

MIDSTATE COLLEGE
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PEORIA, IL 61614
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Course Number & Name: MAT 145 Discrete Mathematics
Credit Hours: 4 Quarter Hours **Method of Delivery:** eLearning
Instructor Information: Michael Mayers, 309-357-4497 (cell), mfmayers@midstate.edu
Office Hours: By Appointment

Textbook: Discrete Mathematical Structures, 6th Ed
Authors: Kolman/Busby/Ross
Publisher: Pearson, 2018. ISBN-10: 0-13-469644-1, ISBN 13: 978-13-469644-7

Calculator: A scientific calculator

Prerequisite(s): MAT 140 College Algebra

Course Description:

Introduction to analysis of finite collections and mathematical foundations of sequential machines, computer system design, data structures and algorithms. This includes sets, counting, recursion, graph theory, trees, nets, Boolean algebra, automata, and formal grammars and languages.

Requirements for Completing the Course:

To successfully complete this course, the student must receive a passing grade as outlined in the Grading Scale and Grading Specifications sections of this syllabus.

Topics: Sets, Sequences, Logic, Counting, Relations, Directed Graphs, Functions, Trees, Graph Theory, Grammars, Languages, and Finite-State Machines.

Learning Objectives:

Upon completion of this course, the student will be able to:

1. define and perform operations on basic discrete mathematical structures such as sets, sequences, and matrices.
2. define logical propositions and perform logical operations.
3. perform proofs using truth tables, rules of inference, indirect methods, and induction.
4. count using permutations and combinations.
5. calculate probability.
6. mathematically define relations and represent relations using directed graphs.
7. define functional relations and determine their order.
8. define and perform operations on advanced discrete mathematical structures such as partially-ordered sets, lattices, and Boolean algebras.
9. define tree and graph structures and implement traversal algorithms.
10. describe and categorize grammars, derive sentences using derivation trees, and describe languages using finite-state machines.

Midstate Grading Scale:

90 – 100%	A
80 – 89%	B
70 – 79%	C
60 – 69%	D
0 – 59%	F

Midstate Plagiarism Policy:

Matters related to academic honesty or contrary action such as cheating, plagiarism, or giving unauthorized help on examinations or assignments may result in an instructor giving a student a failing grade for that academic effort and also recommending the student be given a failing grade for the course and/or be subject to dismissal.

Plagiarism is using another person's words without giving credit to the author. Original speeches, publications, and artistic creations are sources for research. If you use the author's words in your papers or assignments, you must acknowledge the source. Plagiarism is strictly against the academic policy of the college and is grounds for failing the course. If repeated, plagiarism may result in suspension from the college.

Student Success:

The Office of Student Success is available to students seeking tutoring for individual classes or who need assistance with writing assignments. Information is also available on test taking techniques, how to take notes, developing good study skills, etc. Contact Student Success in Room 217 (in person); (309) 692-4092, extension 2170 (phone); studentsuccess@midstate.edu (email).

Syllabus Changes: This syllabus is subject to change. Any changes will be announced in class.

Participation Requirements/Policies and Procedures Overview

1. Attendance and participation have proven to be key factors in academic success. To be considered in attendance for an eLearning course, the student must participate each week by submitting substantial, gradable work.
2. Homework: To be completed in Joule. Weekly homework will be assigned on the material covered that week.
3. Exams: There will be 2 exams given – a midterm and a final. These exams will be taken in Joule.

Grading Specifications:

Participation:	10%
Homework:	40%
Exams:	50% (Midterm and Final)

Participation:

Participation will be determined by 1) Posting questions for the instructor on the weekly forum board, 2) Submitting your homework in Joule, and/or 3) Submitting an exam in Joule.

Homework:

Homework will be assigned from each section of the textbook that we will cover. You will have the freedom to choose which problems you submit from the end of each section, however: it is MANDATORY that you do at least one problem from each section. *The problem number along with ALL your work must be given for each problem to receive credit.* Homework can be typed or hand written. Handwritten assignments need to be very neat and legible. You may scan or take a picture of your assignment. Pictures need to be crystal clear! I must be able to read your assignment otherwise it will not be graded.

Quizzes:

All quizzes will be completed in Joule. The quizzes are open book and open notes, but no outside help is allowed.

Exams:

The Midterm exam will open at the beginning of week 6. You will have the entirety of Christmas break to complete the exam. You will have one attempt at the Midterm exam. The exams are open book and open notes, but no outside help is allowed.

The Final Exam will be taken in Joule during week 12. The exam is not cumulative, and will only cover material starting from week 7. You will have one attempt at the Final Exam. The exams are open book and open notes, but no outside help is allowed.

Late Assignments:

Project planning, time management, and contingency planning are essential in all professional activity, not just academic coursework. As a standard, late work will not be accepted.