| 1 | 1 | Logic |
| 2 | 2, 3 | Proofs and Sets |
| 3 | 3, 4 | Sets and Functions |
| 4 | 5 | Boolean Algebra |
| 5 | | **EXAM I ( September 27, 2021)** |
| 6 | 6 | Relations, Digraphs |
| 7 | 8 | Induction |
| 8 | 9 | Integer Properties |
| 9 | 9 | Number Theory |
| 10 | | **EXAM II ( November 1, 2021)** |
| 11 | 10 | Counting |
| 12 | 12 | Discrete Probability |
| 13 | 13 | Graphs |
| 14 | 14 | REVIEW |
| 15 | **REVIEW** | REVIEW FOR FINAL EXAM |