



COURSE SYLLABUS

Math 130

Fall 2015

Course Section: Insert Course Section Here
Meeting Time and Place: Insert Meeting and Place Here
Course Credit Hours: 4

Course Coordinator: Dr. Karin Pringle, Lecturer

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Office Hours: by appointment

Building Locator: <http://www.utk.edu/maps/index.php>

I. **COURSE DESCRIPTION:** Review of algebraic, logarithmic, exponential, and trigonometric functions for students who satisfy the course prerequisites for 141 or 151, but whose Act test scores indicate additional preparation is necessary. Students who have earned a grade of C or better in 141 or 151 may not subsequently receive credit for Math 130. Math 130 does not satisfy the Quantitative Reasoning requirement. 4 credit hours. A, B, C, NC grading.

II. **VALUE PROPOSITION:** In this course students will become proficient in the manipulation of algebraic, exponential, logarithmic and trigonometric expressions. They will also master solving algebraic, exponential, logarithmic and trigonometric equations. After completing this course students should be able to master calculus material in the Math 141-142 sequence and the Math 151-152 sequence.

III. **STUDENT LEARNING OUTCOMES:**

- Perform arithmetic on real number expressions and variable expressions.
- Understand and apply the properties of real number, exponents and logarithms
- Evaluate functions both at numbers and variables
- Factor polynomial and algebraic expressions.
- Solve polynomial, rational, radical, exponential, logarithmic and trigonometric equations.
- Compute the domain and range of polynomial, rational, radical, exponential, logarithmic and trigonometric functions.
- Solve linear inequalities.
- Solve non-linear inequalities using a sign chart.
- Graph lines, circles, polynomial, rational, radical, exponential, logarithmic and

trigonometric functions.

- Transform polynomial, rational, radical, exponential, logarithmic and trigonometric functions via vertical and horizontal shifts, stretches and contractions.
- Know the trigonometric values for the primary angles (in degrees and radians) of the unit circle.
- Prove trigonometric identities.
- Solve simple applications.

A full list of Course Objectives for each section can be found at

<http://www.math.utk.edu/Courses/Math130/>.

This course is not required for any mathematics degree and therefore does not support the degree-level learning objectives for the Mathematics Department.

IV. **LEARNING ENVIRONMENT:** This course is set up to have both a lecture and problem solving format. During lecture, students are expected to take notes and ask questions when needed. Students should refrain from distracting other students with unnecessary talking, texting, or web surfing. Discussion during times set aside for worksheets and problem solving is encouraged.

V. **TEXTS/MATERIALS/RESOURCES FOR THE COURSE:**

- **Text:** *Precalculus: Mathematics for Calculus*, by Stewart, Redlin & Watson, 7th Edition, Brooks/Cole Publishing Company. ISBN: 978-1-305-76145-2
- **WebAssign:** WebAssign is an online homework system that is required for the course. . WebAssign offers instant feedback for homework problems, additional practice problems, online tutoring, problem solving videos, and links to pdf pages of the text. Students should access WebAssign through their Online@UT (Blackboard) course site for Math 130. The semester begins with a 14 day free trial period. A new text, purchased at the campus bookstore, is packaged with a printed access card for WebAssign - an online homework and tutorial system. If a used text is purchased, the student may purchase an access code to WebAssign either at the bookstore or online through their course blackboard site at <http://online.utk.edu> . WebAssign is a required component of this course.
- **Calculator:** A scientific non-graphing calculator is required. Use of cell phones, graphing calculators and devices with internet capability is prohibited. Calculators are not used for any of the exams.

VI. **INFORMATION LITERACY/TECHNOLOGICAL RESOURCES**

- **Webpage:** Please go to <http://online.utk.edu> and login to access announcements, WebAssign and your grades.
- **Math 130 website:** <http://www.math.utk.edu/Courses/Math130/>. Links to old common finals, the textbook companion site, and a statement of learning objectives for each chapter included in the course.

VII. COURSE REQUIREMENTS, ASSESSMENT AND EVALUATION METHODS:

Grades: Grades will be determined using the grading scale below. Your letter grade is a measure of your mastery of course material and your fulfillment of course objectives. Your letter grade will be computed by your course average as given below:

4 In-class midterm exams
55%

*WebAssign/Other 15%

Departmental Final Exam 30%

Total possible 100%

[*WebAssign/Other category: to be determined by individual instructor. WebAssign must account for 7.5-11% of this category]

| Letter Grade | A | A- | B+ | B | B- | C+ | C | NC |
|-------------------------|----|----|----|----|----|----|----|----|
| Course Average Required | 90 | 87 | 83 | 80 | 77 | 73 | 70 | 0 |

WebAssign: Homework sets are on WebAssign. See the “My Assignments” list on WebAssign for due dates. Students are advised to set up the “Notifications” on WebAssign to send email reminders about due dates. Completion of homework is vital for success. Students are allotted 5 attempts at each homework problem on WebAssign. The WebAssign problems are similar to those found in the text. The problems from the text listed below in Section XII are for extra practice, not for a grade. Use those problems when working with a tutor or in a study group. Odd answers are in the back of the text.

Other: [*determined by individual instructor]

In-class Exams: There will be four exams during the semester. Make-up Exams will be given only if the student presents verifiable documentation of illness or emergency and only if the student contacts the instructor (preferably by email) within 24 hours of missing the exam. Failure to do so may result in a grade of 0 for the missed exam.

Final Exam: The final exam for this class is on **Thursday, December 3, 8-10 am**. All students are required to take the final exam.

Attendance & Make-up Policy: [*determined by individual instructor]

Make-up Tests will be given at the discretion of the instructor. The instructor considers make-up tests a privilege, not a right. The student requesting a make-up test should make a reasonable effort to contact the instructor (preferably by email) within 24 hours of missing the test.

Failure to do so may result in a grade of 0 for the missed test. If a make-up test is approved by the instructor, the student will be notified via email. Students requesting a make-up test should be diligent about checking email for a response from the instructor. The content of the make-up test may significantly differ in format from the scheduled test, and the student must complete the make-up test within the time frame indicated by the instructor. Failure to read email in a timely manner is no excuse for missing the approved make-up time frame. The instructor may require verifiable documentation of the illness or emergency or may request that the student obtain verification from the Dean of Students Office (dos@utk.edu, 865-974-3179).

Classroom Etiquette: Please be considerate of the instructor and those around you. Come to class on time and for the entire period. Turn off cell phones, laptops, iPods and beepers before you enter the classroom. Do not talk to classmates at inappropriate times. Refrain from reading newspapers or working on other coursework during class. For information on Classroom Behavior Expectations and consequences of non-compliance please see the following link: <http://www.math.utk.edu/Courses/Expectations.pdf>

VIII. **HOW TO BE SUCCESSFUL IN THIS CLASS:**

- Come to class every time, prepared to learn.
- Participate in class, take notes and ask questions.
- Do all the homework at the time is assigned. Read the text and study the example problems.
- Spend extra time studying for exams. Do all review problems and check answers.
- Rework problems from quizzes and exams that were marked incorrect.
- Form a study/homework group that meets regularly.
- Come to office hours, visit the Math Tutorial Center or go to the Supplemental Instruction sessions when you have questions or need help.



Math Tutorial Center
DEPARTMENT OF MATHEMATICS

Free tutoring is provided for all 100 level and most 200 level math courses. Help is available during the day in Ayres Hall room G012 (east basement) and in the evenings in the north commons on the second floor of Hodges library. For specific hours of operation and campus maps go to the MTC webpage: <http://www.math.utk.edu/MTC/>

Supplemental Instruction (SI): SI is FREE, out of class, study sessions lead by a student who has successfully completed this course. Attendance is voluntary, but by attending regularly you'll develop a better understanding of the material and more effective ways of studying. For more information see the web page: <http://studentsuccess.utk.edu/si.html>

IX. **COURSE FEEDBACK:** During the semester, you may be requested to assess aspects of

this course either during class or at the completion of the class via the SAIS online evaluations. You are encouraged to respond to these various forms of assessment as a means of continuing to improve the quality of the UT learning experience.

X. UNIVERSITY POLICIES:

Academic Standards of Conduct: All students are expected to abide by the University **Honor Statement**. In mathematics classes, violations of the honor statement include copying another person's work on any graded assignment or test, collaborating on a graded assignment without the instructor's approval, using unauthorized "cheat sheets" or technical devices such as calculators, cell phones or computers for graded tests or assignments, or other infractions listed in "*Hilltopics*". These violations are serious offenses, subject to disciplinary action that may include failure in a course and/or dismissal from the University. The instructor has full authority to suspend a student from his/her class, to assign an "F" in an exercise or examination, or to assign an "F" in the course. See "*Hilltopics*" for more complete information. A report of all offenses will be sent to appropriate deans and the Office of Student Judicial Affairs for possible further action.

The Honor Statement: *An essential feature of the University of Tennessee is a commitment to maintaining an atmosphere of intellectual integrity and academic honesty. As a student of the University, I pledge that I will neither knowingly give nor receive any inappropriate assistance in academic work, thus affirming my own personal commitment to honor and integrity.*

XI. STUDENTS WITH DISABILITIES POLICY: Any student who needs course adaptations or accommodations because of a documented disability should contact the Office of Disability Services at 2227 Dunford Hall at 865-974-6087.

XII. COURSE OUTLINE/ASSIGNMENT:

| Section | days | Topic | Exercises |
|---------|-------|-----------------------|---|
| 1.1 | 1 | Real Numbers | p. 10: 1-4 all, 7, 13, 17, 22, 25-30 all, 41, 43, 47, 49, 51, 54, 59, 63-70 all, 83 |
| 1.2 | 2 | Exponents & Radicals | p. 21: 1-6 all, 7-81 odd, 89, 91, 101 |
| 1.3 | 3-4 | Algebraic Expressions | p. 33: 1-6 all, 17-127 odd |
| 1.4 | 5-6 | Rational Expressions | p. 42: 1-4 all, 5-93 odd, 101 |
| 1.5 | 7-8 | Equations | p. 55: 1-6 all, 11-29 odd, 32, 37, 39, 34-77 odd, 87-115 odd |
| 1.8 | 9-10 | Inequalities | p. 88: 1-4 all, 11-79 odd, 95, 97, 99, 107, 117 |
| 1.9 | 11-12 | Coordinate Geometry | p. 101: 1-6 all, 13, 15, 23, 31, 32, 33, 51, 57-109 odd |

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| 1.10 | 13-14 | Lines | p. 114: 1-4 all, 5-51 odd, 61-75 odd |
| Exam 1 | 15 | Chapter 1 | |
| 2.1 | 16 | What is a Function? | p. 155: 1-4 all, 19-37 odd, 43-71 odd, 77 |
| 2.2 | 17 | Graphs of Functions | p. 166: 1-4 all, 5-27 odd, 33-45 odd, 49-67 odd |
| 2.3 | 18 | Information from Graphs | p. 178: 1, 2, 5-15 odd, 31, 43, 45, 56 |
| 2.6 | 19 | Transformations of Functions | p. 206: 1-4 all, 7-73 odd, 83-89 odd, 91 |
| 2.7 | 20-21 | Combining Functions | p. 216: 1-4 all, 7-19 odd, 20, 21-55 odd, 61, 63, 65, 77, 80 |
| 2.8 | 22-23 | One-to-one and Inverses | p. 225: 1-5 all, 7-69 odd, 85-89 odd, 96 |
| 3.2 | 24 | Polynomial Functions | p. 265: 1-4 all, 7-43 odd, 51 |
| 3.3 | 25 | Dividing Polynomials | p. 273: 1, 2, 3-43 odd, 57-69 odd |
| 3.6 | 26-27 | Rational Functions | p. 308: 1-6 all, 7, 21-75 odd |
| Exam 2 | 28 | Chapters 2 & 3 | |
| 4.1 | 29 | Exponential Functions | p. 336: 1, 2, 3,5, 9-37 odd, 51 |
| 4.2 | 29 | Natural Exponential Functions | p. 341: 1, 2, 7-13 odd, 23, 35 |
| 4.3 | 30 | Logarithmic Functions | p. 351: 1-6 all, 7-77 odd, 85-88 all |
| 4.4 | 31 | Laws of Logarithms | p. 358: 1-6 all, 7-65 odd, 75 |
| 4.5 | 32-33 | Exponential and Logarithmic Equations | p. 368: 1, 2, 3-67 odd, 81, 83, 85, 99 |
| 5.1 | 34 | Unit Circle | p. 407: 1, 2, 3-55 odd |
| 5.2 | 35-36 | Trigonometric Functions of Real Numbers | p.416: 1,2,3-35 odd, 45-71, odd,74,82 |
| 5.3 | 37-38 | Trigonometric Graphs | p. 429: 1-4 all, 11-37 odd, 47-54 all, 83, 84, 85 |
| 5.4 | 39 | More Trigonometric Graphs | p. 438: 1, 2, 3-59 odd, 61 |

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| 5.5 | 40-41 | Inverse Trig Functions | p. 444: 1, 2, 3-9 odd, 23-47 odd |
| Exam 3 | 42 | Chapters 4 & 5 | |
| 6.1, 6.2 | 43 | Angle Measure, Trig of Right Triangles | p. 478: 1, 2, 9-69 odd, 93 p. 487: 1, 2, 3-27, odd, 37, 42, 47, 57, 59, 64, 66 |
| 6.3, 6.4 | 44-45 | Trig Functions of Angles, Inverse Trig Functions | p. 498: 5-63 odd, p. 506:29-38 all |
| 6.4, 6.5 | 46 | Law of Sines and Law of Cosines | p. 513: 3,5,7,9,11 p. 520: 3,5,7,9,11 |
| 7.1 | 47-48 | Trigonometric Identities | p. 498:1, 2, 3-95 every other odd |
| 7.2 | 49 | Add and Subtract Formulas | p. 551: 1, 2, 3-39 odd,47, 49, 51,53,55, 57, 61 |
| 7.3 | 50 | Double- & Half-Angle | p. 560: 1, 2, 3-9 odd, 17-53 odd, 73-79 odd, 83 |
| 7.4,7.5 | 51, 52,53 | Trigonometric Equations, More Trig. Eq. | p. 568: 1-4 all, 5, 7, 13, 17, 19, 25, 27, 33, 37, 39, 41, 42, 45, 49, 53 p. 574: 1,2,3, 9, 11, 17, 19, 21, 23, 24, 29, 31, 33 |
| Exam 4 | 54 | Chapters 6 & 7 | |
| Review | 55,56 | Review for comprehensive final exam | Final Exam, Tuesday, April 28 8-10 a.m. |

XIII. IMPORTANT DATES IN THE ACADEMIC CALENDAR FALL/SPRING 2014:

Last Day to Add Classes: August 28

Labor Day: September 7

Fall Break: October 15, 16

Last Day to Give an Exam worth more than 10%: Wednesday, November 25

Thanksgiving: November 26, 27

Last Day of Classes: December 1

Final Exam: December 3

XIV. THE INSTRUCTOR RESERVES THE RIGHT TO REVISE, ALTER AND/OR AMEND THIS SYLLABUS, AS NECESSARY. STUDENTS WILL BE NOTIFIED IN WRITING AND/OR BY EMAIL OF ANY SUCH REVISIONS, ALTERATIONS AND/OR AMENDMENTS.