MA 114 Course Syllabus

MA 114 – Introduction to Finite Mathematics with Applications

Section 051

Summer I 10 Week 2020

3 Credit Hours

Course Description

Elementary matrix algebra including arithmetic operations, inverses, and systems of equations; introduction to linear programming including simplex method; sets and counting techniques, elementary probability including conditional probability; Markov chains; applications in the behavioral, managerial and biological sciences. Computer use for completion of assignments.

Learning Outcomes

Improve critical thinking and gain exposure to new methods and ideas.

Course Structure

This is an online lecture course.

Instructors

Erik Mainellis (ekmainel) - *Instructor*
Email: ekmainel@ncsu.edu
Office Location: Zoom
Office Hours: TBD & By appointment.

Course Meetings

Lecture

Days: Online
Time: Nonstandard
Campus: The Internet
Location: Zoom
This meeting is optional.

Course Materials

Textbooks

Finite Mathematics - *Waner and Costenoble*
Edition: 6
Cost: Available on webassign.
This textbook is required.

Requisites and Restrictions

Prerequisites

MA 101 or equivalent completed in high school.

Co-requisites

None.

Restrictions

None.

General Education Program (GEP) Information

GEP Category

Mathematical Sciences

GEP Category Outcomes

Upon completion of this course, students will be familiar with various introductory topics in finite maths and have a general idea of where they may be applied in the sciences.

How This Course Will Fulfill GEP Category Outcomes

Each outcome will be met through time spent listening to lecture, completing homework and practice problems, and carefully thinking about concepts over time.

GEP Co-requisites

This course does not fulfill a General Education Program co-requisite.

Transportation

This course will not require students to provide their own transportation. Non-scheduled class time for field trips or out-of-class activities is NOT required for this class.

Safety & Risk Assumptions

None.

Grading

Grade Components

Component	Weight	Details
Homework	**30%**	Webassign.
Tests	**45%**	There will be three take-home tests, each 15%.
Final	**25%**	The final will also be take-home.

Letter Grades

This Course uses Standard NCSU Letter Grading:

97	≤	**A+**	≤	100
93	≤	**A**	<	97
90	≤	**A-**	<	93
87	≤	**B+**	<	90
83	≤	**B**	<	87
80	≤	**B-**	<	83
77	≤	**C+**	<	80
73	≤	**C**	<	77
70	≤	**C-**	<	73
67	≤	**D+**	<	70
63	≤	**D**	<	67
60	≤	**D-**	<	63
0	≤	**F**	<	60

Requirements for Credit-Only (S/U) Grading

In order to receive a grade of S, students are required to take all exams and quizzes, complete all assignments, and earn a grade of C- or better. Conversion from letter grading to credit only (S/U) grading is subject to university deadlines. Refer to the Registration and Records calendar for deadlines related to grading. For more details refer to http://policies.ncsu.edu/regulation/reg-02-20-15.

Requirements for Auditors (AU)

Information about and requirements for auditing a course can be found at http://policies.ncsu.edu/regulation/reg-02-20-04.

Policies on Incomplete Grades

If an extended deadline is not authorized by the instructor or department, an unfinished incomplete grade will automatically change to an F after either (a) the end of the next regular semester in which the student is enrolled (not including summer sessions), or (b) the end of 12 months if the student is not enrolled, whichever is shorter. Incompletes that change to F will count as an attempted course on transcripts. The burden of fulfilling an incomplete grade is the responsibility of the student. The university policy on incomplete grades is located at http://policies.ncsu.edu/regulation/reg-02-50-3.

Late Assignments

Deadlines for webassign homework will not be extended unless I extend them for everyone.

Attendance Policy

For complete attendance and excused absence policies, please see http://policies.ncsu.edu/regulation/reg-02-20-03

Attendance Policy

It is essential that you watch all lectures. It is on you to email me or meet with me via zoom if you are having trouble with the content.

Absences Policy

None.

Makeup Work Policy

None.

Additional Excuses Policy

None.

Academic Integrity

Academic Integrity

Students are required to comply with the university policy on academic integrity found in the Code of Student Conduct found at http://policies.ncsu.edu/policy/pol-11-35-01

Academic Honesty

See http://policies.ncsu.edu/policy/pol-11-35-01 for a detailed explanation of academic honesty.

Honor Pledge

Your signature on any test or assignment indicates "I have neither given nor received unauthorized aid on this test or assignment."

Electronically-Hosted Course Components

Students may be required to disclose personally identifiable information to other students in the course, via electronic tools like email or web-postings, where relevant to the course. Examples include online discussions of class topics, and posting of student coursework. All students are expected to respect the privacy of each other by not sharing or using such information outside the course.

Accommodations for Disabilities

Reasonable accommodations will be made for students with verifiable disabilities. In order to take advantage of available accommodations, students must register with the Disability Resource Office at Holmes Hall, Suite 304, Campus Box 7509, 919-515-7653. For more information on NC State's policy on working with students with disabilities, please see the Academic Accommodations for Students with Disabilities Regulation (REG02.20.01) (https://policies.ncsu.edu/regulation/reg-02-20-01/).

Non-Discrimination Policy

NC State provides equal opportunity and affirmative action efforts, and prohibits all forms of unlawful discrimination, harassment, and retaliation ("Prohibited Conduct") that are based upon a person's race, color, religion, sex (including pregnancy), national origin, age (40 or older), disability, gender identity, genetic information, sexual orientation, or veteran status (individually and collectively, "Protected Status"). Additional information as to each Protected Status is included in NCSU REG 04.25.02 (Discrimination, Harassment and Retaliation Complaint Procedure). NC State's policies and regulations covering discrimination, harassment, and retaliation may be accessed at http://policies.ncsu.edu/policy/pol-04-25-05 or https://oied.ncsu.edu/divweb/. Any person who feels that he or she has been the subject of prohibited discrimination, harassment, or retaliation should contact the Office for Equal Opportunity (OEO) at 919-515-3148.

Course Schedule

NOTE: The course schedule is subject to change.

Lecture - — Week 1 — 05/13/2020 - 05/15/2020

Section 3.1 - Systems of Two Equations in Two Unknowns

Lecture - — Week 2 — 05/18/2020 - 05/22/2020

Sections 4.1, 4.2 - Matrix Operations

Lecture - — Week 3 — 05/26/2020 - 05/29/2020

Sections 3.2, 3.3 - Matrices and applications of linear systems

Lecture - — Week 4 — 06/01/2020 - 06/05/2020

Sections 4.3, 4.5 - Matrix Inversion, Input-Output Models

Lecture - — Week 5 — 06/08/2020 - 06/12/2020

Sections 5.1, 5.2 - Graphing linear inequalities, Solving linear programming problems graphically

Lecture - — Week 6 — 06/15/2020 - 06/19/2020

Sections 6.1, 6.2 - Sets and set operations, Cardinality

Lecture - — Week 7 — 06/22/2020 - 06/26/2020

Sections 6.3, 6.4 - Decision Algorithms, Permutations and Combinations

Lecture - — Week 8 — 06/29/2020 - 07/02/2020

Sections 7.1, 7.2 - Sample Spaces and Events, Relative Frequency

Lecture - — Week 9 — 07/06/2020 - 07/10/2020

Sections 7.3, 7.4 - Probability and Probability Models, Probability and Counting techniques

Lecture - — Week 10 — 07/13/2020 - 07/17/2020

Sections 7.5, 7.6 - Conditional Probability and Independence, Bayes' Theorem

Lecture - — Week 15 — 07/20/2020 - 07/24/2020

Markov Chains, Review