

**Math 118 Elementary Algebra II 5 Units**  
**Room: MSA 011 Section:1483**

**MTWTh 9:35-10:50**  
**Spring 2015**

**Instructor: William J. Bucher Office: MSB 207 e-mail: [bucherw@wlac.edu](mailto:bucherw@wlac.edu)**

**Office Hrs: 7:30-8:00 MTWTh in D 105 and 12:30-3:30 PM MW MSB 207; or by appointment.**

**Office Phone: (310) 287-4211 Note: It is better to use the e-mail so there is a written record.**

**Course Description:**

This course parallels the second half of the first year of algebra course in high school, with additional topics. Course covers rational expressions, radicals and roots, graphs of linear and quadratic equation and linear systems.

**Math Program SLO—Student Learning Objectives**

- 1.) Apply quantitative thinking processes using basic mathematical operations (addition, subtraction, multiplication, division) to solve common academic, workplace and family problems. (Theme: Mathematical Operations)
- 3.) Use mathematical tools essential for analyzing quantitative problems and for producing solutions. (Theme: Mathematical Tools)
- 5.) Select appropriate math strategies for solving and handling real life problems involving finance, economics, and family issues. (Theme: Mathematical Problem-Solving)

**Math 118 SLO—Student Learning Objectives**

- 1.) Solve problems involving uniform motion, business applications, work, and mixtures.
- 2.) Use algebraic techniques to manipulate polynomials, rational expressions, and radical expressions to produce solutions to equations and inequalities
- 3.) Use graphical techniques (coordinate geometry) and sequential strategies to analyze and solve problems involving uniform rates of change.

**Specific Learning Objectives:**

Upon satisfactory completion of the course, a student will be able to:

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- 1.) Simplify a wide variety of numerical expressions using the properties of real numbers and the order of operations.

- 2.) Know and accurately use formulas pertaining to a wide variety of geometric configurations.
- 3.) Evaluate and simplify a wide variety of variable expressions.
- 4.) Translate and simplify a wide variety of natural language expressions into algebraic expressions.
- 5.) Solve a wide variety of linear equations in one variable.
- 6.) Find the solution set of a wide variety of linear inequalities in one variable.
- 7.) Solve a wide variety of application word problems including: Integer Problems, Coin-Stamp Problems, Geometry Problems, Retail Business Problems, Investment Problems, Mixture Problems, and Uniform Motion Problems.
- 8.) Graph linear equations in two variables—lines.
- 9.) Find the slope and x- and y-intercepts of lines.
- 10.) Find the equation for a line given certain essential information about the line, i.e., slope, y-intercept, two points, etc.
- 11.) Graph the solution set for linear inequalities in two variables.

Math 118--New

- 12.) Solve systems of linear equations by the graphing, substitution, and addition methods.
- 13.) Solve application problems by using systems of linear equations.
- 14.) Distinguish between a function and a relation—understand the concepts of domain and range.
- 15.) Perform operations on polynomials.
- 16.) Factor a wide variety of polynomials.
- 17.) Use factoring to solve polynomial equations.
- 18.) Perform operations on algebraic fractions—rational expressions.
- 19.) Simplify complex algebraic fractions.
- 20.) Solve equations involving rational expressions.
- 21.) Solve application problems that involve using proportions.
- 22.) Solve literal equations for a specified variable.
- 23.) Perform operations with radical expressions.
- 24.) Simplify radical expressions.
- 25.) Solve equations involving radical expressions.
- 26.) Solve applications problems that involve radical expressions.
- 27.) Solve quadratic equations by taking square roots, completing the square, and using the Quadratic Formula.
- 28.) Solve applications problems that involve quadratic expressions.
- 29.) Perform operations with Complex Numbers.
- 30.) Graph quadratic equations of the form  $y = ax^2 + bx + c$ , i.e., determine the orientation of the parabola, its vertex and intercepts and sketch a reasonably accurate graph.

**Textbook: Beginning Algebra, Aufmann, Barker & Lockwood, Houghton Mifflin Co. ,7<sup>th</sup> ED, 2002. The book is available through the Book Rental Program. The Book Rental Program is located in MSB 223.**

**Schedule:** See Tentative Schedule Page

**Homework,  
Quizzes,  
Tests &  
Grading:**

1.) Homework assignments from the text and/or in the form of supplements will be given every day. We shall discuss the assigned problems at the beginning of each class period. Not all of the homework will be collected. Certain of designated problems will be collected at the end of each week. I will spot check 4 randomly chosen problems. A simple score of 1-10 will be given on these chosen problems. Collectively, they will make up 6% of your final course grade. **Doing all the assigned exercises and solving problems outside of class is where you learn the most!** Some effort should be made to keep this “done” homework in an organized fashion. It is very useful when studying for tests and quizzes

2.) There will be a short quiz every week. These will really be short, i.e., 10-15 minute duration. The purpose of these quizzes is to guarantee that the student stays current with the class lectures and activities. There will be approximately 14-15 of these quizzes. I will throw out your 3 worst quizzes in computing your average quiz score. The remaining quizzes will make up 12% of your final course grade. **There will absolutely be no makeup quizzes!**

3.) There will be 4 tests. These will be of full period duration. See schedule for approximate dates. Makeup examinations will be given only to those students possessing **documented valid excuses. Advanced notice is mandatory.** Don't miss an examination and then show up. Call or write me ahead of time and make an arrangement to take the test. In order to be fair to the students who took the exam as scheduled, makeup examinations will always be substantially more difficult than the original. Each of the four examinations will be worth 12% of your final course grade, making a total of 52% for all four exams.

4.) The final examination will be a departmentally designed, comprehensive examination. This exam will be worth the remaining 30% of your final course grade. This is heavily weighted so it is extremely important that the student do well on this examination in order to do well in the course.

### Summary

Collected Homework	6%
Quizzes (approx 15, throw out worst 3)	12%
Tests ( 4 at 12% each)	52%
Final Examination	<u>30%</u>
Total	100%

**Note about Attendance:** If you miss more than 4 meetings (a week) of the course, the instructor has the option of excluding you from the course. I generally will contact you, if you reach this limit, but be aware of the fact that I will utilize this option at the earliest possible date. Once you have been excluded, there will be no reinstatement.

### Note about Grading Scale:

I use a straight scale:	100-90% A
	89-80% B
	79-68% C
	67-55% D
	54-00% F

In very unusual circumstances, some norming will be done, but usually my quizzes and tests are straightforward and there is no need to norm.

### Calculators:

In this and future courses, the use of calculators is permitted and encouraged. I advise you to buy a scientific graphing calculator with statistical capabilities. **You may not use your cell phones as calculators during quizzes or examinations!!! REPEAT: No cell phone will be allow on tests or quizzes. Get a calculator!!**

### Cell Phones:

**Cell phone use is strictly forbidden in the classroom.** If you possess a cell phone, it must be set on silent vibrate mode. If you absolutely must take an emergency call, please exit the classroom quietly and do so outside.

### Academic Dishonesty

Cheating or plagiarism will not be tolerated. Any cases of either will be referred to the Dean of Students for disciplinary action. For more on acceptable behavior, read *Standards of Student Conduct* on page 119 of the Schedule of Classes