General Syllabus for M122 College Algebra - Adopted Fall 2009

Text: College Algebra in Context by Harshbarger and Yocco, 3rd edition; Addison-Wesley, 2010.

MyMathLab (Coursecompass) (required): An online homework, tutorial, and assessment system. An access code will be bundled with new textbooks purchased at the bookstore or can be purchased separately at www.coursecompass.com. Students will be required to complete homework assignments using MyMathLab (on any computer on campus, at home, or elsewhere).

Calculator (required): TI-83 or 84 preferred. TI-89 or similar are NOT allowed because they have algebraic systems. Note: Spreadsheet solutions in the text can be ignored.

General Comments:
The prerequisite for M122 is M117 Intermediate Algebra or placement from testing. It is important to prevent students who place into M117, but enroll in M122 from controlling the pace of the course. We chose this textbook because of its emphasis on applications and modeling, early introduction of functions, and coverage of topics that are used frequently in M119, Brief Survey of Calculus.

This text is "application driven". The end of each section has a "Skills Check" set of traditional drill type problems followed by an "Exercise" set of application type problems.

We also have our own supplemental worksheets for the following sections which you should use:

- 3.1: Using the Standard Form of a Quadratic Function
- 5.3: Solving Exponential and Logarithmic Equations and Applications
- 6.5: Solving Rational Equations

Although this text thoroughly integrates the use of the graphing calculator, students are expected to master and demonstrate on tests their ability to solve problems analytically. **Students who do not master the analytical skills will struggle with the algebra skills necessary for M119.** Tests should include some questions which require students to show their work analytically, giving minimal credit for answers from the calculator with no work shown. Also, be sure your **chapter exams include many problems "in context" like the "exercise" problems.**

A review for the M122 Final Exam is available: http://homepages.ius.edu/pmiller/ReviewForFinals.htm
This is a super-set of problems of the type that could be on the final exam. The review should not be reduced to a sample final by telling students exactly which problem types will actually be on the exam.

Grading: There are three requirements for grading:
1. The MyMathLab computer homework assignments should be about 10% of the course grade.
2. The departmental Final Exam must be at least 25% of the course grade.
3. Students who score below 60% on the final exam may not receive a grade higher than a "C" for the course.

These should be clearly stated on your syllabus. Instructors are responsible for grading the exams for his/her own class; the completed final exams, a summary of grades, and a copy of the grade report from OnCourse or OneStart must be returned to the math department.

Sections to be covered:

Each chapter begins with an "Algebra Toolbox" section that provides the prerequisite skills needed for the successful completion of the chapter. You can decide how much time and homework (if any) you want to use on this "review" material.

Chapter	Sections	Comments
1	1 - 4	Sec. 1.4: Students should find equations of lines without using the "STAT" key on their calculator in this section.
		Sec. 1.4: skip the difference quotient.
2	1 - 4	Sec. 2.3: Focus on solving applications with substitution and graphing. Skip the elimination method.
3	1 - 4	Sec. 3.2: Completing the square is optional and skip complex solutions. Sec. 3.3: Solving absolute value equations is optional.
4	1 - 4	Sec. 4.4: Radical equations that require repeated raising to powers can be solved graphically. Solving absolute value inequalities is optional.
5	1 - 5, 7	Be sure to supplement 5.3 with handouts.
		Skip Sec. 5.6
		Sec. 5.7: skip Gompertz functions.
6	1 - 3, 5-6	Sec. 6.5: Skip slant asymptotes for rational functions
		Sec. 6.6: Rational inequalities not involving < 0 or >0 may be solved graphically.

Syllabus for M122 College Algebra

Instructor:	**Class Time & Location:**
Office:	**Voice Mail Number:**
Office Hours:	**E-mail:**

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MyMathLab (required): An online homework, tutorial, and assessment system. An access code will be bundled with new textbooks purchased at the bookstore or can be purchased separately at www.coursecompass.com

Calculator (required): TI-83 or 84 graphing calculator is preferred. TI-89 or similar are NOT allowed because they have algebraic systems.

Prerequisites: M117 Intermediate Algebra or placement by exam

Course Objectives: By the end of this course, students should be able to:

- Analyze and interpret functions and graphs.
- Solve linear, quadratic, radical, exponential, logarithmic, polynomial and rational equations and inequalities
- Use algebra to solve real life applications from business and economics, life and social sciences.
- Model data using linear, quadratic, power, exponential, logarithmic, logistic, cubic, and quartic functions.
- Use graphing calculator technology to solve problems and model data.

Grading Policy: *In addition to other policies outlined by each instructor:*

1. The computer homework assignments must be between 5% and 10% of the course grade.
2. The Departmental Final Exam must be at least 25% of the course grade.
3. Students who score below 60% on the final exam may not receive a grade higher than a "C" for the course.

Attendance Policy: Attendance is a key factor in academic success. Class attendance is required. Illness is usually the only acceptable excuse for absence from class. Other absences must be explained to the satisfaction of the instructor, who will decide whether missed assignments may be made up. A student absent from class bears full responsibility for all material covered in class. *Individual instructors can include particular requirements and/or penalties for absences.*

Makeup Policy:

Homework Policy:

Review for the Final Exam: http://homepages.ius.edu/pmiller/ReviewForFinals.htm

Students with Disabilities: If you have specific physical, psychological or learning disabilities and require accommodations, please let me know early in the semester so that your learning needs may be appropriately met. You will need to provide documentation of your disability to the Coordinator of Disability Services located in University Center South Room 006, 941-2243. Additional information about the Office of Services for Students with Disabilities may be obtained at: http://www.ius.edu/ASC/DisabilityServices/

Studying for the Class: This is a college class and is much different than one taught in high school. We cover a lot of material and have limited time in class. **You should expect to spend at least two hours studying outside of class for each hour spent in class.** You cannot expect to master the material from just seeing it explained and working in class. An important part of your learning of the material will be the time you spend working out of class.

Help Outside of Class:

- **Math Lab**: Location: Physical Sciences, Room 015; phone: 812-941-2670. Students may walk in and use the facilities at any time (free of charge) without an appointment. Tutor schedule is online at http://www.ius.edu/mathlab/ and the bulletin board by the lab. "MyMathLab" can be used on the computers in the lab or elsewhere on campus.
- **Addison-Wesley Tutor Center:** Addison-Wesley's Math Tutor Center is staffed by college-level math instructors who can help you with what you're learning by phone, fax, email, or interactive web. Visit the Tutor Center's registration page to sign up for tutoring. When asked for a registration number, simply provide your MyMathLab course ID or student access code. http://www.aw-bc.com/tutorcenter/registration.html
- **Private Tutors:** Please visit the Student Development Center, Knobview Hall, Room 233, to sign-up for a tutor. Most students get a tutor within 24 hours. The cost is $5.00 per hour (non-refundable) and must be paid for in advance. For more information go to: http://www.ius.edu/sdc/main/assist1.htm

Bad Weather Policy: When there is bad weather in the area, a decision is made about whether the campus should be closed or open on a delayed schedule as soon as possible. The decision is independent of the decisions of school corporations and the other colleges in the area. Off-campus classes do not meet if campus is closed or if the school building in which they are held is closed.

Delay Schedule:

Monday through Friday classes:
8 a.m. classes meet from 10 a.m. until 10:55 a.m.
9:30 a.m. classes meet from 11 a.m. until 11:55 a.m.
11 a.m. classes meet from 12 noon until 12:55 p.m.
Other classes meet at regular times.

Saturday Classes:
Morning classes meet from 10:30 a.m. until 12 noon.
Afternoon classes meet at regular times.

Daily Schedule: *This is only a suggestion. As long as you cover the sections indicated during the semester, you may organize the schedule as you wish.*

Day	Sections	
1	1.1	Functions and Models
2	1.2	Graphs of Functions
3	1.3, 1.4	Linear Functions; Equations of Lines
4	2.1	Algebraic and Graphical Solutions of Linear Equations
	2.3	Systems of Linear Equations in Two Variables
5	2.2	Fitting Lines to Data Points; Modeling Linear Functions
6	2.4	Solutions of Linear Inequalities
7	Review	
8	Exam 1	
9	3.1	Quadratic Functions; Parabolas.
	3.2	Solving Quadratic Equations (Factoring Graphing)
10	3.2	Solving Quadratic Equations (Square Root Method and Quadratic Formula)
	3.4	Quadratic Models (power models next class)
11	3.3	Piecewise-Defined Functions and Power Functions
	3.4	Power Models
12	4.1	Transformations of Graphs and Symmetry
	4.2	Combining Functions (composite functions next class)
13	4.2	Composite Functions
	4.3	Inverse Functions
14	4.4	Additional Equations and Inequalities
15	Review	
16	Exam 2	
17	5.1	Exponential Functions
18	5.2	Logarithmic Functions
19	5.3	Exponential and Logarithmic Equations; Properties of Logarithms
20	5.3	Supplement Solving Equations and Applications
21	5.4	Exponential and Logarithmic Models
22	5.5, 5.7	Exponential Functions and Investing; Logistic Functions
23	Review	
24	Exam 3	
25	6.1, 6.2	Higher Degree Polynomial Functions; Cubic and Quartic Models
26	6.3	Solutions of Polynomial Equations
	6.6	Polynomial Inequalities (Rational Inequalities next class)
27	6.5	Rational Functions and Equations
	6.6	Rational Inequalities
28	Review for Final Exam	
29	Comprehensive Final Examination: time & date	