CISC 1100 E01
Structures of Computer Science
Course Syllabus

Department of Computer and Information Science
Fordham University

Instructor: Ali Alfatemi
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Office Hours: Wednesdays, 5:30 PM – 6:30 PM in JMH 328A (or by appointment)
Class Schedule: Wednesdays, 6:30 PM – 9:15 PM
Location: Keating Hall 318, Rose Hill Campus

COURSE DESCRIPTION

This course serves as a comprehensive introduction to the discrete structures fundamental to computer science and information technology. The curriculum is designed to familiarize students with mathematical and computational approaches to problem-solving and logical reasoning. The primary pedagogical focus is on the development of analytical skills and logical rigor rather than rote mathematical computation.

Key topics include set theory, binary logic, relations and functions, elementary combinatorics, graph theory. Additionally, approximately 15% of the instructional time is dedicated to laboratory work, where students will apply theoretical concepts through computer-based projects, including web development and simple animation. This course satisfies the mathematical and computational reasoning requirement for the Fordham Core Curriculum.

LEARNING OBJECTIVES

The primary objective of this course is to cultivate the student's ability to solve analytical and algorithmic problems and to foster abstract reasoning capabilities necessary for success in mathematical and computational environments. Upon successful completion of this course, students will be able to:

- **Interpret Notations:** Analyze and comprehend standard mathematical notations and concepts used in computer science.
- **Formulate Solutions:** Develop robust solutions to mathematical problems across a diverse range of topics.
- **Apply Methodology:** Utilize well-defined methodologies to reason through and solve complex mathematical problems.

REQUIRED MATERIALS

Textbook:
Lyons, D., Papadakis-Kanaris, C., Weiss, G., & Werschulz, A. (2nd Edition). *Fundamentals of Discrete Structures*. Pearson.

COURSE REQUIREMENTS & GRADING

Evaluation will be based on a combination of examinations, homework assignments, and laboratory projects. The final grade will be calculated as follows:

Assessment Component	Weight
Homework Assignments	20%
Laboratory Projects	20%
Midterm Examination I	10%
Midterm Examination II	10%
Midterm Examination III	10%
Final Examination (Cumulative)	20%
Attendance & Participation	10%
Total	**100%**

Note: The instructor reserves the right to adjust the weighting of these components to reflect the pacing and circumstances of the course (e.g., changes in the number of assigned projects).

TENTATIVE COURSE OUTLINE

The following topics are scheduled to be covered during the semester. The instructor reserves the right to modify the order or depth of topics based on class progress.

- **Sets**
- **Sequences and Summations**
- **Formal Logic**
- **Relations**
- **Functions**
- **Combinatorics and Counting**
- **Graph Theory** (time permitting)

COURSE MATERIALS & COMMUNICATION

Blackboard: Blackboard will serve as the primary platform for this course. All lecture notes, assignments, supplementary materials, and official updates will be posted there. Students are expected to check Blackboard regularly to stay informed.

COURSE POLICIES

Attendance and Participation

Regular attendance and active engagement are critical for mastering the course material. Attendance will be recorded at the start of each session. Students are permitted a maximum of **two excused absences**. Any additional or unexcused absences will result in a significant reduction of the final grade.

Active participation implies not only physical presence but also preparedness. Students are expected to complete assigned readings and homework prior to class and to contribute meaningfully to discussions. Questions are encouraged; they clarify understanding for the entire class.

Homework and Assignments

Homework will be assigned at the commencement of each new topic. While the time required may vary, students should anticipate dedicating four to six hours per week to coursework outside of class. All deliverables must be submitted via **Blackboard** by the specified deadline.

Late Policy: Late assignments will strictly not be accepted, except in cases of documented extenuating circumstances and with prior approval from the instructor.

Computer Projects

Throughout the semester, students will engage in computer-based projects designed to foster creativity and practical application of theoretical concepts.

Specific logistics regarding these projects (e.g., whether they will be conducted during class time or assigned as independent work) will be announced via Blackboard. If in-class work is required, instructions regarding the use of personal laptops will be provided in advance.

Examinations

The course includes three midterm exams and one cumulative final exam. These assessments will focus exclusively on the academic, theoretical content of the course. Make-up exams will not be administered except in extreme, documented emergencies and require prior instructor approval.

Failure Policy: A student who fails all examinations will strictly not pass the course. Furthermore, failure to submit homework or projects by the deadlines will negatively impact the final grade.

ACADEMIC INTEGRITY

Academic honesty is fundamental to the educational mission of Fordham University. All work submitted must be the student's own, unless collaboration is explicitly permitted. While general discussion of homework problems is allowed, the sharing of written solutions or code is strictly prohibited. Plagiarism, cheating, or any form of academic dishonesty will be addressed in accordance with university policy, potentially resulting in failure of the assignment or the course.