Syllabus: MTH 127 Online

College Algebra Expanded

Department of Mathematics, College of Science   Summer 2009

Dr. Ari Aluthge (Pronounced A-luth-gay), aluthge@marshall.edu.

This course begins on May 26, 2009 and ends on August 14, 2009.

Please note that all times are Eastern.

Please see the University Academic Calendar for course withdrawal dates.

Office and Office Hours

Office Hours:
You can e-mail me with the VISTA *Mail* Tool, on *MyMU,* or simply using my e-mail address: aluthge@marshall.edu. I will try to be online every Thursday from 10 to 11:59 pm. Should you ever find yourself on campus this semester, you can also look me up in person. My office is in Morrow Library 106 and my phone is 304.696.3050, fax number is: (304) 696 4646 (attn: Aluthge). I do not have any specific office hours on campus this semester.

About me:
I have been teaching at Marshall University since 1990. My credentials include a Ph.D. from Vanderbilt University where I studied operator theory and other topics in mathematics.

I enjoy teaching very much. Lately I have been working with Mingo County math teachers on several projects. I also enjoy teaching mental math to anyone who is interested in.

Course Materials and Cost

College Algebra Graphs & Models, 4rd Edition by Bittinger, Marvin L., Beecher, Judith A., Ellenbogen, David, Penna, Judith A. This is a loose paper three-hole punched version and its ISBN number is 0321622278. The books can be ordered online at The Marshall University Bookstore. It will not be available anywhere else.

Included with the purchase of a new book from the MU Bookstore is an access code for a publisher's website, called "MyMathLab.". You will need a Course to get started. It is aluthge77556. There are tutorials, videos, and worked problems available at the publisher's site, all of which are optional.

You will need a graphing calculator for the course.

Technical Requirements

- For minimum hardware/software requirements please see:
  http://www.marshall.edu/muonline/hardwaresoftwarecheck.asp
- Be sure to run the free web browser tune-up:
  http://www.marshall.edu/muonline/support/tuneup.asp
- You will need to have several plugins (software) installed on your computer. These plugins are all free. You will need **Real Player** and **Flash Player** to experience the streaming video and audio clips that are part of the course. You can easily check your computer to see if you have these programs (and if you don't install them for free), by clicking on this link: http://www.marshall.edu/muonline/support/plugin.asp
- If you have technical problems, please go to the Help Desk:
  http://www.marshall.edu/muonline/technicalfaq.asp

HELP DESK PHONE NUMBERS:
(304) 696-3200 (Huntington, WV)
(304) 746-1969 (Charleston, WV)
(877) 689-8638 (Toll free)

Course Details

Prerequisites: Math ACT 19 or Math SAT 460 or MAT 097 or Math 100 or Placement 100

Objectives of the course:

1. To prepare students for a course in calculus with analytic geometry. Students should also take trigonometry before attempting calculus.
2. To prepare students for science and engineering courses.
3. To give students a solid understanding of algebra and how it is used.
4. To develop facility in using graphing calculators to solve math problems.
5. To satisfy the mathematics general education requirement.

This course consists of six chapters: a review chapter and five chapters. Each chapter is divided into sections. For each section I suggest that you:

- **Begin by reading the text for each new section.** The content in my lectures is not meant to replace the text, but to supplement it. Notice that the sections (in course material) are numbered to go parallel with the 3rd edition in the book. But a comparison of two editions are given later in the syllabus.
- **Look at my lectures for a guided tour through the section.** Each lecture contains video clips of selected problems, web sites for more help, definitions and rules, worked out examples and explanations. Many sections have additional material called "Thinking About..." that goes beyond the basics.
- **Try the assigned homework problems.** You won't know if you can do this unless you really try. There are many worked problems that can be accessed on the sidebar to help you understand how to do the assigned homework. Solutions to homework questions for 4th edition of the text are provided in a separate folder (in each unit)
- **If you are having trouble, please contact me through the VISTA e-mail or through Marshall's e-mail.** I would be happy to explain to you how to do any of the problems. If you understand the concept being presented, you may be able to skip some of the problems. Only you can be the judge of the work you will have to put in to master the material, but remember that "practice makes perfect."

- **Home work will not be collected or graded. You are encouraged to do homework in order to prepare for the quizzes. After finishing each section, take the appropriate quiz.** You can keep your books, notes, and other (non-human) resources available while you take quizzes. **You do not need a proctor to take quizzes.**
- **There are four deadlines (one deadline for each unit and one deadline for the final exam) to finish your work.**
- You will **need a proctor** to supervise your tests and the final exam. Details are given later in this syllabus. But you do not need a proctor to take quizzes.
- Upon finishing each unit you will need to take a unit examination and a comprehensive final examination will conclude the course. **Please pay attention to the following deadlines**.

Note: The course was originally developed to go parallel with the 3rd edition of the book. So the quizzes are labeled after sections of the 3rd edition. But the 4th edition contains some changes. For example, Quiz 1.5 is based on "Section 1.5 – More on Functions" in 3rd edition. But that section has been moved to Section 2.1 in the 4th edition. So in order to take Quiz 1.5, you must study Section 2.1 in the 4th edition. A chart showing the comparison of two editions is given later in the syllabus.

The following table lists the twelve weeks and the sections you will need to complete. All work for Unit 1 is due by **June 21st** at 10:00 p.m. All work for Unit 2 is due by **July 19th** at 10:00 p.m. All work for Unit 3 is due by **August 12th** at 10:00 p.m. The comprehensive final examination must be completed by **August 14th** at 10:00 p.m. You may work ahead if you want to complete the course work sooner. If you finish each unit one week before the deadline for that unit, you may be eligible for some make-up (extra credit) work on that unit. The following schedule will help you keep up with the work.

Below is a suggested schedule for the work in this course. Students who work at a constant pace tend to make better grades than those who try to hurry through or leave it all to the last minute. You are encouraged to finish your assignments before their deadlines.

Unit	Week of	Chapters and Sections (and quizzes)
Unit 1	May 25	(R.1, R.2, R.3, R.4 in the 3rd ed) (R.1, R.2, R.3, R.4 in the 4th ed)
	June 1	(R.5, R.6, R.7, 1.1 in the 3rd ed) (R.6, R.7, R.5, 1.1 in the 4th ed)
	June 8	(1.2, 1.3, 1.4, 1.5 in the 3rd ed) (1.2, 1.3, 1.4, 2.1, in the 4th ed)
	June 15	(1.6, 1.7 in 3rd) (2.2, 2.3, 2.4 in the 4th ed)
		Unit 1 (quizzes R.1 through 1.7 and Exam 1) by June 21 (10:00pm)
Unit 2	June22	(2.1, 2.2, 2.3, 2.4 in the 3rd ed) (1.5, 3.1, 3.2, 3.3 in the 4th ed)
	June 29	(2.5, 2.6, 3.1 in the 3rd ed) (3.4, 3.5, 1.6, 4.1 in th 4th ed)
	July 6	(3.2, 3.3, 3.4, 3.5 in the 3rd ed) (4.2, 4.3, 4.4, 4.5, in the 4th ed)
	July 13	(3.6, 3.7 in the 3rd ed) (4.6, 2.5 in the 4th ed)
		Unit 2 (quizzes 2.1 through 3.7 and Exam 2) by July 19 (10:00pm)
Unit 3	July 20	(4.1, 4.2, 4.3 in the 3rd ed) (5.1, 5.2, 5.3 in the 4th ed)
	July 27	(4.4, 4.5, 4.6 in the 3rd ed) (5.4, 5.5, 5.6 in the 4th ed)
	August 3	(5.1, 5.2, 5.3 in the 3rd ed) (6.1, 6.2, 6.3 in the 4th ed)
	Aug 10	(5.4, 5.5, 5.6 in the 3rd ed) (6.4, 6.5, 6.6 in the 4th ed)
		Unit 3 (quizzes 4.1 through 5.6 and Exam 3) by August 12 (10:00 pm)
	Aug 14	Comprehensive Final Exam by August 11 (10:00 pm)

Your Grade: Each Unit Examination (three exams) will be worth 20% of the semester grade. Homework quizzes will be worth 20% of the semester grade. The comprehensive final exam will be worth 20% of the semester grade.

90.00 – 100   = A   80.00 – 89.99 = B   70.00 – 79.99 = C   60.00 – 69.99 = D
Below 60.00   = F

Exams and Proctors

All exams will be taken with the *Assessments Tool*. **A proctor will be required for all exams, but not for quizzes. All exams are "closed book/closed notes."** But you are allowed to use a graphing calculator. Each exam requires a different password to open it. Proctors should request passwords from the instructor (aluthge@marshall.edu) several days before an exam is to be administered. Homework quizzes are open book/open notes quizzes. These can be found on the menu bar under Assessments. It is the responsibility of the student to find a proctor to proctor his or her exams. Please fill out and email me the "Proctor Information Form" found on the homepage of the course. Do this immediately. You or your proctor can email the "Proctor Information Form' at aluthge@marshall.edu or fax it to the number (304) 696 4646 (Attn: Aluthge).

On-Campus Requirements

There is absolutely no requirement that you come to campus. You can communicate with me via the course *Mail* tool or the *Who's Online* tool. All of your assignments are submitted electronically through the course *Assignments Tool* and all exams are timed and taken online through the *Assessments Tool.*

Course Policies

There are deadlines for the completion of each exam. Quizzes and exams will not be available after the deadlines. The course is divided into 3 units with exams at the end of each unit. **A proctor in needed to administer each unit exam and the final exam. It is up to the student to find a proctor. Each proctor must be approved by the instructor before any passwords will be released.** Qualified proctors include educators, librarians, ministers, work supervisors, and other reliable **non-relatives (or friends)**.

Resources

Don't hesitate to contact me directly with questions or concerns. You can reach me through the VISTA *Mail* Tool or if necessary by phone at 304.696.3050. Please don't let your questions hang out there and simmer. If you are not sure about something the best thing to do is to ask about it right away! Something that may seem obvious to me may not be obvious to you at all!

Support Services
 Marshall University offers a variety of support services to students enrolled in online courses:

Tutoring Center Online   Writing Center Online   Libraries   Textbook Service   Disabled Student Services   Campus Resources   Technical Help   VISTA Help

Dr. Ari Aluthge, Marshall University, College of Science, Department of Mathematics

In order to study for the quizzes, use this chart

Quiz Number (3rd ed)	Topics	Section in 4th ed
R.1	The Real-Number System	R.1
R.2	Integer Exponents, Scientific Notation, and Order of Operations	R.2
R.3	Addition, Subtraction, and Multiplication of Polynomials	R.3
R.4	Factoring	R.4
R.5	Rational Expressions	R.6
R.6	Radical Notation and Rational Exponents	R.7
R.7	The Basics of Equation Solving	R.5
1.1	Introduction to Graphing	1.1
1.2	Functions and Graphs	1.2
1.3	Linear Functions, Slope, and Applications	1.3
1.4	Equations of Lines and Modeling	1.4
1.5	Increasing, Decreasing, and Piecewise Functions; Applications	2.1
1.6	The Algebra of Functions, The Composition of Functions	2.2, 2.3
1.7	Symmetry and Transformations	2.4
2.1	Linear Equations, Functions, Zeros, and Models	1.5
2.2	The Complex Numbers	3.1
2.3	Quadratic Equations, Functions, Zeros, and Models	3.2
2.4	Analyzing Graphs of Quadratic Functions	3.3
2.5, 2.6	Solving Rational and Radical Equations, Solving Rational and Radical Equations	3.4, 3.5
2.6	Solving Linear Inequalities	1.6
3.1	Polynomial Functions and Modeling	4.1
3.2	Graphing Polynomial Functions	4.2
3.3	Polynomial Division: The Remainder and Factor Theorems	4.3
3.4	Theorems about Zeros of Polynomial Functions	4.4
3.5	Rational Functions	4.5
3.6	Polynomial and Rational Inequalities	4.6
3.7	Variation and Applications	2.5
4.1	Inverse Functions	5.1
4.2	Exponential Functions and Graphs	5.2
4.3	Logarithmic Functions and Graphs	5.3
4.4	Properties of Logarithmic Functions	5.4
4.5	Solving Exponential and Logarithmic Equations	5.5
4.6	Applications and Models: Growth and Decay; Compound Interest	5.6
5.1	Systems of Equations in Two Variables	6.1
5.2	Systems of Equations in Three Variables	6.2
5.3	Matrices and Systems of Equations	6.3
5.4	Matrix Operations	6.4
5.5	Inverses of Matrices	6.5
5.6	Determinants and Cramer's Rule	6.6