

Hagerstown Community College
Master Syllabus

COURSE: MAT 207 – Discrete Mathematics

(4 Credits)

INSTRUCTOR: Jennifer Szczesniak

SEMESTER/YEAR: Fall 2017

COURSE DESCRIPTION:

This is an introduction to discrete mathematics including: sets and logic, number systems, number theory, counting problems and probability, graph theory, matrices, algorithm design, mathematical induction and recursion. Total of 60 hours of lecture. Prerequisite: MAT 101 or MAT 161. Semester offered: Fall.

TEXTBOOK:

None required – Using online, open-source textbooks and notes

Maple TA access code for online homework – Available in the campus store

LEARNING OUTCOMES:

GENERAL EDUCATION

Upon successful completion of this course, a student should be able to:

1. Apply mathematical methods involving arithmetic, algebra, geometry, and graphs to solve problems.
2. Represent mathematical information and communicate mathematical reasoning symbolically and verbally.
3. Interpret and analyze numerical data, mathematical concepts, and identify patterns to formulate and validate reasoning.

COURSE LEARNING OUTCOMES:

Upon successful completion of this course, students will:

1. Write a correct proof, including proof by induction.
2. Solve counting problems and basic probability problems using combinatorial techniques.
3. Verbally explain the relationship between a statement and its converse, inverse, and contra-positive, including how to correctly negate statements.
4. Perform set operations, including intersection, union, and finding the complement.
5. Demonstrate an understanding of the fundamental concepts of graph theory including but not limited to graphs, digraphs, trees, finding paths and cycles, weighted graphs and graph coloring.
6. Use algorithms and write basic algorithms for completing a process.
7. Use recursively and/or iteratively defined functions.

Total Hours of Coursework: 150 hours

To earn one academic credit at HCC, students are required to complete a minimum of 37.5 clock hours (45 fifty-minute “academic” hours) of coursework per semester. Those hours of coursework may be completed through a combination of hours within the classroom and hours outside the classroom. Certain courses may require more than the 37.5 minimum hours of coursework per credit.

For most classes, students should expect to do at least 2 hours of coursework outside of class for each hour of in-class coursework.

Total Time Needed: 150 hours

Activity	Time Needed
Outside of the Classroom	
Practice Problems	45 hours
Written Assignments	30 hours
Test Preparation	20 hours
Subtotal	95 hours
Inside of the Classroom	55 hours
Total	150 hours

Services for Students with Disabilities: Students may receive reasonable accommodations if they have a diagnosed disability and present appropriate documentation. Students seeking accommodations are required to contact the Disability Support Services (DSS) office as early as possible. Students may contact a DSS staff member for an appointment at dss@hagerstowncc.edu or at 240-500-2530.