MAT 121 – Online College Algebra Spring Semester, 2014
Section G-81

INSTRUCTOR: Dr. Harry S. (Steve) Mills, EDBH 134K, 970-339-6238, E-mail: Use mail tool on MyAims course website. (Click on Classlist from the main Navigation bar and then click on "Mills, Harry.") Emergency e-mail: steve.mills@aims.edu

IMPORTANT: The student is responsible for reading, understanding, and complying with all Standard Syllabus Policies (http://www.aims.edu/inside/policies/standard-syllabus/), unless otherwise stated, below.

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Catalog Description: Includes equations and inequalities, functions and their graphs, exponential and logarithmic functions, linear and non-linear systems, graphing of the conic sections, introduction to sequences and series, permutations and combinations, the binomial theorem, theory of equations and an introduction to matrices and determinants. 4 credit hours

Prerequisites: Completion of MAT 099 with a 'C' or better, ACT Math score greater than or equal to 23, or assessment score.

Required Materials:
• **Textbook: College Algebra: Concepts through Functions**, 2nd Edition, Sullivan and Sullivan. See course website Beginnings for details.
• **Scientific Calculator:** The TI 30X IIB or comparable product with a Previous Entry feature. When you can see what you entered, you'll make fewer mistakes, be able to fix any mistakes you make, and explore patterns, by changing one thing in a big formula, and seeing how the output changes, without having to re-enter the whole long expression. What you want is a calculator just one step below a graphing calculator, that lets you edit the entries like you do in a graphing calculator. GRAPHING CALCULATORS ARE NOT PERMITTED ON TESTS, ALTHOUGH ELECTRONIC GRAPHING WITH ONLINE GRAPHERS OR GRAPHING CALCULATORS MAY COME UP ON THE HOMEWORK.

Course Website: To access the website, login to http:www.aims.edu through the MyAims button on the upper right of the page, and click on My Courses tab. Then click on College Algebra. As this is an online course, the course website will be the focal point of our interactions, even though you will likely spend most of your time on the MyLab website, doing homework.

Pearson MyLab and Mastering Website: Online delivery of instruction will be performed by Pearson MyLab and Mastering, a product of Pearson Learning. This learning tool offers video lectures, exercises, quizzes, and on-demand help. It's where you'll do your homework and do most of your learning, I expect.

Grades: Five Categories: Tests, Homework, Final Test, Weekly Essays and Writing Projects.

• **Test Average** will count 50% of the final grade. (Replace the lowest of these with your Final Exam grade.) You will go to an Aims Testing Center (Greeley, Loveland or Fort Lupton) to take each test. Special arrangements can be made with far-distant students for the taking of proctored tests at approved testing sites (Jean Otte, jean.otte@aims.edu , handles this process.). Scientific (NOT graphing) calculators are the only electronic devices permitted during testing (On the Hour Tests AND the Final).

• **Homework** will count 15% of the final grade. Homework is assigned through Pearson Learning, and MyMathLab will deliver instruction, tutorials, and generate as many examples as you ask. This is a small fraction of the points, but the bread and butter of the course. It's where you *learn* this stuff.

• **Final Test** will count 20% of the final grade.

• **Weekly 5–minute Essays** will count 5% of the final grade. Each week, I will open up a discussion group on the course website. This will be an easy part of your weekly routine that may even be fun and should help you connect with your classmates. Classmates are often the best source of tips for learning. At some point near the end of week *x* (before Monday of the following week), the student will submit the answer to three questions in Week *x* :

1. What did I learn this week?
2. What did I struggle with and still not quite understand?
3. In general, how is the course going? What's working/not-working for you?

• **Writing Projects** will count 10% of the final grade. There are 4 topics. You may employ both hand-writing and type-writing in these projects, depending on the assignment, and whatever works best for you. For more details, see the Writing Projects handout.

Grading Scale: 90% - 100% A 80% - 89% B 70% - 79% C 60% - 69% D

Method of Instruction: The primary means of content delivery will be provided by Pearson's MyLab / Mastering, an automated course management system. MyLab will also evaluate your progress using its own testing and homework utilities. You'll like the fact that it gives a LOT of instant feedback.

MY part of it is to keep the ball rolling, answer questions when the on-demand tools aren't enough. I also have posted several semesters' worth of old tests, with solutions. This is a critical bridge between the Pearson MyLab stuff and my expectations on tests. Test Review activities should include watching MY Test Videos (http://www.harryzaims.com/121-online/121-online-spring-14/videos). *You might even want to watch the Video before you start the homework, so you know what you're up against. Then watch again, as part of your test review activities* ***after*** *the homework is done.*

This course is self-paced, in the sense that you can move as slowly or quickly through a lesson as you want. It is *not* self-paced, in the sense that you must take tests according to the schedule.

Stop-Out: Students who are inactive for 2 weeks will be reported as Stop-Out and dropped from the roster.

General Education Competencies: This course satisfies the following General Education competencies: Critical Thinking, Technology, and Mathematics. It also satisfies the Aims requirement for Writing. Refer to Aims Community College catalog for descriptions.

Learning Outcomes:

A. Be familiar with set notations, subsets of the real numbers and properties of real numbers.
B. Perform algebraic manipulations including working with exponents, radicals, polynomial operations, factoring and algebraic fractions.
C. Solve the following types of equations: linear, quadratic, equations involving radicals, equations in quadratic form and equations involving absolute value.
D. Work with formulas including formula evaluation and solving a formula for any of the variables.
E. Read and analyze problems in the form of word problem applications and obtain solutions using equations.
F. Solve first degree inequalities, higher degree inequalities and inequalities involving absolute value.
G. Recognize and graph linear functions, rational functions, absolute value functions, and graph inequalities in two variables.
H. Work with function notation and demonstrate knowledge of the meaning "function".
I. Demonstrate an understanding of function composition, one-to-one functions and inverse functions.
J. Evaluate and graph exponential functions.
K. Evaluate and graph logarithmic functions.
L. Work problems and solve equations containing exponential and logarithmic functions.
M. Use at least two of the following techniques to solve linear and non-linear systems of the equations: substitution, addition, Gaussian elimination, Cramer's rule.
N. Have some familiarity with matrices and operations involving matrices.
O. Graph systems of inequalities.
P. Graph conic sections including circles, parabolas, ellipses and hyperbolas.
Q. Identify the conic section represented by a given second degree equation.
R. Work with series notation and sequence formulas, and counting principles.
S. Apply the Binomial Theorem.
T. Demonstrate an understanding of proof by mathematical induction.
U. Present topics in theory of equations.
V. Perform synthetic division.
W. Use the Remainder Theorem and the Factor Theorem to factor and evaluate polynomials.
X. Solve polynomial equations using the Rational Root Theorem and/or approximation techniques.
Y. Write and speak clearly and logically about topics related to algebra.
Z. Demonstrate the ability to select and apply contemporary forms of technology to solve problems or compile information in the study of algebra.

Tutoring Information: Drop-in, individual, and guided study group tutoring is available to currently enrolled Aims students. For available subjects, hours, and additional questions, please call 339-6541 for Greeley, 667-4611 Ext. 3304 for Loveland, and 303-718-5905 for Fort Lupton services. Also, please visit our website at http://www.aims.edu/student/learning-commons/tsi/index.php for current information.

Students with Disabilities: Any student who feels s/he may need an accommodation based on the impact of a disability should contact the Disability Access Services (DAS) office privately to discuss her/his specific needs. Please be aware that before accommodations can be made, they must be approved through the DAS office. Students should contact the DAS office at 970-339-6388 or disabilities@aims.edu to set up an appointment to discuss the process of requesting reasonable accommodations. DAS is located in the College Center in the One-Stop Shop area on the 1st floor.

Student Conduct and Civility Statement: *Let common sense and common courtesy prevail!*
If they do *not* prevail, the student will be held to the letter and spirit of our Student Conduct Policy, which is discussed here:

http://www.aims.edu/student/conduct/code-of-conduct?expanddiv=item1#expectations

Again, standard syllabus information is found here:

http://www.aims.edu/inside/policies/standard-syllabus/