Math 130 Precalculus, Section 04
Spring 2019

Class times: MWF 12:20 – 1:10 am
Class location: Phillips 335
Instructor: Gracie Conte
Email: gconte23@unc.edu
Office location: Phillips 404
Office hours: M 1:15 – 2:15, T 12:15 – 1:15 (in the MHC), F 3:00 – 4:00 and by appointment. See Piazza for updates to office hours.
Note: Students can attend the office hours of ANY Math 130 instructor. Office hours are posted on Piazza.
Course Coordinator: Linda Green, greenl@email.unc.edu, Phillips 338

Materials:
MyLabMath: This class will use the MyLabMath online system for homework. See instructions for signing up below.

Textbook: The textbook is *Precalculus* by Sullivan, 4th Edition. When you purchase MyMathLab (details below), it comes with a copy of the ebook. You can also purchase a print copy of the textbook if you would like, but it is not required.

Piazza: Please use Piazza instead of email to ask questions about homework problems and logistics. Other students and the instructors can answer them there for the benefit of all students. See details below.

Poll Everywhere: You will need to register for Poll Everywhere to answer questions in class using your cell phone or laptop. See the instructions below.

Calculator: You will need a basic scientific calculator or a calculator app. A graphing calculator (e.g. TI-84 or TI-89), or a graphing calculator app, can be helpful for visualizing functions and checking answers on homework. Calculators will not be allowed on tests or the final exam unless otherwise specified.

Videos: Instructional videos are posted on Sakai > Warpwire. Additional videos are available within MyMathLab and the ebook.

Math Help Center: The Math Help Center in Phillips 237 is open for drop in tutoring M – Th 10:00 – 6:00 and F 10:00 – 3:00. Students are expected to visit the Math Help Center for additional help and instruction outside of class.

Other: Supplementary materials will be posted on Sakai in the Lessons tab and in the Resources tab.

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Placement:
Placement information is located at http://math.unc.edu/for-undergrads/placement-info . In order to take Math 130, students need one or more of the following prerequisites:

- A score of 520 or higher on the SAT Subject Test, Math, Level 1 or 2
- A score of 27 or higher on the math portion of the ACT
- A score of 2 on the Calculus AP exam (or AB subscore from the BC exam) or
- A passing grade in Math 110.

Course Description:
The main goal of Math 130 is to prepare students for the calculus sequence Math 231-233. The course is divided into the following main topics:

- Function Properties and Inverses
- Trigonometry
- Conics
- Parametric Equations
- Polar Coordinates

Course Objectives:

- Find domains and ranges of functions from graphs and equations
- Use graphs to find where functions are increasing and decreasing and where they have local and absolute maxes and mins
- Determine whether a function is even or odd or neither based on its graph or its equation
- Write functions to model real world situations
- Identify graphs of functions and transformed functions
- Evaluate and graph piecewise defined functions
- Evaluate difference quotients of functions
- Convert between degrees, radians, and arclength spanned by the angle in abstract and in applied settings
- Find values of trig functions from right triangles, from the unit circle, and from other trig functions
- Graph trig functions, analyze graphs in terms of amplitude, period, and phase shift
- Use graphs and properties of trig functions (even / odd, periodicity) to determine values of trig functions at some angles from their values at other angles
- Evaluate and graph trig functions and describe relationships between trig functions and their inverses (domain, range, asymptotes, etc.), evaluate expressions involving compositions of trig functions and inverse trig functions
- Use trig functions to "solve" right triangles by finding the measures of unknown angles and sides from given information
- Use the sum and difference formulas to prove the double angle and half angle formulas

- Use the sum and difference formulas and double and half angle formulas to evaluate trig functions on new angles
- Use trig identities and inverse trig functions solve equations involving trig functions
- Use the Law of Sines and the Law of Cosines to "solve" triangles by finding the measures of unknown angles and sides from given information, identify ambiguous situations in which more than one solution is possible

Class Structure:

- Students are expected to prepare for each class by watching assigned videos and completing before-class assignments posted on MyMathLab.
- Class time will be spent on interactive lecture and problem solving

MyLabMath:
This class will use the MyLabMath online system for all homework, for before-class assignments, for in class "clicker questions", and possibly for parts of tests. If at least 80% of students complete the mid-semester survey, the lowest two before-class assignments will be dropped. If at least 80% of students complete the course evaluation at the end of the semester, the lowest homework score will be dropped.

Website: www.pearson.com/mylab course ID: conte30133
Go to www.pearson.com/mylab Under Register, select Student Confirm you have the information needed, then select OK! Register now Enter your instructor's course ID: conte30133, and Continue Enter your existing Pearson account username and password to Sign In . You have an account if you have ever used a MyLab or Mastering product. » If you don't have an account, select Create and complete the required fields Select an access option. » Enter the access code that came with your textbook or that you purchased separately from the bookstore, or » Buy access using a credit card or PayPal, or » Get temporary access for 14 days From the You're Done! page, select Go To My Courses On the My Courses page, select the course name Math 130 - Precalculus to start your work.

Piazza: Instead of emailing the instructor with questions about homework problems or logistics, please post your questions on Piazza. Other students and the instructors can answer them there for the benefit of all students. If you were not already automatically added to Piazza, you can register yourself here: piazza.com/unc/spring2019/math130
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Clicker questions: Learning Catalytics (part of MyLabMath) will be used for in-class clicker question. Clicker questions will be graded for participation only. The lowest 6 daily scores will be dropped.

Projects:
Students will complete an applications project in groups of 3 – 4 students. Students can chose a topic involving Radiology, Biology, Computer Science, or possibly other topics.

Tests:
There will be three tests. Tests may be given through MyLabMath, or on paper, or as a combination. The tentative test dates are as follows:

- **Test 1 Feb 6**
- **Test 2 Mar 6**
- **Test 3 Apr 10**

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The comprehensive final exam will be on Thursday, May 2 from 4:00 pm – 7:00 pm.
The final exam is given in compliance with UNC's final exam regulations and calendar, and will not be given prior to this exam date. In order to take a make-up exam after this date, you must have an official examination excuse, signed by a Dean or authorized agent of the Dean. You must bring this excuse and a picture ID to the make-up exam.

Grading:
Course letter grades will be assigned as follows.

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

There are no grades of D- or A+

Your course grade will be determined as follows:

MyLabMath Homework	**10%**
MyLabMath Before Class Assignments	**2%**
Clicker Questions	**2%**
Project	**8%**
Tests	**45%**
Final Exam	**33%**

If a student misses a test, then the 0 for the missed test will replaced by the final exam score. If a student does not miss any tests, then the lowest test score will be replaced by the final exam score if the final exam score is higher.

There are no extra credit opportunities.

Late work: No late tests or make-up tests will be given. Students who need to miss a test for a UNC athletic team event, UNC academic field trip, or religious holiday can take the test in absentia or in advance with at least a week advance notice and written documentation. Exceptions will be made only in extreme circumstances with intervention from the Dean of Students' office. Students can complete homework assignments late in MyMathLab for a penalty of 15% per day.

Honor Code:
It is expected that each student in this class will conduct themselves within the guidelines of the UNC Honor System, described at http://studentconduct.unc.edu/students.

In this class, all tests and exams are closed book and closed notes. All tests and exams must be completed individually, and it is an instance of cheating to give or receive help on a test or exam, except from the instructor, with the exception of warm-up tests, which may have a group component. On homework assignments and in-class problem-solving exercises, students are encouraged to work together in pairs or small groups, provided that all participants are contributing and the collaboration benefits the learning of all involved. Simply copying or trading answers is an instance of cheating. If you are not sure if collaboration is permitted, please ask!

In addition to avoiding actual academic dishonesty, please avoid appearances of academic dishonesty. In particular, please silence and put away cell phones before any exams are handed out and please avoid the appearance of looking at other students' papers. In order to maintain a proper testing atmosphere, the instructor may ask students to switch seats before or during an exam.

Students who observe a violation of the honor code should report it to the instructor. The instructor will report any suspected honor code violations to the Student Attorney General.

Additional Resources:

- The Math Department sponsors free tutoring in the Math Help Center in 237 Phillips Hall. Typical hours are M – Th 10:00 – 6:00, F 10:00 – 3:00. See http://math.unc.edu/for-undergrads/help-center for updates and details.
- Free tutoring is available on the second floor of Dey Hall on Tues. and Wed. evenings from 6 – 9 pm.
- The Learning Center has a math coach who can give tips on how to study for and succeed in a math class.
- The Math Department keeps a list of paid tutors in the main office in Phillips 329 and on the Math Department website.
- Copies of final exams from previous years are available at http://math.unc.edu/undergraduate/old-exams/

Study Suggestions: Some Guidelines to help with success in this course.

- Read the text for the section we will be covering before class and study your notes after class.
- Watch all videos and complete all the pre-class assignments.
- Start the assignments within 24 hours after we begin a section in class and treat each attempt like it is your only attempt.
- Try to avoid using your calculator unless a question says, "answer to the nearest …".
- Be a good problem solver. Draw pictures when applicable.
- If you are having difficulty with a question, reference your notes and textbook.
- Take advantage of Skill Builder (helping with pre-requisite concepts) and the Study Plan!
- Try not to abuse the Question Help (View an Example, Help me Solve This).
- Seek help when you do not understand a concept.
- Before each test, be sure that you understand and can work all problem types homework list without any assistance.
- Always remember that it is important to *Communicate Mathematically* when working problems or writing for a test or the final exam. Write in a mathematical fashion using numbers, variables, symbols, and words to clearly express your solution to a problem. A solution to a problem includes not only the answer(s) clearly indicted, but also the logical progression of steps to achieve the answer(s). When applicable, clearly label all sketches, graphs, and/or charts.
- View all assignment keys. Carefully review all graded materials and rework problems that were not completed correctly as soon as the key is available. This will help you avoid making similar errors in the future.

Disclaimer: The instructor reserves the right to make changes to the syllabus, including due dates and test dates. Changes to MyLabMath due dates can be found on the MyLabMath site. Other changes will be announced in class or via Sakai or Piazza.

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TENTATIVE SCHEDULE OF INSTRUCTION

Week	Dates	Sections of textbook	Topics
1	1/9	1.1	Introduction, functions
	1/11	1.1, 1.3	Function domains, function properties
2	1/14	1.3, 1.5	Function properties, library of functions, graphing functions
	1/16	1.4	Piecewise-defined functions
	1/18	4.2	One-to-one functions, inverses
3	*1/21*	*No class*	
	1/23	5.1	Angles and their measures
	1/25	7.1	Right triangle trigonometry
4	1/28	5.2	Trig functions – unit circle approach
	1/30	5.2	Trig functions – unit circle approach
	2/1	5.3	Properties of trig functions
5	2/4	Review	
	2/6	**TEST 1**	
	2/8		Project
6	2/11	5.4, 5.6	Graphs of sine and cosine, phase shift
	2/13	5.5, 5.6	Graphs of tangent, cotangent, secant, cosecant, phase shift
	2/15	6.1	Inverse sine, cosine, and tangent functions
7	2/18	6.2	Inverse sine, cosine, and tangent functions
	2/20	6.3	Trig equations
	2/22	6.3	Trig equations
8	2/25	6.4	Trig identities
	2/27	6.5	Sum and difference formulas
	3/1	6.6	Double angle and half angle formulas
9	3/4	Review	
	3/6	**TEST 2**	
	3/8		Project
		Spring Break	
10	3/18	7.1	Right angle trig, applications
	3/20	7.2	Law of sines
	3/22	7.3, 7.4	Law of cosines, area of triangles
11	3/25	9.1, 9.2	Conics, parabola
	3/27	9.2	Parabola
	3/29	9.3	Ellipse
12	4/1	9.3	Ellipse
	4/3	9.4	Hyperbola
	4/5	9.4	Hyperbola
13	4/8	Review	
	4/10	**TEST 3**	
	4/12	8.1	Polar coordinates
14	4/15	8.2	Polar equations and graphs
	4/17	9.7	Plane curves and parametric equations
	4/19	*No class*	
15	4/22	1.1	Difference quotient
	4/24		Review
	4/26		Review
16	5/2	**FINAL**	**Thursday, May 2 from 4:00 – 7:00 pm**

Assignment due dates will be posted on MyLabMath. Objectives will be due at midnight. Before class assignments will be due at the start of class on the day that the topic is first covered in class.