

VIRGINIA COMMONWEALTH UNIVERSITY  
Department of Mathematics & Applied Mathematics  
Math 350 - Introductory Combinatorics  
Fall 2024

**Instructor:** Dr Larson  
**Office:** 4106 Harris Hall  
**Email Address:** [clarson@vcu.edu](mailto:clarson@vcu.edu)  
**Web page:** [mathlum.github.io](https://mathlum.github.io) and Canvas for grades.  
**Classroom and Meeting:** 4145 Harris, 9:30-10:45 TTh  
**Office Hours:** 11:00-12:30 TTh

**Prerequisite:** Math 201 (with a minimum grade of C)

**Text:** *Discrete Mathematics: Elementary and Beyond*, by L. Lovas, J. Pelikan and K. Vesztergombi (ISBN #0387955852). This book is **free to download** on the VCU Library web site.

**Course Description:** An introduction to basic combinatorial concepts such as combinations, permutations, binomial coefficients, Fibonacci numbers, and Pascal's Triangle; basic theorems such as the Pigeonhole Principle, Newton's Binomial Theorem, algorithms such as bubble sort and quicksort; and discuss basic applications such as chessboard problems, combinatorial games, magic squares and Latin squares.

**Learning Goals:** Our principal aim is to recognize the variety of places where discrete models apply, how to think and reason about them, and to learn to count in varied and sophisticated ways (counting is perhaps the most central tool in analyzing discrete problems).

**Course Schedule:** This course is based on a set of daily instructor-produced worksheets. We will do one of these in class every class day. It is generally impossible to finish these completely without in-class help and discussion. Tests are based these daily classroom worksheets and assigned homework. The pace will not be predetermined (but will depend on how things go in class from day to day).

### **Expectations:**

- You are expected to attend class, complete homework, and ask questions during class or office hours.
- Communicating mathematics is integral to the creation and transmission of mathematics. You should give significant thought as to how to explain your homework solutions to the class.
- I encourage you to work with others on homework problems, however, any assignments to be turned in must be written up on your own. If you work with others, you must write who you worked with on your assignment.
- Please write neatly on all assignments to be graded; exceptionally messy work may not be graded.
- Only selected homework problems will be graded; other problems will be graded for completion.
- **There are no make-ups on in-class assignments.** I will drop your two lowest in-class assignments, assuming that you couldn't come to class for excusable reasons.
- Make up tests will be considered under exceptional circumstances: if you miss a test and want to be considered for a make-up, you *must* contact me immediately.

## Tests and Determination of Grades:

There will be 2 equally weighted tests. Here is the *tentative* schedule:

Test #1, Tues., Oct. 15

Test #2, Thurs., Dec. 12, 8:00-10:50

- The tests are closed-book and closed-notes.
- The tests will be based *on* the in-class assignments and assigned homework.
- Use of calculators or other computing technology is not allowed on the tests.
- Tests are written under the assumption that you are studying the material at least 6 hours per week outside of class.

Your final average will be computed as follows:

Test 1, 2: 20% each

Homework: 25%

In-class assignments: 35%

**Grade Scale:** The 10-point scale: 90-100 A, 80-89 B, etc.

## Important Dates to Know:

- Last day to withdraw is Fri., Oct. 25
- Classes end on Friday, Dec. 6

## VCU Syllabus Information:

Students should visit [go.vcu.edu/syllabus](http://go.vcu.edu/syllabus) and review all syllabus statement information. The full university syllabus statement includes information on safety, registration, the VCU Honor Code, student conduct, withdrawal and more.

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