**Marshall University**

**Syllabus**

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| Course Title/Number  | **MTH 127: College Algebra – Expanded**  |
| Semester/Year | Spring 2014 |
| Days/Time | MTWTrF 3:00 – 3:50 |
| Location | Smith Hall 513 |
| Instructor | Rob-Roy Mace |
| Office | Smith Hall 743E |
| Phone | 304.696.7040  |
| E-Mail | mace22@marshall.edu |
| Office/Hours | MTWTr 4:00pm – 5:15pm |
| University Policies | By enrolling in this course, you agree to the University Policies listed below. Please read the full text of each policy be going to [www.marshall.edu/academic-affairs](http://www.marshall.edu/academic-affairs) and clicking on “Marshall University Policies.” Or, you can access the policies directly by going to <http://www.marshall.edu/academic-affairs/?page_id=802> Academic Dishonesty/ Excused Absence Policy for Undergraduates/ Computing Services Acceptable Use/ Inclement Weather/ Dead Week/ Students with Disabilities/ Academic Forgiveness/ Academic Probation and Suspension/ Academic Rights and Responsibilities of Students/ Affirmative Action/ Sexual Harassment  |

**Course Description: From Catalog**

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| A brief but careful review of the main techniques of algebra, including but not limited to polynomial, rational, exponential, and logarithmic functions; graphs; systems of equations; etc. |

The table below shows the following relationships: How each student learning outcomes will be practiced and assessed in the course.

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| **Course Student Learning Outcomes**  | **How students will practice each outcome in this Course** | **How student achievement of each outcome will be assessed in this Course** |
| Students will succeed in higher math classes, such as Trigonometry and Calculus. | Discussions, group work, board work, homework | Comprehensive final exam covering concepts encountered in higher math courses. |
| Students will see themselves as possessing the ability to understand and explain basic algebra concepts. | Discussions, group work, board work, homework | Participation in group quizzes, and presentation/explanation of homework solutions to classmates |
| Students will think critically. | Discussions, group work, board work, homework. | Tests and quizzes, including problems requiring synthesis of many ideas to solve unseen problems |

**Required Texts, Additional Reading, and Other Materials**

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| 1. **College Algebra** by Sullivan, 9th Edition.
2. Graphing calculator, such as a TI-83 or similar.
3. Access to the internet to complete online homework.
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**Grading Policy**

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| Grades will be determined on a percentage basis with five 50 minute exams (each worth 10% of final grade), a comprehensive two hour final exam (worth 20%), a variety of in class activities such as quizzes, projects, board work (worth 15%), and online work (worth 15%).  Final Grade Scale: A: 100-90% B: 89-80%  C: 79-70%  D: 69-60%  F: 59-0%  |

**Attendance Policy**

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| Attendance **is required**. Unexcused absences from **nine** classes will result in a reduction of one letter grade for the semester; unexcused absences from  **twelve or more** classes will result in an F. Y**ou will not be allowed to take quizzes or exams, turn in homework, etc. unless you are in class**. If an excused absence results in missing quiz/exam/hw, then a make-up date (*within one week of absence*) must be scheduled with course instructor. Excessive use of cell phone or sleeping during class will be counted as an unexcused absence. Consult your handbook regarding university excused absences. |

**Course Topics**

To provide an understanding of functions: familiarity with major classes of functions, function operations, and graphing functions; solving equations and inequalities; solving systems of equations. To prepare students for success in calculus and statistics courses.

**Course Schedule**

 **Important Dates:**

 1/20/14 **MLK, Jr. Day – University Closed**

 3/10/14 **Freshman Midterm D and F Grades Due**

 3/28/14 **Last Day to Drop a Full Semester Course**

 3/17/14 – 3/22/14 **Spring Break – No Classes**

 4/28/14 – 5/2/14 **Dead Week**

 5/5/14 **Final Exam Day (3:00-5:00 p.m.)**

 **Tentative Calendar**

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| MTH 127Course Calendar (subject to change) - MTWRF Class Spring 2014 |
|   |   |  |   |   |   |
|   | Monday | Tuesday | Wednesday | Thursday | Friday |
| Week 1 |   |   |   |   |   |
| 1/12 - 1/18 | Syllabus, Course Overview | Number, Fraction, Exponent | Number cont., Real Number Line, Area, Variable | Variable cont., Volume | Quiz |
| Week 2 |   |   |   |   |   |
| 1/19 - 1/25 | NO CLASS | Functions (3.1) | Graphs of Functions (3.2) | Properties of Functions (3.3) | Quiz |
| Week 3 |   |   |   |   |   |
| 1/26 - 2/1 | Coordinate System (2.1), Distance Formula, Midpoint Formula | Graphs (2.2), Intercepts, Symmetry | Lines (2.3), Circles (2.4) | Review | Quiz |
| Week 4 |   |   |   |   |   |
| 2/2 - 2/8 | Modeling with Functions (The Box Problem, 3.6)  | Group Presentations of The Box Problem, Discussion of Quality in Proposed Solutions/Proof | Practice Exam | Review | **TEST 1** |
| Week 5 |   |   |   |   |   |
| 2/9 - 2/15 | Library of Functions (3.4), Transformations (3.5) | Linear Functions (4.1), Linear Models (4.2) | Quadratic Functions (4.3), Quadratic Models (4.4) | Review | Quiz |
| Week 6 |   |   |   |   |   |
| 2/16 - 2/22 | Quadratic Equations (1.2), Complex Numbers (1.3) | More on Lines (2.3 cont.) | Focus on Graphing Lines and Parabolas | Group Work on Linear and Quadratic Models | Practice Exam |
| Week 7 |   |   |   |   |   |
| 2/23 - 3/1 | Review | **TEST 2** | Polynomial Functions and Models (5.1) | Leading Term Test, Output Behavior as Input Approaches Infinity | Quiz |
| Week 8 |   |   |   |   |   |
| 3/2 - 3/8 | Rational Functions (5.2) | Output Behavior as Input Approaches Infinity/Asymptotes |  Graph of a Rational Function (5.3) | Review | Quiz |
| Week 9 |   |   |   |   |   |
| 3/9 - 3/15 | Real Zeros of a Polynomial Function (5.5) | "Tough Problems | Practice Exam | Review | **TEST 3** |
| Week 10 |   |
| 3/16 - 3/22 | SPRING BREAK |
| Week 11 |   |   |   |   |   |
| 3/23 - 3/29 | Composite Functions (6.1), One-to-One and Inverse Functions (6.2) | Focus on Inverse Functions and Exponential Functions (6.3) | Logarithmic Functions (6.4) | Properties of Logarithms (6.5) | Quiz |
| Week 12 |   |   |   |   |   |
| 3/30 - 4/5 | Logarithmic and Exponential Equations (6.6) | Logarithmic and Exponential Models (6.8) | Solving Various Equations (1.4 + Other) | Board Work | Practice Exam |
| Week 13 |   |   |   |   |   |
| 4/6 - 4/12 | Review | **TEST 4** | Linear Equations (1.1) | Solving Equations Graphically | Quiz |
| Week 14 |   |   |   |   |   |
| 4/13 - 4/19 | Systems of Linear Equations (8.1) | Board Work | Systems of Linear Equations, Matrices (8.2) | Board Work | Quiz |
| Week 15 |   |   |   |   |   |
| 4/20 - 4/26 | Problem Solving Stategies (1.7) | "Tough" Problems | Practice Exam | Review | **TEST 5** |
| Week 16 |  |
| 4/27 - 5/3 | Review Test1 | Review Test 2 | Review Test3 | Review Test 4 | Review Test 5 |
| Week 17 |   |   |   |   |   |
| 5/4 - 5/10 | FINAL EXAMS |