

SYLLABUS FOR MATH 1301 (College Algebra)

SPRING 2013

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Meeting times: CRN 20650, 11:30 am-1:15 pm on TR in S-816.

Office hours: 1:30-2:30 pm on MWTR *and also by appointment if these times are not convenient*. However, you are not restricted to these times; if you can find me and I'm free, then we can talk. Usually I should be here on Fridays, too. During office hours, you are welcome to get help with anything related to the course, or college in general for that matter. IF YOU HAVE A QUESTION, ASK IT! IF YOU FEEL YOU NEED HELP, PLEASE COME SEE ME IMMEDIATELY! THE DOCTOR IS ALWAYS IN.

Course description: College-level topics in algebra including variation, systems of equations, nonlinear inequalities, functions and their graphs, lines, quadratic equations and functions, complex numbers, polynomials, exponential and logarithmic functions, the algebra of functions, and applications related to these topics.

Course prerequisites: A grade of "C" or better in MATH 1300 (Intermediate Algebra); or placement by exam taken at UH-Downtown. If you do not meet these prerequisites, you are subject to being dropped from the course without prior notification at your own expense. Please see me immediately if you do not meet this prerequisite, so you can be enrolled in the appropriate MATH course. We will be using online math software at various times during the course in place of a graphing calculator, but no previous experience with the software is necessary. Therefore you will not need to purchase a graphing calculator, but you should have access to a scientific calculator throughout the course, just for convenience. A scientific calculator is one that includes "ln" and "log" keys. You are not allowed to use a cell phone calculator during tests. You will be provided a copy of any software we use for free.

Textbook: *Essentials of College Algebra with Modeling and Visualization*, 4th Edition, by G. Rockswold, Pearson Publishing, 2010. However, lecture and other in-class activities will be an important source of material and information during this course. Therefore, you cannot expect to miss class or not pay attention in class, and then compensate by studying the textbook later.

Course grade: Your course average is determined by three major tests (48% total), online quizzes (9%), homework (10%) and a comprehensive final exam (33%). You will receive (based on your course average) a course grade of "A" (90-100), "B" (80-89), "C" (70-79), "D" (60-69), or "F" (below 60).

If you take each test and do not violate the Attendance Policy described below, your lowest test score will be dropped at the end of the semester and replaced by your final exam grade, if it is a higher score. Tests will be announced far enough in advance to allow sufficient preparation. Test scores are never curved. No extra credit assignments will be given. Homework is normally assigned each class period and discussed the next class period, and will be collected for grading on a regular basis. The two lowest homework scores will be dropped, and the lowest quiz score will be dropped.

Homework assignments: This course will have three types of homework assignments.

- **Graded MyMathLab assignments.** Throughout the semester, there will be homework assignments to be completed online using MyMathLab. *Note:* (1) For many exercises, you can view a "guided solution" or a "sample problem"; (2) To type math symbols, you may click on the "math symbols" palette at the left; (3) You can continue trying each exercise until you get it right and you can continue to work on an assignment after it has been submitted, that is, you can continue to improve your grade on each assignment, up to 100%. (4) Each assignment will have a specified due date by which it must be complete. Once an assignment's due date has passed, you will no longer be able to improve your grade on that assignment. Please do not put off doing the MyMathLab assignments! Instead, begin to work on these as soon as they are assigned. (5) The average of your grades on all of the MyMathLab assignments will determine your homework grade, which will count as 10% of your course average. Please take your MyMathLab homework assignments seriously, as they have a major impact on your grade. If you have any questions, problems or issues regarding MyMathLab, please contact me ASAP so we can resolve them quickly.

- **Text homework exercises.** Before each regular test, I will also assign a small group of exercises from the textbook for you to work using computer software and print out the solutions. Your name must be typed and printed on the sheets that you turn in. These exercises must be turned in to be graded along with the test, or I will not grade the test and a grade of 0 will be given.

- **Test preparation quizzes.** Throughout the semester, there will be test preparation quizzes to be completed online using MyMathLab (about 11 quizzes, one every two text sections). *Note:* (1) Unlike the homework, no online help is available for the quizzes; (2) Once a quiz is submitted, that grade cannot be improved. However, you have 10 chances to retake the same quiz. (3) Quizzes cannot be printed and can only be reviewed immediately following submission;

(4) Quizzes are due on test days; (5) The average of your grades on all of the quizzes will count as 9% of your course average.

Using MyMathLab: To supplement what is done in class, we will use an online resource called MyMathLab. In order to use MyMathLab, you must purchase a Student Access Code from the UHD Bookstore (bundled with the text or sold separately), or purchase it online at www.coursecompass.com. If you purchased a MyMathLab code for MATH 1301 last semester (i.e. you are repeating the class), you DO NOT need to purchase a new code this semester. Your account will still be active, but you will need to enroll in a new section. You can use MyMathLab on any computer that has Internet access. If you do not have a computer at home with Internet access, you can log into MyMathLab from a UHD computer, print out the MyMathLab assignment, work through the exercises on paper, and then enter the answers in MyMathLab when you are next on campus. To register with MyMathLab, you will also need a valid email address - use one that you regularly check. You must register with MyMathLab at www.coursecompass.com only the first time that you use it. (1) The course ID number will be given to you. (2) The zip code for UHD is 77002. (3) You will then create a Login Name and Password which you will use to log in whenever you use MyMathLab at www.coursecompass.com. Make sure to record your exact login name and password for future logins. The computers in the Math Center (N-925), the Academic Computing Labs (S-800, C-300, B-200), the CMS Tutoring Lab (S-738), and the SI Lab (S-405) can be used to access MyMathLab. Some of the features you can use are:

- Complete and submit homework assignments and quizzes online (which are required);
- Check out your course grades and course average in the Gradebook;
- View a complete online version of the textbook and look at multimedia sources such as online video clips that accompany the textbook, and more.

Be sure to register with MyMathLab during the first week of the semester, so you can begin to use it right away. Please contact me ASAP if you are having any difficulty registering with MyMathLab. You will not be allowed to continue attending class or take any test if you have not registered with MyMathLab and enrolled in this course.

Hard Copy of Text, New (bookstore): \$118.55

MyMathLab Access Kit, including printable e-copy of text (online): \$85.00

Supplemental instruction (SI): As you probably noticed during registration, this class meets an additional 30 minutes beyond the normal TR class period. We will use this additional time for individual and group tutoring and homework. This period is NOT optional; you must remain in class until dismissed by me or you will be counted absent. I will be assisted during this time by a UHD student tutor (called the SI leader), who will also attend the lecture and be available for additional time outside of class each week in S-405 so you may seek more help with the course work.

Class attendance/Make-ups: Good attendance is crucial in college, as I'm sure you've discovered by now. Attendance will therefore be taken daily. If you miss more than 6 hours of class (4 class periods) you are in violation of the Attendance Policy. Whenever you miss a class, it is your responsibility to check what material was covered and what homework was assigned. *Any missed grades will be recorded as zeros.*

Make-up tests will not be given in this course except under extreme circumstances. If you miss a test, that grade will be the one replaced by your final exam grade. However, you must notify me as soon as possible if you miss a test or know in advance that you will miss a test. If you do not notify me *promptly* with an *appropriate excuse*, you will receive a 0 for the test.

Course policies: I have one pet peeve: I do not like students to leave class early. This is not a movie theater where you can walk out if you don't like the show. Unless you become physically ill, I expect you to remain in class until it is dismissed by me. *Answering the call of nature does not constitute a physical illness* (you are old enough to plan ahead). If you have an urgent appointment or problem that you know will require you to leave class early, please inform me before class starts. Cell phones must be turned off and put away during class. Please remove any electronic earpieces that are not medically necessary. If we are meeting in a computer classroom, do not surf the Internet during class, and do not work on the online homework during lecture.

Please remember that as a member of the UHD academic community you are bound to observe the academic honesty code (see the UHD Student Handbook at <http://www.uhd.edu/campus/handbook.htm>) in all your school work. A grade of 0 will be given for any course work where cheating is detected.

Dropping: Please note that the last day to withdraw with a course grade of "W" is Thursday, March 28 at 6:00 pm. If you do not complete the course requirements and do not officially withdraw, you will receive a course grade of "F." This is university policy over which I have no control. You cannot receive the grade "I"-Incomplete unless you have a documented personal emergency that prevents you from completing the last fraction of the course, such as the

last test and/or the final exam. You must have a passing average based on the work you have already completed to receive an "I."

Where to get help with the course: The first place to seek help is from me, both inside and outside of class, and via phone or email. Next, students enrolled in MATH 1301 at UHD have access to the Math Center in the Academic Support Center (925-N) where they may get additional help with understanding concepts or improving their skills. The Center is staffed with mathematics faculty and student assistants, and offers tutorial help, calculators, computer access, and other types of aides on a walk-in basis. The Math Center maintains extensive hours which are published each semester (see below). You are encouraged to visit the Math Center throughout the semester whenever you feel you need extra assistance, no appointment required. It is also an excellent place to work on homework problems, so that you can receive immediate help as necessary.

Math Center Hours 925-N (for tutorial help by faculty members and peer tutors):

Monday - Thursday, 9 am - 8 pm

Friday, 9 am - 2 pm

Saturday, 11 am - 5:00 pm

How to be a successful college student (it's not rocket science):

1. Come to class.
2. Read your book.
3. Do your homework.
4. Listen and ask questions.
5. Contribute to classroom discussions.
6. Use any tutoring resources that are available.
7. Interact with your teachers, either face to face or using the phone or email.
8. Form study groups with your classmates.
9. Meet with your advisor.
10. Get involved in campus activities.
11. Share new ideas with your friends and family.

Statement on reasonable accommodations: UHD adheres to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations for students with disabilities. Students with disabilities should register with Disabled Student Services (409-S) and contact me in an a timely manner to arrange for appropriate accommodations.

Excess course attempts: In accordance with state law, effective Fall 2004 the University of Houston-Downtown is charging an additional fee per semester credit hour for any course that is repeated for the third time, beginning with the Fall 2002 semester. If a course has been previously attempted twice, the third enrollment will result in the additional charge. An attempt is defined as an enrollment that results in any letter grade (including "F" and "W").

Textbook content: The course covers the following sections of the textbook. In some cases, not all pages from a section are covered.

Chapter 1

- 1.1 Numbers, Data, and Problem Solving
- 1.2 Visualizing and Graphing Data
- 1.3 Functions and Their Representations
- 1.4 Types of Functions
- 1.5 Functions and Their Rates of Change

Chapter 2

- 2.1 Linear Functions and Models
- 2.2 Equations of Lines
- 2.3 Linear Equations
- 2.4 Linear Inequalities
- 2.5 Absolute Value Equations and Inequalities

Chapter 3

- 3.1 Quadratic Functions and Models
- 3.2 Quadratic Equations and Problem Solving
- 3.3 Complex Numbers
- 3.4 Quadratic Inequalities

Chapter 4

4.1 More Nonlinear Functions and Their Graphs

4.2 Polynomial Functions and Models

4.7 More Equations and Inequalities

Chapter 5

5.1 Combining Functions

5.2 Inverse Functions and Their Representations

5.3 Exponential Functions and Models

5.4 Logarithmic Functions and Models

5.5 Properties of Logarithms

5.6 Exponential and Logarithmic Equations

Chapter 6

6.3 Systems of Linear Equations in Three Variables

Educational objectives:

At the end of the course, a student should be able to, at minimum: (1) write complex numbers in standard form and perform the four elementary operations with complex numbers; (2) solve quadratic equations in one variable by the methods of factoring, extraction of roots, completing the square, and the Quadratic Formula; (3) properly use function notation and inverse function notation and interpret its meaning in context; (4) recognize the equation of a straight line and determine the equation of a line from information such as: given two points on the line, or, one point on the line and the slope of the line; (5) state the definition of a function, determine the domain and range of a function, evaluate expressions involving function notation, simplify expressions involving the algebra of functions, and given a function find its inverse, if it exists; (6) solve problems involving direct and inverse variation; (7) graph linear functions and quadratic functions by hand; (8) recognize the important features of graphs of polynomial functions and piecewise-defined functions; (9) find the vertex and intercepts of a parabola; (10) state the fundamental properties of polynomial functions; (11) solve quadratic inequalities, state the solution using interval notation and graph the solution; (12) state the inverse relationship between exponential and logarithmic functions, graph both types, use properties of logarithms to rewrite expressions, and solve exponential and logarithmic equations; (13) solve absolute value equations and inequalities; (14) solve systems of equations in three variables by algebraic techniques; (15) state and use the relationship between the slopes of parallel and perpendicular lines; (16) interpret the meaning of the slope of a line in context; (17) interpret the meaning of function intercepts in context; (18) compute midpoints and apply the Midpoint Formula to interpolate and extrapolate.

Final exam: Final exam: Regular class location, Tuesday May 7, 11:30 am - 2:00 pm.

Frequently asked questions:

I understand the material when you cover it in class, but then when I start to do the homework I immediately start having trouble. I'm afraid I'll bomb the tests. What can I do about this? This is one of the most familiar complaints math and stat teachers hear from students, and there is no easy answer. First, the fact that you understand the material in class is a very good sign - it means you have started the process of learning. But listening to me explain topics and talk about problems and solutions according to my understanding of the material can only get you so far. You have to build your own understanding of mathematics and statistics through patience and practice, by grappling with tough ideas yourself. I can try to help you with this process, but no one can do it for you. This is what homework is for, to give you a chance a practice on your own, and why it so important. Therefore, don't be overly concerned if the homework is a struggle, just accept it as a necessary part of learning. In my experience, students who come to class and work diligently on their homework are usually sufficiently prepared for tests. There is no reason to think you are any different.

Why don't you ever curve grades? It is fairly uncommon in the Math Department for professors to curve any type of grade, especially tests, for two reasons. First, if I curve a score, I am indicating that learning 70% of the covered material is not necessary, in other words, I am implying that the material is not important. But that is not true. I feel that Calculus is very important to enriching both your career and your life. Second, if you get a low grade and I curve the score, there is no way you will feel good about the grade, the course, or yourself for that matter. You will only feel good about your performance in this course if you earn the grade you receive. I want you to feel good about your performance.

VISIT THE UHD ALGEBRA STUDENT WEB PAGE FOR MORE INFORMATION:

<http://cms.uhd.edu/qep/algebra>