

MA 103: Topics in Contemporary Math

Syllabus for section 651, Summer 2022, 3 credits

Welcome to MA-103! This course is designed to introduce you, the students, to applications of mathematics that lie outside of STEM fields and which have seen major innovations in the last century. The course also aims to expand your notions of what mathematics and mathematical reasoning entail and what sorts of fields they can be applied to, and to build your confidence in engaging with mathematical reasoning. This semester, we'll be focusing on three main topics: voting theory, network analysis, and cryptography.

Teaching Staff

Instructor of Record:

- Alyssa Oswald – aoswald2@ncsu.edu (she/her)

Learning Outcomes

You will be able to explain and apply foundational concepts in voting theory, network analysis, and cryptography, and you will be able to identify major recent innovations in these fields. You will also be able to explain how mathematics has impacted our understanding of these fields. And you will be able to engage with the mathematical practices of mathematical modeling, abstraction, example generation and analysis, and deductive reasoning as they pertain to these fields.

Course Structure

Lecture Videos & Preview Questions: Your primary instruction for this online course will be through watching the lecture videos posted on the Moodle site. These videos are organized into 26 lessons, each of which corresponds roughly to one class meeting (most lessons contain more than one video). The videos have embedded questions that you'll need to answer along the way, which are designed to give you immediate practice with the material and keep you engaged with content. There are also Preview Questions for each lesson that should be completed before watching the corresponding videos. These are designed to get you thinking about the questions that will be addressed in the videos.

MyOpenMath Homework: You will have online homework assignments through MyOpenMath. These will typically be due on Wednesday nights at 11:59pm. These assignments will include both auto-graded questions and free response questions graded by the instructor. You will be given 7 "late passes" that you can use at any point during the semester to extend the due date

by 48 hours. *Note that Moodle will not let you start an assignment until you have watched the corresponding videos.*

Exams: We will have three exams during the semester, each of which you will take during an assigned 48 hour window. The (tentative) exam dates are:

- Exam 1: Wed, June 15-16
- Exam 2: Wed, July 13-14
- Exam 3: Mon, Aug 1-2 (finals week)

You will need to use the Respondus Lockdown browser to take the exams. We will NOT be using Respondus Monitor.

Grading Policy

To cast your performance in the class in the best possible light, we will weigh your highest exam score more than your lowest one.

35% Homework + 15% Lowest Exam + 20% Middle Exam + 30% Best Exam

We will use NC State's standard 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		

Policies for Late or Missed Work

If you fall behind in the course for whatever reason, you should reach out to your instructor.

Your lowest two Homework assignments are automatically dropped from your grade. These drops are meant to be used for short-term illnesses or extenuating circumstances that may cause you to miss or underperform on a particular assignment. You will be given 7 “late passes” that you can use at any point during the semester to extend the due date by 48 hours.

For longer-term, recurring, or more serious illness or other interruptions to your participation in this class, you should reach out to your instructor as soon as you can, and we will make arrangements to help you get caught up.

Extra Help

Your peers: We encourage and expect you to work together with your classmates on homework assignments and studying, either remotely or in person.

Moodle forum: The course will use a Moodle forum for asking and answering questions regarding the homework, exam preparation, and logistics. If you have a question, then one of your classmates may have already asked it on the forum; if not, you can make a new post. Students can answer each other's questions, and instructors will monitor the forum regularly.

Office hours: The office hours times will be posted after the first week of class. No appointment is necessary. You can ask questions about the homework, or general questions about course material. If you are unable to attend, you may ask questions in the moodle forum or over email.

Academic Integrity

On homework, we encourage you to work together with your peers and seek help from the teaching staff, textbook, and other resources as needed. However, you should make sure you understand the solutions you submit.

On Exams, you may **not** work with anyone else nor seek outside help--collaboration is strictly prohibited unless otherwise specified. Each assessment will have instructions outlining exactly what resources or electronic aides you are permitted to use.

Posting course materials to websites like Chegg and Course Hero is a violation of copyright law and course policy and is strictly prohibited. Violations of this policy will be reported to the Office of Student Conduct.

You are expected to abide by the Code of Student Conduct ([NCSU POL11.35.01](#)) and Pack Pledge. Violations of academic integrity will be handled in accordance with the Student Discipline Procedures ([NCSU REG 11.35.02](#)). Your signature on any test or assignment indicates "I have neither given nor received unauthorized aid on this test or assignment."

Course Schedule

The following rough schedule is tentative and subject to change.

Week 1	May 18-20	Lessons 1, 2
Week 2	May 23-27	Lessons 3, 4, 5
Week 3	May 31-June 3	Lessons 6, 7
Week 4	June 6-10	Lessons 8, 9, 10
Week 5	June 13-17	Lessons 11, 12, Exam 1
Week 6	June 21-22	Lessons 13, 14
Week 7	June 27-July 1	Lessons 15, 16, 17

Week 8	July 5-8	Lessons 18, 19
Week 9	July 11-15	Lessons 20, 21, Exam 2
Week 10	July 18-22	Lessons 22, 23, 24
Week 11	July 25-29	Lessons 25, 26
Week 12	Aug 1-2	Exam 3

Additional Information

Course catalog description: Primarily for students in Humanities and Social Sciences. Illustrations of contemporary uses of mathematics, varying from semester to semester, frequently including sets and logic, counting procedures, probability, modular arithmetic, and game theory. Prerequisite: MA 101 or equivalent completed in high school

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>.

Digital Course Components: Students may be required to disclose personally identifiable information to other students in the course, via digital tools, such as 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. The following digital components may be used: Moodle, MyOpenMath, Google Forms. Please be advised this course is being recorded for current and potential future educational purposes. By your continued participation in this recorded course, you are providing your permission to be recorded.

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.

Additional NC State Rules and Regulations: Students are responsible for reviewing the NC State University Policies, Rules, and Regulations (PRRs) which pertain to their course rights and responsibilities, including those referenced both below and above in this syllabus:

- Equal Opportunity and Non-Discrimination Policy Statement <https://policies.ncsu.edu/policy/pol-04-25-05> with additional references at <https://oied.ncsu.edu/divweb/policies/>
- Code of Student Conduct <https://policies.ncsu.edu/policy/pol-11-35-01>.

COVID Addendum

Due to the Coronavirus pandemic, public health measures have been implemented across campus. Students should stay current with these practices and expectations through the [Protect the Pack](https://www.ncsu.edu/coronavirus/) 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, please work with your instructor on health accommodations and 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 need to make a request for an academic consideration related to COVID-19 please talk with your instructor for the appropriate process to make a COVID-19 request (a university-level form can be found [here](#)).

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](#))
- Health Center ([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](#) (released on 7/28/2020) 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:

- **Technology Requirements:** This course may require particular technologies to complete coursework. Be sure to review the syllabus for these expectations, and see the [syllabus technology requirements](#) for your course. If you need access to additional technological support, please contact the Libraries' Technology Lending Service: ([Technology Lending](#)).

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](#)
- **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](#)