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MA 114: Introduction to Finite Mathematics

Department of Mathematics · NC State University

Spring 2026 Course Syllabus

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Course Information

- **Instructor:** TBD
 - **Email:** [Email me at TBD](#)
 - **Office:** TBD
 - **Office Hours:** TBD
 - **Course Modality:** This course is an online, asynchronous Distance Education course.
 - **Course website:** Find our course on [NC State Wolfware](#).
 - **Section:** 601
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Course Description

(3 credit hours) 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.

Prerequisite: MA 101 or equivalent completed in high school.

GEP Mathematical Sciences.

Learning Objectives

At the conclusion of this course, students will be able to:

1. Formulate and solve systems of linear equations using a variety of methods, including matrix techniques, and interpret solutions in real-world contexts.
 2. Perform matrix operations (addition, scalar multiplication, multiplication, transposition, and inversion) and apply these techniques to solve problems.
 3. Formulate and solve linear programming problems, and use graphical and computational methods to find and interpret optimal solutions.
 4. Apply set theory and counting techniques (addition and multiplication rules, permutations, and combinations) to count outcomes in sample spaces and events.
 5. Calculate and interpret unconditional and conditional probabilities, and use these probabilities to make predictions.
 6. Use the modeling process to identify variables associated with a given scenario, along with any constraints on the variables, solve problems, and effectively communicate model results in context.
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Course Structure

Lecture Materials

The videos for this course were recorded specifically for this section of MA 114 by Dr. Luke Castle from NC State. You may shift your viewing schedule each week to accommodate your own schedule. However, please keep in mind that this online, distance-education course is fast-paced, and it may become difficult to catch up if you fall behind.

Live sessions

TBD.

Communication and Getting Help

Forum

We will use the Yellowdig platform for our course community and discussions. Ideally, math questions should be asked in office hours or on Yellowdig. In general, I will not answer math questions sent by email-if you have a math question you would like to send to me, please post it on Yellowdig. I will monitor and respond to questions on Yellowdig.

As you create posts and make comments, and as other students react to or comment on your posts, you will automatically receive participation points. The points you earn in Yellowdig are passed to the Moodle gradebook for your discussion credit.

To get 100% for your recitation score, you will need to accumulate points each week over the course of the semester. Here is how it works:

- There are "weekly periods" in the course. The forum will open on the first day of class, which will serve as the first "week". Holiday weeks (Fall Break, Thanksgiving Break) are merged with neighboring weeks, and the week of final exams is merged with the last week of class.
- To stay on pace, you should aim to earn 1000 points for each weekly period. However, you can actually earn up to 1350 points per week. Therefore, you can create a buffer in case you fall short in any week.
- At 11:59 pm at the end of each weekly period, the weekly points will reset. You will have a new period in which to earn up to 1350/1000. You can keep posting even after you have reached the weekly maximum; you just will stop earning additional credit toward your grade until the next reset.
- You may exceed the maximum semester point total in Yellowdig, but the maximum score in Moodle is 100%.

To start, please use the "Introductions/Community" Topic and share a bit about who you are and what you are hoping to get out of taking this class. Please feel welcome to share pictures, videos, or interesting links about you and your accomplishments!

Email

Contact me for confidential and private discussions about grades, scheduling office hours, etc. Please include MA 114 in the subject line. In general, I may not respond to messages outside of business hours (M-F, 9am-5pm), and it may take 24-72 hours for me to respond to an message. Math questions are generally best asked in office hours or on our forum, not by email.

Tutoring Centers

During the regular school year, there is free help available on campus for MA 114. See the following links:

- [Math Tutoring Center \(MTC\)](#) in SAS 2105. This room has many computers available so that you can work on your assignments. The room is a low-stress environment: you may work quietly in the room without engaging a tutor, or you may ask questions of the graduate tutors when they are available.
- [Academic Success Center \(ASC\)](#) in D.H. Hill Library has a few options:
 - [ASC Drop-In Tutoring](#)
 - [ASC Appointment Tutoring](#)
 - [ASC Weekly Group Tutoring](#)

For Drop-In Tutoring hours, notice the MTC is open during the day, and the ASC is open in the evening.

Textbook and WebAssign

The required textbook is *Finite Mathematics* by Waner and Costenoble, 7th edition. The eBook is available in WebAssign.

Please see information about purchasing WebAssign under Student Expenses. Do not create a new account if you already have a Cengage account. If you have trouble accessing Cengage, please post on the class forum.

The WebAssign homework assignments are obtained, submitted, and graded online with grades appearing in the course Gradebook. Please find our assignments on Moodle.

Recommendations

- Work ahead of schedule. Due dates are chosen to ensure that you have ample time between the videos and the due dates, but you should work on the homework sets as you watch the videos.
- Print each assignment and work it with pencil and paper before submitting. I recommend collection your final solutions in a binder, spiral notebook, or similar.
- Number each homework set and your work for each problem so that you can study it later. Do not work problems out on unlabeled scratch paper.
- Work daily or at least regularly to keep the material fresh in your mind and cut down on time searching for or remembering forgotten information.

Your WebAssign average in the Moodle gradebook will be a weighted arithmetic mean based on each assignment's point total. For example, your score on an assignment worth 50 points counts more than your score on an assignment worth 10 points.

WebAssign Due Dates

Due dates are listed with each assignment on WebAssign; please be sure to check the upcoming WebAssign due dates each week. I encourage you to work on each WebAssign as soon as possible—do not wait until the due date to begin. Please feel free to discuss WebAssign on Yellowdig (the course forum), including the specifics of problems and your attempts at solutions.

When you have finished an assignment, you can click Mark as done in Moodle to indicate for your records that the assignment is completed.

Extensions and Dropped Grades

If you need extra time to complete an assignment, WebAssign offers a seven-day extension for assignments with 80% credit (a 20% penalty). How this works:

- For example, if an assignment has 5 questions, each worth 10 points, and you need more time to finish the last problem, your grade will be a maximum of 48 out of 50 ($10 + 10 + 10 + 10 + 8$). The 20% penalty only applies to the problems you submit late.
- You set up the extension yourself directly in WebAssign. When you request an extension, the assignment will be open for an additional 24 hours. You can request multiple extensions, but each request must be made after the previous 24-hour period has expired. For instance, you cannot request all seven days of extensions at once; you must wait for each 24-hour period to finish before requesting the next extension.
- The extension period runs for seven consecutive calendar days. These days can overlap with breaks: you cannot pause the extension during a university break and may need to work during break to finish your assignment.

Because of these policies, extensions from the instructor are generally not given. You should try to complete every assignment as soon as you can and as best as you can so that you can self-extend assignments in case of emergencies. If you have extenuating circumstances that affect multiple assignments, please contact me to discuss your situation, but it needs to be first documented with Absence Verification.

Optional Supplemental Material

- Textbook Companion Website [Finite Mathematics: Everything!](#)
 - Sitio web complementario de libros de texto: [Matemáticas finitas: ¡Todo!](#)
- Alternate Open Text: [Applied Finite Mathematics](#) by Rupinder Sekhon, De Anza College Cupertino, hosted by the [University of Minnesota Center for Open Education](#)

Test Information

Test Dates

- Test 1: TBD
- Test 2: TBD
- Test 3: TBD
- Final Exam: TBD

Proctors

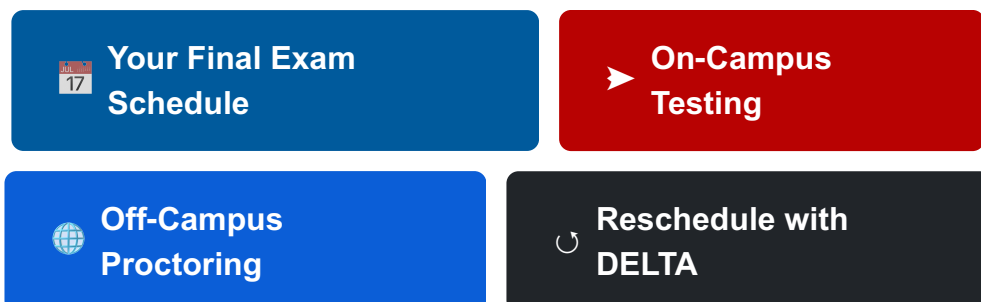
All examinations will be proctored through DELTA. You will either take your exam with DELTA, or coordinate remote proctoring with DELTA, according to which situation best describes you:

- If you live less than 50 miles away from Raleigh, NC, then you will take your tests on our campus through the Distance Education Testing Centers. Students should be mindful of closing hours for both Testing Centers, and give themselves plenty of time to complete their exams. For information, please visit [DELTA on-campus testing services](#).
- Those students who live more than 50 miles away from Raleigh, NC do not have to take their tests on NCSU campus. They may use a proctor in their town for testing. The proctor must be approved in advance through DELTA (not the instructor). It can take up to 1 week to verify a proctor and set up all needed contact info, so please do this early! Please visit the remote proctor website at [DELTA remote proctoring](#).

Sign up your preferred time/date now! Time slots fill up fast!

Note: the word *remote* in this context means that you are using a professional testing site (for example, a testing center, a local library, a college, etc.) other than DELTA. Remote testing does not mean testing at home.

Quick Links



Calculators

You may use scientific calculators on exams. These calculators must not have calculus capabilities (differentiation, integration), CAS (computer algebra system) capabilities, or access to the internet.

See the Moodle guide [Calculator Guidelines](#) for a list of appropriate calculators. If you are on-campus, you may rent a suitable calculator from the NC State Libraries:

[Calculator rentals at NC State Libraries](#).

Test Format

Each exam will be a written, in-person exam administered at an approved testing location. You must bring appropriate photo identification and any permitted materials specified in this syllabus and in my course announcements.

If you take the written exam at DELTA, then you will complete it on an iPad with an Apple Pencil.

Classroom Expectations

1. **Course Structure:** This is an online class; you are responsible for your own learning and for pacing yourself within course guidelines.
 - Watch the video lectures scheduled each week and follow the Course Calendar.
 - Track all due dates in Moodle and on the Course Calendar.
 - Complete all assignments in a timely fashion.
 - Post your math questions in the course forum for discussions and Q&A.
 - Optional: attend live sessions.
2. **Communication and announcements:** Please check your email, the course forum, and the Moodle site regularly. All announcements sent by email will also be saved under Announcements on Moodle. You are responsible for knowing the content of course emails.
3. **Respect and professionalism:** Treat everyone in class (students and instructor) with respect and courtesy. Be active and prepared in any live sessions. Come to office hours ready to ask questions and communicate with others.
4. **Accountability:** You are responsible for resolving any confusion about assignments, due dates, exams, accommodations, etc., in a prompt manner.

5. **Academic integrity:** Do not submit work that is not yours. It is understood that your name on any assignment indicates your adherence to the NC State Honor Pledge: "I have neither given nor received unauthorized aid on this test or assignment."
6. **Exam device policy:** Review the permitted items before each exam. Keep phones and other forbidden devices powered off and stored away during exams to avoid accidental use.

Student Success

Student well-being is important to success at NC State. Every student, faculty member, and staff member enriches the community through varied perspectives, knowledge, and experience. Our classroom should be a space where every student is respected and heard.

In an effort to affirm and respect the identities of all students in the classroom and beyond, please contact me if you wish to be referred to using a name and/or pronouns other than those listed in the student directory.

I welcome any suggestions you have for making our classroom more welcoming.

Grading

Grade Weighting and Numerical Conversion

Your grade will be determined by the following breakdown:

- Yellowdig: 5%
- Homework (WebAssign): 25%
- Tests: 45% (Test 1: 15%, Test 2: 15%, and Test 3: 15%)
- Final: 25%

Grades are tracked in real-time in the Moodle **Gradebook**.

Conversion from Numerical Grade to Letter Grade

A student's numerical average will be converted to a letter grade as follows (do not expect any additional rounding, extra credit, or curves):

Standard Conversion
Table

Grade	Range
A+	97-100
A	93-96.99
A-	90-92.99
B+	87-89.99
B	83-86.99
B-	80-82.99
C+	77-79.99
C	73-76.99
C-	70-72.99
D+	67-69.99
D	63-66.99
D-	60-62.99
F	0-59

Requirements for Credit-Only (S/U) Grading

In order to receive a grade of S, students are required to take all exams, 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 [REG 02.20.15 - Credit-Only Courses](#).

It is the student's responsibility to check if an S grade gives progress towards their degree(s).

Requirements for Auditors (AU)

Information about and requirements for auditing a course can be found at [REG 02.20.04 - Audits](#).

Policies on Incomplete Grades

NC State Policy

At the discretion of the instructor, students may be given an IN grade for work not completed because of a serious interruption in their work not caused by their own negligence. An IN must not be used, however, as a substitute for an F when the student's performance in the course is deserving of failing. An IN is only appropriate

when the student's record in the course is such that the successful completion of particular assignments, projects, or tests missed as a result of a documented serious event would enable that student to pass the course.

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. See the university policy on incomplete grades: [REG 02.50.03 - Grades and Grade Point Average](#).

Course Schedule

The course schedule is tentative and subject to change. Adjustments may be made to accommodate the pace of the class and unforeseen circumstances. All major changes will be announced in class and posted on Moodle.

- [Course Calendar \(HTML\)](#)
- [Course Calendar \(PDF\)](#)

Important Dates

For holidays and other university closures, please consult [the general NC State Academic Calendar](#).

Your final exam schedule is already determined; find it here: [NC State Final Exam Calendar](#). You are responsible for reviewing your final exam sessions to arrange a suitable time for this course.

List of Topics

Here are the major topics of MA 114, with the approximate regular-semester time allocated to each:

- Unit 1: Systems of Linear Equations and Matrices (~2 weeks). Major topics include solving linear systems, matrix notation, matrix algebra, and Gauss–Jordan elimination.
- Unit 2: Matrix Inverses and Input–Output Models (~1.5 weeks). Major topics include invertible matrices, conditions for invertibility, computing inverses, and basic input–output economic models.
- Unit 3: Linear Programming (~3 weeks). Major topics include linear inequalities, feasible regions, the graphical method, and the simplex method for standard and non-standard problems.

- Unit 4: Sets and Counting (~2 weeks). Major topics include set operations, decision algorithms, permutations, combinations, and foundational counting techniques.
 - Unit 5: Probability (~3 weeks). Major topics include sample spaces and events, relative frequency, probability with equally likely outcomes, conditional probability, and independence.
 - Unit 6: Bayes' Theorem and Applications (~1 week). Major topics include Bayes' Rule, posterior probabilities, and applications to decision-making and risk analysis.
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Additional Information

Student Expenses

If you participate in the Course Ready program, then this covers the cost of WebAssign for you. Otherwise, the cost of WebAssign is approximately \$118.00 for this class. To access WebAssign for the first time, please click on the first link in the WebAssign Homework Section. You will need to log into your Cengage account (or create an account). Do not create a new account if you already have a Cengage account.

Late Assignments

For WebAssign homework, you may take extensions on an assignment up to exactly 7 days after the assignment's original due date/time. You may take as many extensions as you wish during this 7 day extension period window.

Each extension lasts for 24 hours OR until the assignment is exactly 7 days past due, whichever comes first. To extend beyond 24 hours, you must wait for the original 24 hours to expire.

You will receive full credit for any answers you get correct before the original due date. Any work completed during the extension period will incur a penalty of -20%.

Note that these 7 days may include weekends, holidays, etc. The extension period is always for exactly one calendar week.

It may be possible in Cengage to extend due dates for the last few assignments beyond the time when I submit grades to MyPack. However, work completed after grades are submitted will not contribute to your semester grade. Please ensure that you have made up any extended work by your final exam.

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.

Late Examinations

Excused absense. If an exam is missed with an excused absence (that is, for a university-approved reason with supporting documentation), then a make-up test will be scheduled individually. The make-up test may contain different questions and be assessed differently than the regular test. Documentation for an excused absence must be provided within 1 week of the missed class. All absences that require a make-up exam or other special accommodations must go through the NC State University absence verification process. Here is the link to that office: [NC State Absence Verification](#).

Failure to schedule. You must schedule exams in a timely fashion to guarantee that you will be able to take them. It is the instructor's discretion whether a make-up exam will be allowed if you are not able to schedule an exam appointment within the selected time frame. If the instructor approves a make-up exam, there may be a 10% penalty on that exam. The make-up test may contain different questions and be assessed differently than the regular test.

Other absences. If an exam is missed for an unexcused absence, that exam will be given a score of 0.

Attendance

Since this course is an asynchronous online course, there is no daily attendance. Instead, each student's participation in Moodle is tracked to check for regular activity. For complete attendance and excused absence policies, please see Attendance Regulations ([NCSU REG 02.20.03](#)).

Academic Integrity

Students are required to comply with the university policy on academic integrity found in the Code of Student Conduct ([NCSU POL11.35.01](#)). Your submission of any exam indicates "I have neither given nor received unauthorized aid on this test or assignment." Violations of academic integrity will be handled in accordance with the Student Discipline Procedures ([NCSU REG 11.35.02](#)).

Posting any course material to websites like Chegg, ChatGPT, 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](#).

- Tests: Proctored tests are closed book assessments. You may not consult any internet resources nor receive help from anyone else. Do not share information about the content on the exams with anyone else in the class. See the calculator policy in the Test Information section of this syllabus.

- Homework: You may consult your notes, the textbook, each other, or online resources.
- Forum discussion boards: You are encouraged to discuss mathematical concepts and problems with your classmates. However, you must arrive at your own solutions with your own work. Do not seek nor state final answers on the forum; focus on understanding the concepts.

Disability Resources

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, 2751 Cates Avenue, 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 ([NCSU REG 02.20.01](#)).

Students who receive accommodations are responsible for filing those accommodations officially with DRO before the tests occur. It is not appropriate to tell the instructor that you should receive accommodations without going through the official channels. The instructor will only adjust test conditions after receiving the official Accommodation Letter Notification from DRO. Adjustments are never made retroactively to past examinations.

Digital Course Components

Because of the way our course is structured, students need internet connectivity in order to read course materials and complete assignments. NC State's Online and Distance Education provides [technology requirements and recommendations](#) for computer hardware.

For access to computing hardware, please see the NC State University Libraries [Technology Lending](#) and the general [Library Computing resources](#). There are several computers available for use around campus, including in the [Mathematics Tutoring Center](#).

Digitally hosted course components will include but are not limited to Moodle and Zoom.

Software

There are several resources available to assist students with technical or computer issues. Please consult [Office of Information Technology - NC State University](#).

Here are some of the primary applications commonly used in online mathematics courses:

- [Moodle and Wolfware](#): Our course is hosted online on Moodle, where you can find the course content, a link to this syllabus, and the gradebook.
 - [Moodle Accessibility Statement](#)
 - [Moodle Privacy Notice](#)
 - [NC State WolfWare Privacy Statement](#)
- [Panopto](#): NC State uses Panopto for video hosting.
 - [Panopto Accessibility Features](#)
 - [Panopto Privacy Policy](#)
 - [Panopto Support](#)
- [WebAssign from Cengage](#): We will use WebAssign for homework.
 - [WebAssign Accessibility Statement](#)
 - [WebAssign Privacy Policy](#)
- [Yellowdig](#): this site hosts our class forum and is a graded component of the course. You will use **Yellowdig** to ask questions regarding the lecture or homework.
 - [Yellowdig Accessibility Statement](#)
 - [Yellowdig Privacy Policy](#)
 - [Yellowdig Help Center](#)
- [Google Meet](#): when needed.
 - [Google Meet Accessibility features](#)
 - [Google Meet Security and Privacy](#)
 - [Google Meet Help](#)
- [Zoom](#): when needed.
 - [Zoom Accessibility Statement](#)
 - [Zoom Privacy Policy](#)
 - [Zoom Support](#)
- [Gradescope](#): We will use Gradescope for collecting and returning written work.
 - [Gradescope Accessibility Information](#)
 - [Gradescope Privacy Policy](#)
 - [Gradescope Help Center](#)

You must address the accessibility of these websites for yourself during the course drop/add period.

The instructor is not responsible for ensuring privacy or accessibility of electronic materials that are not required components of the course (e.g., links to supplemental information that is not part of the required reading list). However, the instructor will judiciously consider the privacy, copyright, and accessibility of supplemental links provided to students and warn them of any known issues or concerns in this regard. See Online Course Material Host Requirements ([NCSU REG 08.00.11](#)).

Electronically Hosted Components

Please be advised that live meetings for this course may be recorded for current and potential future educational purposes. By your continued participation in this recorded course, you are providing your permission to be recorded. If you would like for your likeness to be edited out of a recorded video, please contact me and I will edit the video accordingly.

Required Statement

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.

Additional NC State Rules and Regulations

Your rights and responsibilities

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, [POL 04.25.05 - Equal Opportunity and Nondiscrimination Policy](#)
with additional references at [NC State Office of Equal Opportunity](#)
- Code of Student Conduct, [POL 11.35.01 - Student Conduct](#)
- Grades and Grade Point Average, [REG 02.50.03 - Grades and Grade Point Average](#)
- Credit-Only Courses, [REG 02.20.15 - Credit-Only Courses](#)
- Audits, [REG 02.20.04 - Audits](#)

Non-Discrimination Policy

NC State University provides equality of opportunity in education and employment for all students and employees. Accordingly, NC State affirms its commitment to maintain a work environment for all employees and an academic environment for all students that is free from all forms of discrimination. Discrimination based on race, color, religion, creed, sex, national origin, age, disability, veteran status, or sexual orientation is a violation of state and federal law and/or NC State University policy and will not be tolerated.

Harassment of any person (either in the form of quid pro quo or creation of a hostile environment) based on race, color, religion, creed, sex, national origin, age, disability, veteran status, or sexual orientation also is a violation of state and federal law and/or NC State University policy and will not be tolerated. Retaliation against any person who complains about discrimination is also prohibited. NC State's policies and regulations covering discrimination, harassment, and retaliation may be accessed at

[POL 04.25.05 - Equal Opportunity and Nondiscrimination Policy](#) or [the Office of Equal Opportunity](#)

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.

Support

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:

1. [Counseling Center](#)
2. [Health Center](#)
3. [Share a Concern](#)
4. [Pack Essentials](#)

Course Evaluations

ClassEval is the end-of-semester survey for students to evaluate instruction of all university classes. The current survey is administered online and includes 12 closed-ended questions and 3 open-ended questions. Deans, department heads, and instructors may add a limited number of their own questions to these 15 common-core questions.

Each semester students' responses are compiled into a ClassEval report for every instructor and class. Instructors use the evaluations to improve instruction and include them in their promotion and tenure dossiers, while department heads use them in annual

reviews. The reports are included in instructors' personnel files and are considered confidential.

Online class evaluations will be available for students to complete during the last two weeks of the semester for full semester courses and the last week of shorter sessions. Students will receive an email directing them to a website to complete class evaluations. These become unavailable at 8am on the first day of finals.

- [Contact ClassEval Help Desk](#)
- [ClassEval website](#)
- [Information about ClassEval and how the information is used](#)

Syllabus Modification Statement

Our syllabus represents a flexible agreement. It outlines the topics we will cover and the order we will cover them in. Minor changes in the syllabus can occur if we need to slow down or speed up the pace of instruction.

This syllabus was designed by Bevin Maulsby to meet the standards in REG 02.20.07 (Last Revised: May 27, 2020), found at [NC State REG 02.20.07 - Course Syllabus](#) according to the May 27, 2020 revision.

Department of Mathematics · NC State University