

MA 134 SYLLABUS - COLLEGE ALGEBRA

DR. ANDREW SCHWARTZ, PH.D.

Catalog Description: 134-901 College Algebra (Spring 2009)

Functions and graphs, polynomial and rational functions, exponential and logarithmic functions, systems of equations and inequalities, binomial theorem, sequences. Prerequisite: MA 095 with a grade of 'C' or higher, or ACT Math subscore of 18-20 with MA 095 placement score of 14 or higher, or ACT Math subscore of 21 or higher. (University Studies course) (3)

Text: Beecher, Penna and Bittinger, (2008) *College Algebra* (3rd ed.), Boston, MA: Pearson Addison Wesley

Office Location and Hours: Johnson Hall 203 – MW 11:00am-noon M 2:00pm-3:00pm and whenever I'm around (I want you to always feel free to stop by and see if I'm in. If I'm not, see if the Mathematics Learning Center can help with your question. If none of these times or situations work for you, you can make an appointment that is an appropriate time for the both of us.)

Contact Information: office phone: (573) 651-2775 e-mail: aschwartz@semo.edu my homepage: <http://cstl-csm.semo.edu/aschwartz>

Classroom Location and Hours: Perryville Higher Education Center – MW 5:00pm-6:15pm

Class Webpage: <http://cstl-csm.semo.edu/aschwartz/ma134-901>

Course Objectives: The course is included in the logical systems category of the University Studies program. The primary purposes of the course are to develop problem-solving capabilities requiring a logical structure and to provide the essential algebraic background for work in other fields or courses. The students will be given problems in many disciplines that use algebra in their solutions, thus giving insights into the importance of mathematical skills in almost all aspects of society. Whenever possible the historical development of a problem and its resulting solution will be discussed, and the students will be shown how continued mathematical progress is still affecting modern technology. Upon completion of the course, you should be able to (among others):

- Graph basic mathematical concepts such as points, line segments, and intervals in both one and two dimensions.
- Understand, manipulate, and graph basic quadratic functions.
- Understand, manipulate, and graph basic polynomial and rational functions.
- Understand, manipulate, and graph basic exponential and logarithmic functions.
- Understand what a conic is and how they relate to the various associated graphs.
- Understand basic sequences and how to identify them in various ways.

Expectations of Students:

- (1) Attend class

Date: Spring 2009.

- (2) Participate in classroom activities
- (3) Provide and use a graphing calculator
- (4) Do homework
- (5) Pass quizzes and tests

Tentative Schedule:

- (1) Intro, Syllabus, 1.1 Introduction to Graphing 5,15,21,31,39,45,57,61,71, 73, 79, 83, 87, 115, 124
- (2) 1.2 Functions, Graphs 1,3,5,9,13,15,17,21,22,25,27,31,35,37,39,43,45, 47, 49, 51, 55, 57, 59, 61; 1.3 Linear Functions 1,3,7,9,11,17,27,29,33,34,37,41,43, 49
- (3) 1.3 Linear Functions 1,3,7,9,11,17,27,29,33,34,37,41,43, 49; 1.4 Lines: Modeling, Parallel, Perpendicular 11,17,19,25,31,37,41,45,49, 51, 53, 61, 65, 67, 68, 69-74, 75, 80, page 114 all of them
- (4) 1.5 More on Functions, Piecewise Functions 1,3,13,15,25,32,33,35,37,39, 41, 65; 1.6 Algebra of Functions 1,3,5,17,23,33,45,47,53,69,77,91,103
- (5) 1.6 Algebra of Functions 1,3,5,17,23,33,45,47,53,69,77,91,103; 1.7 Symmetry 1,3,4,5,6,27,29,33,35,37
- (6) 1.7 Symmetry 1,3,4,5,6,27,29,33,35,37; 1.7 Transformations 49, 53, 55, 59, 65, 75, 79, 83, 85, 87, 89, 91, 97, 99, 101, 103, 105, 107, 119-126, page 162 all of them
- (7) 2.3 Quadratic Equations, Functions, and Models 3,5,9,17,21,25,27,29, 33, 35, 39, 53, 61, 63, 71, 77, 79, 95, 104, 105, 107, 109; 2.4 Graph of Quadratics 1,3,7,11,13,15,17-24,25,27,29,37,39,43,45,49, page 225 all of them
- (8) 2.4 Graph of Quadratics 1,3,7,11,13,15,17-24,25,27,29,37,39,43,45,49, page 225 all of them; 2.5 More Equations;
- (9) REVIEW over Chapters 1 & 2
- (10) TEST over Chapters 1 & 2
- (11) 3.1 Polynomial Functions and Modeling 1,7,11,13,17,19-22, 27, 29, 31, 35, 37, 39, 43, 45, 49, 51; 3.2 Graphing Polynomials 1,7-12,13,17,21,23,25,27,43-48, page 278 all of them
- (12) 3.2 Graphing Polynomials 1,7-12,13,17,21,23,25,27,43-48, page 278 all of them; 3.3 Polynomial Division 1-38 selected problems
- (13) 3.3 Remainder Theorem, Factor Theorem 39,41,45,47,49,51,54; 3.4 Zeros of Polynomials 1,9,43,55,59,60,61,67,68,95,96,97,98,106-111
- (14) 3.4 Zeros of Polynomials 1,9,43,55,59,60,61,67,68,95,96,97,98,106-111; 3.5 Rational Functions 1-6,11,13,15,17,29,37,39,43,45,47,53, 55, 57, 69, 73, 75, page 315 all of them
- (15) 3.6 Polynomial and Rational Inequalities 11,13,15,19,21,23,25,41,43; 3.7 Variation
- (16) 4.1 Inverse Functions 1,5,25,27,29,31,45,48,49,51,67,73,83,85,89,111,113; 4.2 Exponential Functions 1,3,5-10,11,17,19,21,23,27,29,31,35,55,57,63
- (17) 4.2 Exponential Functions 1,3,5-10,11,17,19,21,23,27,29,31,35,55,57,63; 4.3 Logarithm Function, Graphs 9-53 odds, 73,75,79,81,82,83,85,89,93,97
- (18) 4.4 Log Properties 1,9,17,23,29,35,39,43,47,53,63,65,73,79-87,96-99, 103; 4.5 Solving Exp/Log Equations 1,5,9,13,17,21,27,31, 43, 47, 49, 53, 59, 61, 62, 63, 65, 78
- (19) 4.5 Solving Exp/Log Equations 1,5,9,13,17,21,27,31, 43, 47, 49, 53, 59, 61, 62, 63, 65, 78; 4.6 Growth and Decay 1,2,3,5,11,13,15

- (20) REVIEW over Chapters 3 & 4
- (21) TEST over Chapter 3 & 4
- (22) 6.1 Parabola 1-6,7-17 odds,31,33; 6.2 Circle, Ellipse 1,5,9,13,17,19,20,23, 25, 27, 51, 71
- (23) 6.2 Circle, Ellipse 1,5,9,13,17,19,20,23, 25, 27, 51, 71; 6.3 Hyperbola 1,5, 11, 17, 19, 21, and read page 551, page 565 all of them
- (24) 6.4 Non-linear systems of equations; 7.1 Sequences, Series 1,5,9,11,15,19,23, 25, 33, 35, 39, 43, 45, 61, 63, 69
- (25) 7.1 Sequences, Series 1,5,9,11,15,19,23,25,33,35,39,43,45,61,63,69; 7.2 Arithmetic sequences 1,5,9,13,17,21,25,43,44,45
- (26) 7.3 Geometric sequences 1,5,9,13,17,21,23, 25, 27, 41, 43, 53, page 603 all of them; 7.7 Binomial Theorem
- (27) REVIEW over Chapters 6 & 7
- (28) TEST over Chapter 6 & 7
- (29) REVIEW for Common Final

Grading Scale:

- A 90-100
- B 80-89.99
- C 70-79.99
- D 60-69.99
- F 0-59.99

Grading Scheme:

- Homework, Participation 10%
- Tests 1, 2, and 3 16.66% apiece
- Quizzes 20%
- Final 20%

Tutoring: Tutoring sessions are also available to you in the Mathematics Learning Center (this is free). The hours are 8:00am-5:30pm M-R, and 8:00am-3:00pm on Friday. The MLC is in Johnson Hall room #112. The Center for Student Involvement also provides tutoring on the second floor of the University Center through the Learning Assistance Program. Furthermore, Jamie Birkman (the Administrative Assistant in the Mathematics Department) has a list of personal (paid) tutors that are available.

MyMathLab: A course ID has been created with the software that accompanies the textbook. Go to <http://www.coursecompass.com> and enter the course ID: schwartz88346 when prompted to do so. The software is an extra tool that provides one-on-one electronic help at your own pace. I strongly suggest you try to use this as practice for homework, tests, or quizzes as well as brushing up on particular concepts you find difficult. If you have any technical difficulties setting up your account or using your account please refer to Kristen Dulin, 314-852-8244, kristen.dulin@pearson.com, or Steve Day, 405-740-2889, steve.day@pearson.com.

Disability Support Services: “Any student who believes that they may need an academic accommodation based on the impact of a disability should contact me to arrange an appointment to discuss their individual needs. We instructors rely on Disability Support Services to verify the need for academic accommodations and developing accommodation strategies. Students that have not already registered with Disability Support Services as a student with a disability will be encouraged to do so.”

Classroom and Final Exam Policy: The use of a scientific or graphing calculator is encouraged for use on the class and final examinations for this course; however, computers with graphic, word-processing, symbolic manipulation or programming capabilities will not be allowed for this exam (unless specifically allowed by Disability Support Services). If you cannot afford to purchase a calculator, these

may be rented from Textbook Rental Services for a nominal fee. The use of books, notes, or other resource materials will not be permitted on the final examination. All cell phones prohibited during the final exam (THIS POLICY APPLIES TO THE EVERYDAY CLASSROOM AS WELL). You may NOT use the calculator on your cell phone for quizzes, tests, and the final exam. Furthermore, you are expected to be prepared for every quiz, test, or exam in this class. There will be no sharing of calculators, pencils, or erasers during any quiz, test, or the final exam. The final is at noon Wednesday, May 13 in JH105 (the same room this class is in).

Absences on Exam Days: If you find that you will be unable to take an exam at the regularly scheduled time, please do your best to let me know as soon as possible, in advance of the regularly scheduled time for said exam (no exceptions), so that a make-up time can be arranged. If the absence is known ahead of time, the make-up exam needs to be taken the day or two before the rest of the class is scheduled to take the exam. If it is an emergency absence (you are hospitalized or arrested, etc.), you must take it the first or second day you are physically able to be in my office or at Testing Services.

General Student Behavior: “Every student at Southeast is obligated at all times to assume responsibility for his/her actions, to respect constituted authority, to be truthful, and to respect the rights of others, as well as to respect private and public property. In their academic activities, students are expected to maintain high standards of honesty and integrity and abide by the University’s Policy on Academic Honesty. Alleged violations of the Code of Student Conduct are adjudicated in accordance with the established procedures of the judicial system.” Dishonorable actions, such as cheating will result in an immediate zero for the correlating classroom activity. Additional unethical actions will result in a referral to the Department Chair, Dean of the College of Science and Math, and/or the University Judicial Affairs Committee.

Class Disruptions: These are absolutely not tolerated. Your classmates (their parents, legal guardians, or their scholarship sources) pay entirely too much money on tuition to have their classroom experience subjugated by rude individuals. I understand that emergencies can and do arise, however blatant refusal to cooperate, unnecessary (as deemed by myself) cell phone usage (including texting), using Ipods or mp3 players, talking in class (about non-subject related matter), frequently leaving the room (during the middle of class or walking out early) are all prohibited. If you transgress this once, it will be a verbal warning. Second offenses are cause for removal from that day’s class. Offenses past that will start to directly affect the student’s grade (1 whole percentage point off of the final grade for each and every offense including the third offense and every offense thereafter).