

Math 126C College Algebra Fall 2009

3 credits

INSTRUCTOR:	OFFICE:
PHONE: EMAIL: OFFICE Hours:	PREREQUISITES: Two units of algebra, one unit of geometry, and satisfactory performance on departmental placement examination or successful completion of the pre-college algebra workshop or its equivalent.
TEXT: Sullivan: College Algebra and Trigonometry: Enhanced with Graphing Utilities, (WVU)5th edition. Upper Saddle River, NJ, Prentice-Hall.	LAB MANUAL: Interactive Computer Laboratories for College Algebra: Pyzdrowski, available through WVU Bookstore STUDY GUIDE: Butler, available through WVU Bookstore
FINAL: Monday, December 14, 2009 * All Final Exams for this class will be given on Monday, December 14 in 213/215 or 421/417 labs in Armstrong Hall. Students will sign up for final exam times during the last regular test. The assigned times will then be posted during the last week of classes. Either a scientific or graphing calculator is required for the course. Only those calculators permitted for use on the ACT test are permitted. Please see your instructor if you have questions.	Your grades are determined by your instructor. All course and grade questions should be first directed to your instructor. If for some reason, you or your instructor feel that it is necessary, you may wish to schedule an appointment with the M126 C Course Coordinator to discuss this course. Course Coordinator: Dr. Laura J. Pyzdrowski 411 - B Armstrong Hall 304.293.2011
Students must register for both lecture and one attached laboratory. 85735 LEC 001 WF 0830-0920 458 BUE-D Cole 85736 LAB 002 M 830-0920 421 ARM-D Cole 85737 LAB 003 M 830-0920 215 ARM-D 85739 LEC 005 WF 1130-1220 458 BUE-D Waibogha 85740 LAB 006 M 1130-1220 421 ARM-D Waibogha 85741 LAB 007 M 1130-1220 215 ARM-D 85743 LEC 009 WF 1330-1420 458 BUE-D Waibogha 85744 LAB 010 M 1330-1420 215 85745 LAB 011 M 1330-1420 421 ARM-D Waibogha 86316 LEC 012 WF 0930-1020 458 BUE-D Cole 86317 LAB 013 M 930-1020 215 ARM-D 86318 LAB 014 M 930-1020 421 ARM-D Cole	All extreme case situations are reviewed and decided upon by the Math 126 instructional team during finals week. Such cases require written documentation from the student outlining the request and circumstances surrounding the request. Please contact your instructor for more information.

- **You must attend a laboratory section that is attached to your lecture section and you must work with a laboratory partner from your lecture section in order to receive participation points on a lab.**
- **Labs must be turned in only to YOUR instructor and are due IN YOUR CLASS on the Wednesday following the lab day. As a courtesy to students, labs will be accepted on Friday IN YOUR CLASS with no penalty. After that, NO LATE LABS WILL BE ACCEPTED.**
- **Each student should complete his/her own copy of the laboratory sheets. Be prepared to turn in your copy of the lab if your partner is absent the day that it is due. Only one lab per team (2-3 students) will be graded; if more than one lab is turned in, only one will be graded and returned.**
- **Only labs turned in to your instructor during regularly scheduled class time will be accepted. Make plans to get your lab turned in if you must miss class.**

This course is a part of WVU's General Education Curriculum and focuses on Basic Mathematics and has been certified as part of WVU's Liberal Studies Program, Math and Natural Sciences (cluster C). The course will focus in part on developing your ability to communicate effectively, understand alternative views and cultures, and use quantitative and scientific knowledge accurately.

Objectives: The general goals of this course are common to all the courses in the Institute for Math Learning at WVU:

- **CONCEPTUAL UNDERSTANDING:** rather than just rote memorization of algorithms
- **MULTIPLE APPROACHES:** to examine problems from analytical, geometric and numerical perspectives, to make judgements about the appropriateness of the choice of formal or approximate methods of solution
- **TECHNOLOGY AS A TOOL:** use technology as an integral part of the process of formulation, solution, and communication, to gain experience in selecting the proper tool for a given problem
- **ACTIVE STUDENT LEARNING:** to engage in the exploration and discovery of concepts and to learn to work cooperatively to solve problems
- **COMMUNICATION OF IDEAS:** to demonstrate understanding by explaining in written or oral form the meanings and applications of concepts
- **APPLICATIONS:** use mathematics to model and solve problems
- **PROBLEM SOLVING:** gain experience as a problem solver, to analyze problems in an organized manner

The specific goals of the college algebra course will be to stress algebraical, graphical, and numerical approaches to the study of:

- understanding and using the concept of function
- mathematical application problems

TENTATIVE SCHEDULE

Week	Text Sections	Laboratory/Quiz/Exam
1	R.1 - R.5 & R.7 - R.8 (BRUSH-UP/REVIEW) The content found in the Review is considered review/foundation. Your instructor will not "teach" the content from the Review. It is quickly skimmed through during the first week as a warm-up to the course. If you do not feel comfortable working through the exercises on your own, you should consider enrolling in the Algebra Workshop or obtaining a tutor. Content from the Review will be on Test 1 and mastery of it is expected throughout the course.	LAB: eCampus Check in, Bonus Pre-Test (earn up to 10 bonus points) QUIZ: Quiz release and HQ 1 (on R.1 - R.5, R.7 - R.8) - One attempt due before Test 1 (M126 eCampus LINK: https://ecampus.wvu.edu Your instructor will provide information in the first lab so that you can access your account.)
2	1.1 - 1.3	LAB: Choose partners, begin Introduction and Basic Graphs lab. This lab should be finished during open lab time if needed and is due on the Wednesday of week 4 . See the schedule posted in 213-215 Armstrong Hall for open lab times.
3	1.5, 1.7	LAB: No Scheduled Lab: Holiday QUIZ: HQ 2: (on 1.1-1.3, 1.5) - One attempt due before Test 1
4	2.1 - 2.3	EXAM: Test 1 (on R.1 - R.5, R.7 - R.8, 1.1-1.3, 1.5, and Basic Graph Lab - during your scheduled lab time)
5	3.1 - 3.3	LAB: Graphing Techniques
6	3.4 - 3.5, 6.1	LAB: The Box, QUIZ: HQ 3 (on 1.7, 2.1 - 2.3, 3.1 - 3.4)-One attempt due before Test 2
7	3.6, 4.3, 1.4	EXAM: Test 2 (on 1.7, 2.1 - 2.3, 3.1 - 3.4, Graphing Techniques Lab and Box Lab)
8	4.4, 5.1, R.6 (synthetic div.)	LAB: Quadratic Functions
9	5.2 - 5.3	LAB: Polynomial Functions QUIZ: HQ 4 (on 3.5 - 3.6, 6.1, 4.3 - 4.4, 5.1, 1.4, R.6)-One attempt due before Test 3
10	5.5 -5.6	EXAM: Test 3 (on 3.5 - 3.6, 6.1, 4.3 - 4.4, 5.1, 1.4, R.6, Quadratic Lab, and Polynomial Lab)
11	6.2 - 6.3	LAB: Rational Functions
12	6.4 - 6.5	LAB: Exponential Functions QUIZ: HQ 5 (on 5.2 - 5.3, 5.5 - 5.6, 6.2 - 6.3)-One attempt due before Test 4
13	6.6 - 6.7	EXAM: Test 4 (on 5.2 - 5.3, 5.5 - 5.6, 6.2 - 6.3, Rational Lab, and Exponential Lab)
14	6.8 - 12.1	LAB: Logarithms
15	12.2, Review for Final, Evaluations	LAB: Bonus Posttest (earn up to 10 bonus points) QUIZ: HQ 6 (on 6.4 - 6.8, 12.1 - 12.2) The HQ portion of the course will be "turned off" by 5:00 pm December 13, 2009.

Math 126-C Course Link: <https://ecampus.wvu.edu>

Help: On an average, you should expect to study two to three hours outside of class for each one hour in class. If you are spending more, then you may need to seek help! There are several excellent sources for such help. First, seek help from your classmates; often they can explain the problem since they have been working on it. You may also seek assistance during open lab times in the IML laboratory, from the Math Learning Center in 301 Armstrong Hall, a residence hall study session, or you may seek help from your instructor during office hours.

Math 126C Homework - Fall 2009 - Spring 2010

Section	Name	Problem Numbers
R.1	Real Numbers	1, 21, 23, 25, 27, 33, 35, 39, 41, 45, 51, 57, 59, 65, 69, 75, 81, 87, 91, 93
R.2	Algebra Essentials	4, 11, 15, 23, 24, 31, 37, 41, 45, 47, 49, 57, 59, 61, 65, 73, 74, 75, 76, 77, 87, 89, 93, 95, 141
R.3	Geometry Essentials	11, 21, 25, 27, 29, 31, 37, 39
R.4	Polynomials	7, 9, 17, 21, 29, 31, 34, 39, 47, 55, 69, 93, 97
R.5	Factoring Polynomials	5, 13, 17, 25, 33, 39, 45, 51, 57, 61, 65, 85, 91, 95, 105, 107, 121
R.6	Synthetic Division	5, 9, 17
R.7	Rational Expressions	5, 13, 19, 25, 31, 47, 53, 63, 73
R.8	n th Roots; Rational Exponents	1, 2, 7, 15, 17, 21, 23, 31, 43, 47, 55, 63, 71, 75
1.1	Rectangular Coordinates; Graphing Utilities; Introduction to Graphing Equations	5, 7, 9, 13, 33, 39, 49, 57, 64, 75, 77, 79, 83, 95, 105
1.2	Solving Equations Using a Graphing Utility; Linear and Rational Equations	41, 43, 45, 51, 53, 55, 61, 71, 77, 89, 95, 99, 101, 105, 107, 109
1.3	Quadratic Equations	5, 6, 13, 15, 17, 23, 25, 37, 39, 41, 45, 49, 51, 63, 67, 79, 83, 97, 99, 105
1.4	Complex Numbers; Quadratic Equations in Complex Number System	9, 13, 19, 26, 27, 31, 33, 35, 49, 51, 53, 59, 73, 79
1.5	Radical Equations; Equations in Quadratic Form, Absolute Value Equations; Factorable Equations	11, 15, 23, 25, 31, 35, 51, 57, 61, 67, 69, 86, 89, 116
1.7	Solving Inequalities	11, 12, 14, 23, 27, 31, 35, 47, 49, 59, 65, 69, 71, 73, 77, 79, 83, 107, 109
2.1	Intercepts, Symmetry; Graphing Key Equations	13, 21, 27, 31, 39, 41, 45, 51, 69, 71
2.2	Lines	13, 17, 27, 29, 31, 41, 43, 45, 59, 65, 77, 83, 85, 97, 121, 127, 128
2.3	Circles	6, 9, 11, 17, 23, 27, 31, 32, 37, 39, 43
3.1	Functions	15, 19, 27, 33, 39, 41, 53, 55, 57, 61, 65, 73, 75, 93, 104
3.2	The Graph of a Function	9, 13, 15, 23, 25, 39
3.3	Properties of Functions	11, 13, 15, 17, 19, 21, 29, 33, 53, 59, 69, 73, 75
3.4	Library of Functions: Piecewise-defined Functions	9, 10, 11, 12, 13, 14, 15, 16, 25, 29, 35, 41, 43, 47
3.5	Graphing Techniques: Transformations	7, 9, 11, 13, 15, 17, 19, 27, 31, 41, 45, 63, 69
3.6	Math Models: Building Functions	2, 3, 5, 6, 7, 21, 23, 25, 26
4.3	Quadratic Functions and Their Properties	11, 13, 15, 17, 27, 37, 41, 43, 49, 83
4.4	Building Quadratic Models from Verbal Descriptions and from Data	3, 7, 8, 9, 11, 15
5.1	Polynomial Functions and Models	11, 15, 23, 25, 32, 37, 43, 55, 61, 69, 71, 79, 91
5.2	Properties of Rational Functions	13, 23, 25, 31, 41, 45, 51
5.3	The Graph of a Rational Function	7, 15, 27, 33, 35, 51, 61
5.5	The Real Zeros of a Polynomial Function	11, 13, 21, 27, 39, 43, 63, 73
5.6	Complex Zeros, Fundamental Theorem of Algebra	7, 9, 17, 23, 33
6.1	Composite Functions	7, 9, 11, 19, 47, 53, 65, 71
6.2	One-to-one functions; Inverse functions	11, 15, 19, 21, 35, 43, 50, 63, 65, 90
6.3	Exponential Functions	15, 21, 22, 23, 25, 27, 29, 31, 33, 35, 38, 49, 59, 63, 77, 81, 97, 121
6.4	Logarithmic Functions	13, 15, 19, 23, 31, 37, 57, 63, 70, 73, 79, 81, 87, 97
6.5	Properties of Logarithmic Functions	2, 13, 15, 23, 27, 41, 49, 51, 53, 61, 63, 65, 69, 75, 76, 85
6.6	Logarithmic and Exponential Equations	11, 15, 25, 37, 43, 47, 51, 81
6.7	Financial Models	7, 15, 29, 35, 41, 45, 54
6.8	Exponential Growth and Decay	1, 3, 7, 9, 11
12.1	Systems of Linear Equations: Substitution and Elimination	7, 11, 19, 23, 25, 29, 41, 55
12.2	Systems of Linear Equations: Matrices	5, 11, 17, 39, 41, 51