MA 437 - Applications of Algebra

Section 001
Fall 2021
North Carolina State
University Department of Mathematics

Instructor: Lindsey Farris (she, her, hers)
E-mail address: ljfarris@ncsu.edu
Office: SAS Hall 4119
Office Hours: TBA (will likely be over Zoom)
E-Mail Policy: I will check my e-mail several times per work day. Emails received before 4:00p.m, Monday-Friday, on days the university is open, will generally receive a same day response.

Lecture: TH, 11:45am-1:00pm, Park Shops 215

Textbooks: APPLIED ABSTRACT ALGEBRA: A MAPLE AND MATLAB APPROACH - KLIMA, RICHARD, 3rd Edition, $86.25 (not required)

Course Description: Error correcting codes, cryptography, crystallography, enumeration techniques, exact solutions of linear equations, and block designs.

Prerequisites: MA 403 or 407, MA 405

Course Grading:
• Homework (60%)
• Mini-Projects (40%)
Note: There will be a homework assignment and mini-projects due the last week of the semester.
As per the NCSU requirement, the plus/minus grading system will be in effect. The grade scale is given below, but may be adjusted in students' favor at the end of the semester: (grades rounded to nearest whole number)

Course Grade Scale

Grade	Percentage	Grade	Percentage	Grade	Percentage
A+	100	A	93-99	A-	90-92
B+	87-89	B	83-86	B-	80-82
C+	77-79	C	73-76	C-	70-72
D+	67-69	D	63-66	D-	60-62
F	0-59				

Students should consider the grade they want at the beginning of the semester and plan accordingly. I cannot adjust individual grades, or do individual extra credit assignments. Once assignments, projects, and presentations are complete, your grade is final.

Grades will be posted to Moodle throughout the semester.

Homework: Graded homework is assigned via Moodle, and can be submitted either in class, or through Moodle. If submitted through Moodle, students must have a way to scan/take pictures of homework. You may Latex homework if you wish, but it is not required. However, handwritten work must be legible. Due dates will be posted on Moodle with the assignment.

Mini-Projects: Mini-projects will consist of coding assignments and short written papers. For each section of material covered, students will be assigned some coding assignments and/or small written papers. Coding assignments will use Maple, or another mathematical programming software that the student chooses (however, instructor support will be limited to Maple). The small written papers will be a short research topic, and will be 1-3 pages double spaced.

More information on these assignments will be posted to Moodle as they are assigned.

Students may work together on homework assignments, coding projects, and the small written papers. However, each student must submit their own answers, and not copy other students' work.

Class Recordings: This course is automatically being recorded using the Content Capture System and saved to Panopto. The link to these videos will be posted to Moodle.

Attendance Policy: Attendance may be taken for record keeping purposes. Attendance may used in borderline grade determinations. For complete attendance and excused absence policies, please see NCSU Attendance Regulation (opens in new tab).

Academic Integrity: Students are required to comply with the university policy on academic integrity found in the Code of Student Conduct (opens in new tab), which contains a detailed explanation of academic honesty. Your signature on any assignment indicates "I have neither given nor received unauthorized aid on this test or assignment."

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) (opens in new tab).

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 [NCSU Policy 04.25.05 (opens in new tab)](#) or [Office for Institutional Equity and Diversity (opens in new tab)](#). 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.

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 [NCSU Regulation 02.20.15 (opens in new tab)](#).

Requirements for Auditors (AU): Information about and requirements for auditing a course can be found at [NCSU Regulation 02.20.04 (opens in new tab)](#). Generally speaking, auditors are expected to regularly attend and participate in class. Auditors may take part in assignments, quizzes, or exams that they wish.

Policies on Incomplete Grades: The burden of fulfilling an incomplete grade is the responsibility of the student. The university policy on incomplete grades is located at [NCSU Regulation 02.50.03 (opens in new tab)](#).

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. Electronically-Hosted Components: Notes, and other materials; homework assignments; Lecture recordings; Zoom office hours/lectures

There are no transportation requirements, or safety & risk assumptions, for this course.

Tentative Course Schedule: (subject to change)
- Cryptography: approximately 8-9 weeks
- Polya Theory: approximately 1-2 weeks
- Graph Theory: approximately 2-3 weeks
- Block Designs: approximately 1-2 week
- Additional topics may also be covered

In Case of Instructor Quarantine: Should the instructor need to quarantine during the semester, the course will be temporarily moved online. Lectures will be held through Zoom during regular class time, with the Zoom link posted to Moodle. Lectures will still be recorded and shared with the class. Once quarantine ends, the course will resume being face to face.

Due to the COVID-19 pandemic, public health measures continue to be implemented across campus. Students should stay current with these practices and expectations through the Protect the Pack website (https://www.ncsu.edu/coronavirus/). The sections below provide expectations and conduct related to COVID-19 issues.

Health and Participation in Class

We are most concerned about your health and the health of your classmates and instructors/ TAs.

- If you test positive for COVID-19, or are told by a healthcare provider that you are presumed positive for the virus, you should not attend any hybrid or face-to-face (F2F) classes and work with your instructor on any adjustments necessary; also follow other university guidelines, including self reporting (Coronavirus Self Reporting): Self-reporting is not only to help provide support to you, but also to assist in contact tracing for containing the spread of the virus.
- If you feel unwell, even if you have not been knowingly exposed to COVID-19, please do not come to a F2F class or activity.
- If you are in quarantine, have been notified that you may have been exposed to COVID-19, or have a personal or family situation related to COVID-19 that prevents you from attending this course in person (or synchronously), please connect with your instructor to make alternative plans, as necessary.
- If you need to make a request for an academic consideration related to COVID-19, such as a discussion about possible options for remote learning, please talk with your instructor.

Health and Well-Being Resources

These are difficult times, and academic and personal stress are natural results. Everyone is encouraged to take care of themselves and their peers. If you need additional support, there are many resources on campus to help you:

- Counseling Center (NCSU Counseling Center)
- Student Health Services (Health Services | Student)
- If the personal behavior of a classmate concerns or worries you, either for the classmate's well-being or yours, we encourage you to report this behavior to the NC State CARES team: (Share a Concern).
- If you or someone you know are experiencing food, housing or financial insecurity, please see the Pack Essentials Program (Pack Essentials).

Community Standards related to COVID-19

We are all responsible for protecting ourselves and our community. Please see the community standards (which have been updated for 2021) and Rule 04.21.01 regarding Personal Safety Requirements Related to COVID-19 RUL 04.21.01 – Personal Safety Requirements Related to COVID-19 – Policies, Regulations & Rules

Course Expectations Related to COVID-19:

- **Face Coverings:** All members of the NC State academic community are expected to follow all university policies and guidelines, including the Personal Safety Rule and community standards, for the use of face coverings. Face coverings are required in instructional spaces. Face coverings should be worn to cover the nose and mouth and be close fitting to the face with minimal gaps on the sides.
- **Course Attendance**: NC State attendance policies can be found at: REG 02.20.03 – Attendance Regulations – Policies, Regulations & Rules. Please refer to the course's attendance, absence, and deadline policies for additional details. If you are quarantined or otherwise need to miss class because you have been advised that you may have been exposed to COVID-19, you should not be penalized regarding attendance or class participation. However, you will be expected to develop a plan to keep up with your coursework during any such absences. If you become ill with COVID-19, you should follow the steps outlined in the health and participation section above. COVID 19-related absences will be considered excused; documentation need only involve communication with your instructor.
- **Technology Requirements:** This course may require particular technologies to complete coursework. Be sure to review the syllabus for these expectations, and see the syllabus technical requirements for your course. If you need access to additional technological support, please contact the Libraries' Technology Lending Service: (Technology Lending).

Course Changes Related to COVID-19

NO LONGER AVAILABLE - Grading/Scheduling Changing Options Related to COVID-19

Two policies, enhanced S/U Grading Option and Late Drop, put in place at the beginning of the COVID-19 pandemic have been discontinued.

In some cases, an option may be to request an "incomplete" in the course. If you are experiencing difficult or extenuating circumstances, you should discuss possible options with your instructor and your academic advisor.

Need Help?

If you find yourself in a place where you need help, academically or otherwise, please review these Step-by-Step Help Topics. (Insert information or links for college or departmental level support programs, if available.)

Other Important Resources

- **Keep Learning:** Keep Learning
- **Protect the Pack FAQs:** Frequently Asked Questions | Protect the Pack
- **NC State Protect the Pack Resources for Students:** Resources for Students | Protect the Pack
- **Academic Success Center** (tutoring, drop in advising, career and wellness advising): Academic Success Center.
- **NC State Keep Learning, tips for students opting to take courses remotely:** Keep Learning Tips for Remote Learning
- **Introduction to Zoom for students:** https://youtu.be/5LbPzzPbYEw
- **Learning with Moodle, a student's guide to using Moodle:** https://moodle-projects.wolfware.ncsu.edu/course/view.php?id=226
- **NC State Libraries** Technology Lending Program