

Developing Mathematical Thinking, MATD 0385
Spring 2010

<p>Section: 0385.001 Synonym: 04445 Time: MW 10:00 – 11:15 a.m. Classroom: NRG 4213</p> <p>Instructor: Dr. Mary Parker Office Number: NRG 2147 Office Phone: 223-4846 (fax 223-4641) Email: mparker@austincc.edu Web: http://acconline.austincc.edu & http://www.austincc.edu/mparker/</p>	<p>Office Hours: MW 9:25 – 9:55 a.m. NRG 2247 MW 11:15 a.m. – 12:15 p.m. NRG 2147 No phone MW 4:40 – 5:40 p.m. RVS 8131</p> <p>By appointment: (Email at least a day in advance to ask for an appointment) Mon. 12:15 – 2:45 p.m. NRG 2147 Wed. 2:30 – 3:30 p.m. NRG 2147 No phone MW 4:10 – 4:40 p.m. RVS 8131 No phone Mon 7:00 – 7:30 p.m. RVS as arranged Additional times for appointments may be available for students who cannot attend these and for whom email and phone conversations have proved to be inadequate to resolve problems.</p>
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Course Description: A course designed to develop the skills, including reading and thinking, and the understanding for non-math, non-science majors who take MATH 1332, MATH 1333, or MATH 1342. Topics include linear models, data interpretations, including graphs and tables, percentage models, order of operations, logic of arguments and introduction to other models which may include exponential, logarithmic, quadratic, and/or rational models. This course is not for college-level credit. Students who need to prepare for MATH 1314, MATH 1324, MATH 1316, etc. should not take this course but instead should take MATD 0390, Intermediate Algebra. This course is not for college-level credit. Prerequisite: MATD 0370 with a grade of C or better or appropriate score on the ACC Math Assessment Test taken before enrolling.

Required Materials:

1. *Mathematical Thinking*, from the Maricopa Modules from Cengage, ISBN 0547169200. This includes chapters on Systems of Equations, Data and Tables, and Exponential Growth.
2. *Developing Mathematical Thinking*, from Pearson Custom Mathematics ISBN 0558275206. This includes chapters on Problems Solving, and Logic by Tom Pirnot.
3. Loose-leaf notebook and plenty of hole-punched paper.
4. Graph paper
5. Folder with pockets to turn in homework
6. Scientific calculator
7. Access to ACC's Blackboard and your individual ACC email account.

Instructional Methodology: This is a lecture/discussion course.

Course Rationale: Students who have recently taken mostly algebra math courses have sometimes not developed as much flexibility in applying those mathematical skills to problems different from those they have practiced as is needed for success in college. This course is designed to give students practice in the appropriate habits of mind to help them succeed in college-level mathematics courses. (This course does **not** meet the prerequisite for the algebra-intensive college mathematics courses such as 1314, 1324, etc.)

Course Objectives

1. Increase/improve students' quantitative literacy.
2. Increase students' skills using linear models and systems of equations.
3. Increase students' skills in answering questions about data presented using graphs, tables, and percentages and in summarizing data in appropriate forms to answer those questions.
4. Develop a variety of problem-solving skills.
5. Understand how to determine whether a linear or exponential model of growth is appropriate in a particular situation and to use those models to answer questions. This includes some use of logarithms.

Calendar / Testing Schedule (May be revised. See the daily handouts for updated information.)

Jan. 19 – Feb 5. (Weeks 1 – 3): Problem Solving and Logic, with additional work on linear formulas

Feb. 8 – Mar. 12 (Weeks 4 – 8): Exponential Growth

Mar. 22 – Apr. 16 (Weeks 9 – 12): Systems

Apr. 19 – May 12 (Weeks 13 – 16): Data and Graphs

There is a test at the end of each of the four parts of the course. The tests are somewhat cumulative because students are expected to remember the skills from the earlier parts of the course all the way through.

Grading: Each of the four tests counts 18%, the overall quiz grade (which includes attendance) counts 14% , and the homework grade counts 14%.

A: 90-100; B: 80-89; C: 70-79; D: 60-69; F: below 60

If you believe that I have made a mistake on grading anything, write a note of explanation on a separate sheet of paper, staple it to the paper, and turn it in for re-grading. I am happy to discuss this with you outside of class, but grades will never be changed or corrected "on the spot". Such corrections must be made **very soon** after the paper was originally graded. **No grades will be corrected except through this procedure.**

Example: Suppose a student's four test grades are: 82, 79, 63, 85. This student's overall quiz grade is 87 and the student's overall homework average is 90. Here is the calculation of this student's grade:

$$\begin{aligned}0.18*82 + 0.18*79 + 0.18*63 + 0.18*85 + 0.14*87 + 0.14*90 \\= 14.76 + 14.22 + 11.34 + 15.3 + 12.18 + 12.6 \\= 80.4 \quad \text{which is a course grade of B.}\end{aligned}$$

TSI Warning: If you are relying on this course to meet a requirement that you be in mandatory remediation in mathematics this semester*, then:

- o if you are not "continually in attendance" in this course, you should be withdrawn from the course by your instructor,
- o if you withdraw yourself from this course or are withdrawn by your instructor, your record will be reviewed to see if you are enrolled in any course for which you don't have the prerequisite and you will probably be withdrawn from that.
- o if you withdraw yourself from this course or are withdrawn by your instructor, you will have your registration for the next semester restricted.

* If you are unsure whether or not this warning applies to you, see an ACC advisor immediately.

Attendance Policy: Attendance is required in this course. Students who miss more than 4 classes **may** be withdrawn.

Withdrawal Policy: It is the student's responsibility to initiate all withdrawals in this course. The instructor **may** withdraw students for excessive absences or failure to participate in the course.

"Excessive absences" is defined as four or more absences. "Failure to participate in the course" is defined as failure to take a test, failure to turn in a homework assignment, or failure to turn in four or more quizzes. The instructor makes NO COMMITMENT to withdraw a student for these reasons, but may withdraw a student for any of these reasons.

Before the official census date (Spring 2010: February 1), a withdrawal from this course will take the course entirely off the transcript and no W will appear, so it doesn't count as a withdrawal. Between then and the final withdrawal date (Spring 2010: April 26), withdrawals do result in a W on the transcript. After that date, neither the student nor the instructor may initiate a withdrawal.

Students entering a Texas public college or university starting Fall 2007 and later are allowed only a very limited number of withdrawals (i.e. Ws on their transcripts) during their entire undergraduate career. For all students, withdrawals can have negative consequences, including increasing the tuition to be paid when the course is taken again and eligibility for financial aid. Review this and other important information about withdrawals at <http://www.austincc.edu/withdraw/>

Incomplete Grades (I) are given only in very rare circumstances. Generally, to qualify for a grade of "I", a student must have completed at least 80% of the course, including all exams, homework, and assignments, have a passing grade, and have a personal tragedy occur within the final 20% of the course that prevents course completion.

In Progress Grades (IP) are also rarely given. In order to earn an "IP" grade the student must work diligently on the material during the entire semester, meet all requirements for participation during the entire semester, make progress in the material, and not be meeting the standards set to earn the grade of C or better in the course. Students who are given an IP grade must register and pay tuition for the same course during the next semester. (If you have already had an IP grade, you may not be eligible for another. Ask your instructor.)

A student who thinks that he may not earn a C and wants an IP grade if he doesn't earn at least a C must discuss it with the instructor at least a week before the end of the semester. Rationale: An IP counts as a course attempted and not completed, so if your status depends on what percentage of courses you have completed, an IP may hurt your status. On the other hand, an IP doesn't affect your GPA and a D or an F does get counted into your GPA. So if your GPA is low, a D or an F may hurt your status. As the instructor, I can't know whether it is better for you to get an IP or a D or F. And, after I grade the last test, it is too late to have that conversation with you.

Students with Disabilities: Each ACC campus offers support services for students with documented physical or psychological disabilities. Students with disabilities must request reasonable accommodations through the Office of Students with Disabilities on the campus where they expect to take the majority of their classes. Students are encouraged to do this three weeks before the start of the semester. Students who are requesting accommodation must provide the instructor with a letter of accommodation from the Office of Students with Disabilities (OSD) at the beginning of the semester. Accommodations can only be made after the instructor receives the letter of accommodation from OSD.

Scholastic Dishonesty: Acts prohibited by the college for which discipline may be administered include scholastic dishonesty, including but not limited to, cheating on an exam or quiz, plagiarizing, and unauthorized collaboration with another in preparing outside work. Academic work submitted by students shall be the result of their thought, work, research or self-expression. Academic work is defined as, but not limited to, tests, quizzes, whether taken electronically or on paper; projects, either individual or group; classroom presentations; and homework.

Students who violate the rules concerning scholastic dishonesty will be assessed an academic penalty that the instructor determines is in keeping with the seriousness of the offense. This academic penalty may

range from a grade penalty on the particular assignment to an overall grade penalty in the course, including possibly an F in the course. ACC's policy can be found in the Student Handbook under Policies and Procedures or on the web at <http://www.austincc.edu/handbook>

Academic Freedom: Institutions of higher education are conducted for the common good. The common good depends upon a search for truth and upon free expression. In this course the professor and students shall strive to protect free inquiry and the open exchange of facts, ideas, and opinions. Students are free to take exception to views offered in this course and to reserve judgment about debatable issues. Grades will not be affected by personal views. With this freedom comes the responsibility of civility and a respect for a diversity of ideas and opinions. This means that students must take turns speaking, listen to others speak without interruption, and refrain from name-calling or other personal attacks.

Student Discipline: Classroom behavior should support and enhance learning. Behavior that disrupts the learning process will be dealt with appropriately, which may include having the student leave class for the rest of that day. In serious cases, disruptive behavior may lead to a student being withdrawn from the class. ACC's policy on student discipline can be found in the Student Handbook or on the web at <http://www.austincc.edu/handbook/>

Student Services: Classroom behavior should support and enhance learning. Behavior that disrupts the learning process will be dealt with appropriately, which may include having the student leave class for the rest of that day. In serious cases, disruptive behavior may lead to a student being withdrawn from the class. ACC's policy on student discipline can be found in the Student Handbook under Policies and Procedures or on the web at: <http://www.austincc.edu/handbook>

Course-specific support services: ACC main campuses have Learning Labs which offer free first-come first-serve tutoring in mathematics courses. At RVS it is in room. At NRG it is at the back of the first floor of Building 4000. Because this is a new course and has few sections, the tutors will not be familiar with the text or the structure of the course. Students should bring their book, notes, and work on the homework when they come to the Learning Lab.

Tests.

Tests may be given either during class time or in the Testing Center. If a student has a good reason why he couldn't attend class on the day of the test, a make-up test in the Testing Center will be provided and must be taken within a week after the original test date. Make-up tests may be reviewed in the instructor's office, but will not be returned to the student. See this website for locations, hours, and rules for the Testing Center: <http://www.austincc.edu/testctr/>. YOU MUST READ THE RULES on that website and follow those rules when you take a test in the Testing Center. The last test will be in class on the last day of class. (You will need your current ACC student ID to use the Testing Center.)

Tests (and make-up tests and retests) must be done entirely on your own, with no help from anyone else. Violating the rules of the testing center or giving or receiving help on tests is scholastic dishonesty, and the punishments are severe.

One retest, with 85 points worth of problems, will be available during the last two weeks of class in the Testing Center. It will cover material on the first three modules. A student who made a low grade on one or more of Tests 1, 2, or 3 may take the retest. The grade on the retest (maximum grade 85) will replace the lowest of their three test grades on Tests 1, 2, and 3.

Daily Quizzes:

These are used to measure your attendance as well as you are keeping up with the material in the

course. Students occasionally miss class for good reasons but it is important to keep up with the new material. Thus, these **quizzes may not be turned in late for any reason.** Instead of accepting late quizzes, I provide the equivalent of five free days that you can miss the quiz. I do that by assigning a few problems every day for you to do at home and turn in at the beginning of the next class. These will count 4 points each day and then totaled for the final quiz grade. Since there are approximately 30 class days, then are 120 points of quizzes and no more than 100 points will be counted.

If you miss class, but turn in the quiz on time, you can earn half the credit for that day. You can turn in the quiz on time either by submitting it to the desk in the Northridge mail room before class time, emailing it to me before class time, or by sending it to class with another student. If you submit it in the Northridge mailroom or if you send the paper with another student, you must clearly indicate on the outside of the quiz that you missed class and are submitting this for partial credit. Failure to do that will be considered scholastic dishonesty.

Homework:

The daily quizzes are fairly short – students need to practice more problems than these to learn the material well. Thus homework will be assigned every day. The homework assignment, along with the quiz assignment for the next class, will be posted on the website, usually by early afternoon of the day of the class. You are responsible for working these problems each day, asking questions as needed, and keeping your work in a folder/notebook, which you bring to class each day and submit for grading at the time of each test. Mostly the homework problems will be those for which the answers are available and quiz problems are those for which the answers are not available.

On some class days, part of your quiz grade may be based on a “spot check” of your homework notebook to be sure that you are keeping it up to date and in the right format.

You may work with other students on homework and on daily quiz problems, but each student should write his own solutions and submit only what he actually understands and could do again on similar problems.

The Maricopa book is organized to encourage you to write your solutions in it. Please don't do that. Do not EVER turn in printed pages from the books with your work written on them. I want to see you leave your books intact so that you can easily look at them later, and I want you to organize your work on notebook paper.

Each of the four homework assignments will be graded on a scale of 0-25 and those grades totaled for one overall homework grade.

Format: On each page of homework solutions, label it at the top with the name of the module, the number of the lesson, and the page number where the problems on that page appear. Also, make a line down the paper about 2/3 of the way across it, and label that column “Comments.” I will give you additional directions about what kind of comments you are expected to make. In general, these comments are to help you keep track of whether you worked it correctly or not, questions you had, what answers you found for those questions, what was still confusing, etc. This is a very important part of the course.

Class Rules:

1. In accordance with school policy, you may not bring food or drink into class.
2. Please turn off or mute volume on beepers and cellular phones so as not to disrupt class.
3. Arrive for class a few minutes early so that you can have your materials out and be ready to start class on time.

4. Disruptive behavior (talking to others while I am lecturing, rudeness, etc.) will not be tolerated.
5. Class discussion will focus on the material being presented and will be about matters relevant to the entire class. Discussion of your individual situation belongs in office hours or, occasionally, in the part of the class time that I have identified as devoted to working individually with students.
6. Children are not allowed to attend class with you.
7. Remember you are here to learn; be prepared to participate in class discussion. We are all unique individuals and in this class everyone's opinion will be respected whether we agree or disagree.
8. Counseling services are available to help you with a variety of needs, if you would like more information please ask.
9. Office hours are before class, but I am also available for a short time after class. Ask immediately if you need help! I am here to help you learn. Getting behind even one day will cause you to be confused and frustrated.
10. Quiz problems will never be accepted late. A moderate amount of extra credit is available to everyone.
11. Tests may not be taken late. There is a provision for making up low test grades and that will be used to deal with a missing test grade.
12. All students must take the final exam at the scheduled time. There are no exceptions.
13. If you enroll in the class late, you are subject to the same rules as students who enrolled in the class before the class began. The standard grading scheme allows enough flexibility for all students to make up a reasonable number of absences.
14. Cheating will not be tolerated.