VIRGINIA COMMONWEALTH UNIVERSITY
Department of Mathematics & Applied Mathematics
Math 356 (Section 001) – Graphs and Algorithms (3 credit hours)
Spring 2025

Instructor: Dr Larson
Office: 4106 Harris Hall
Email Address: clarson@vcu.edu
Web page: math1um.github.io and Canvas for grades.
Classroom and Meeting: 2125 Harris, 9:30-10:45 TTh
Office Hours: 11:00-12:30 TTh

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

Text: *Algorithms and Complexity,* by H. Wilf, 1994. This book is **free to download** by the author: https://www2.math.upenn.edu/~wilf/AlgoComp.pdf.

Bulletin Description: An introduction to basic graph theoretic concepts such as trees, colorings and matchings; basic theorems such as the handshaking lemma and the Gallai identities; algorithms such as Dijkstra's and Kruskal's; and discussion of famous open problems such as finding shortest tours for a traveling salesman.

Learning Goals: Our principal aim is to introduce graphs as a model, introduce graph algorithms, and carefully and precisely discuss how to analyze the complexity of graph algorithms.

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, Thurs., Mar. 6
Test #2, Thurs., May 1, 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 Friday, March 28
- Classes end on Tuesday, April 29, Dec. 6

VCU Syllabus Information:

Students should visit 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.

VCU Libraries:

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