

MATH 253: DISCRETE MATHEMATICAL STRUCTURES (SUMMER 2017)

**Course number:** MAT 253

**Course title:** Discrete Mathematical Structures

**Credits:** 3

**Meetings:** Mon, Tue, Wed, & Thu 9:00–11:00 am, Petty 317

**Prerequisites:** Grade of at least C in MAT 151 or MAT 191.

**Instructor information:**

Instructor: Dr. Dan Yasaki [d\\_yasaki@uncg.edu](mailto:d_yasaki@uncg.edu)

Homepage: [http://www.uncg.edu/math/faculty/d\\_yasaki/teaching.html](http://www.uncg.edu/math/faculty/d_yasaki/teaching.html)

Office Hours (146 Petty): Tue & Fri 11:00–12:30 and by appointment

**For whom planned:** This is a core course designed for mathematics majors as an early introduction to discrete mathematical structures, rigorous proof techniques, and mathematical programming.

**Catalog description:** A rigorous introduction to discrete mathematical structures, proof techniques, and programming. Topics include sets, functions, sequences, relations, induction, propositional and predicate logic, modular arithmetic, and mathematical programming.

**Student learning outcomes:** Upon successful completion of this course, students will be able to:

- define the fundamental discrete mathematical structures.
- identify and describe various types of relations.
- explain how RSA encryption allows for secure message transcription.
- translate pseudocode algorithms into Python scripts.
- compute the number of solutions to several arrangement problems.
- analyze simple algorithms and identify values of variables at various stages of completion.
- combine definitions and results produced in class to create rigorous proofs of basic statements about discrete mathematical structures.
- evaluate an argument for logical validity.

**Teaching methods and assignments for achieving learning outcomes:** The course material will read and studied independently *before* class discussion and activities. Achievement of learning outcomes will be facilitated via homework assignments, programming projects, in-class activities, discussions, and exams.

**Evaluation and grading:** Semester averages are computed according to the syllabus, and letter grades are assigned on a 10 point scale. Grades are not curved or rounded.

A+ : 97–100	B+ : 87–89	C+ : 77–79	D+ : 67–69	
A : 93–96	B : 83–86	C : 73–76	D : 63–66	F : 0–59
A– : 90–92	B– : 80–82	C– : 70–72	D– : 60–62	

- Participation (40%): This includes attendance, answering questions, working through the exercises, and staying involved in the class.
- Tests (60%): The three tests count 10% each. The final exam counts 30%.

**Required materials:**

- Textbook: *Discrete Mathematics and Its Applications* by Kenneth H. Rosen (seventh edition)
- Software: *Python 3.X* You can use Python on the central Linux server of UNCG. It is also installed on the computers in all ITS computer labs. You can download it for free at

<http://www.python.org/download/>

- We will cover most of the sections 1–5 of the *Python Tutorial* available at

<http://docs.python.org/py3k/tutorial/>

**Academic Integrity Policy:** Each student is required to sign the Academic Integrity Policy on all major work submitted for the course.

*I have abided by the UNCG Academic Integrity Policy on this assignment.*

Signature \_\_\_\_\_ Date \_\_\_\_\_

More information can be found at

<http://sa.uncg.edu/handbook/academic-integrity-policy/> .

**Attendance Policy:** Attendance is mandatory and measured with a daily sign-in sheet.

**Final examination:** The Final Exam covers the entire semester. The exam is 3 hours and will be given on Friday, July 28 at 9:00 pm.

**Additional information:**

- (1) UNCG seeks to comply fully with the Americans with Disabilities Act (ADA). Students requesting accommodations based on a disability must be registered with the Office of Accessibility Resources and Services (OARS) in 215 Elliott University Center, 334-5440, <http://oars.uncg.edu> .
- (2) Assignments Policy: Assignments are due in class on the due date, and late after 5 pm that day. Late assignments will be accepted at the following lecture period for half credit.
- (3) Absence Policy: You are responsible for all missed material. Any missed assignment, test, or final exam will result in a score of 0. Make-up tests and final exam will be given only if you receive prior approval for a valid excuse by contacting me at least one week in advance.
- (4) Copyright Policy: Selling or purchasing notes from classes for commercial gain is a violation of the UNCG Copyright Policy.

<http://policy.uncg.edu/copyright/>

Any student who sells notes taken in class for commercial gain, or who purchases notes taken by another student for commercial gain, is in violation of this policy and, by extension, is committing a violation of the Student Code of Conduct.

<http://sa.uncg.edu/handbook/student-code-of-conduct/>

- (5) Email Policy: All email correspondence should be made using your UNCG email account. You must check your email regularly for updates and announcements.