**Marshall University**

**MTH 127 Syllabus**

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| Course Title/Number  | **College Algebra / MTH 127 Sec 106 (CRN 3126)** |
| Semester/Year  | Fall 2017  |
| Days/Time  | MWF / TR 1:00pm - 1:50pm |
| Location  | SH 418 / SH 624 |
| Instructor  | Shannon Miller-Mace |
| Office  | SH 741B |
| Phone  | (304) 696-3697  |
| E-Mail  | miller207@marshall.edu  |
| Office/Hours  | SH 741B/MT 9:00 – 12:00, or by appointment  |
| University Policies  | By enrolling in this course, you agree to the University Policies listed below. Please read the full text of each policy by going to 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**

A brief but careful review of the main techniques of algebra. Polynomial, rational, exponential, and logarithmic functions. Graphs, equations and inequalities, sequences. (Prerequisite: ACT 17-20, or MTH 099, or MTH 102/102B).

# Courses that have MTH 127/130 as a prerequisite:

* Graduation Requirement for College of Business
* MTH 122 - Trigonometry, MTH 132 - Precalculus, MTH 140 - Applied calculus

CHM 111, CS 110, CI 248, ENGR 221, IST 420/421, PS 109, PHY 101, PHY 201

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

1. College Algebra with Integrated Review ISBN: 978-1-944894-97-9 (with textbook) or 978-1-944894-98-6 (with e-book only)
2. Free student account for Desmos website.
3. TI-30 Calculator or equivalent. Cell phone or smart device calculators are not permitted.
4. Computer with internet access to MUOnline, Hawkes Learning System, and Desmos.

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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** |
| Identify and implement appropriate solution methods for single-variable equations | Online homework, written assignments, in-class activities | Course exams and common final |
| Identify and graph standard algebraic functions | Online homework, written assignments, in-class activities | Course exams and common final |
| Interpret graphs of functions | Online homework, written assignments, in-class activities | Course exams and common final |
| Construct functions to model applications | Online homework, written assignments, in-class activities | Course exams and common final |
| Communicate written mathematics using appropriate notation and explanation where appropriate | Online homework, written assignments, in-class activities | Course exams and common final |

**Attendance Policy**

Attendance is required in the MWF portion of our course order to complete the variety of in-class assignments assigned each day. Attendance is also required on TR lab days to be able to complete in lab activities. Only University excused absences will warrant make-up assignments or tests.

**Course Requirements / Due Dates**

Students will utilize Hawkes Learning System ([www.learn.hawkeslearning.com](http://www.learn.hawkeslearning.com)) for the **Learn and Practice** portion of each lesson, as well as Desmos ([www.desmos.com](http://www.desmos.com)) to complete **Activities** related to those lessons. Students will be assessed by completing **Certifications** ([www.learn.hawkeslearning.com](http://www.learn.hawkeslearning.com)) in the Hawkes Learning System and taking **Tests** in class.

1. **Activities:** The “activities” portion of the course will contain items from our MWF in-the-classroom experience like activities, challenge questions, quizzes, individual worksheets, lecture discussion, etc. All of these grades, including the Desmos Activities, will count toward the activities portion of your grade.
2. **Certifications:** Many assignments have prerequisite sections that must be completed prior to attempting the assignment. These prerequisites are review and reinforcement of mathematical topics that support the material you are learning in class. They are listed on the course schedule as “Prep work” and you should read through the “Learn” screens and attempt the assignments prior to the lab day they are assigned for. **All assignments must be completed this semester, even if you have some certifications from previous semesters.**
3. **Tests:** There will be three midterm exams as outlined in the course schedule. Exam dates are September 13, October 11, and November 8 for classes with TR Lab.
4. **Common Final Exam:** The common final exam for MTH 127 will take place on **Saturday December 9** from 2-4 pm. You may use the required calculator for the course (TI-30), but no other assistance (formula sheets, notebooks, phones, or other internet connected devices) will be permitted. **You must bring your own calculator or do without. There will be NO sharing of calculators permitted during the exam.**

**Grading Policy:**

Activities make-up 15% and Certifications will be worth 20% of the semester grade. Each Unit Test (three tests) will be worth 15% and the Comprehensive Final Exam (one exam) will be worth 20% of the semester grade.

A = 90 – 100%

B = 80 – 89%

C = 70 – 79%

D = 60 – 69%

F = Below 60%

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| Activities | 15% |
| Certifications | 20% |
| Test 1 | 15% |
| Test 2 | 15% |
| Test 3 | 15% |
| Common Final Exam | 20% |
| **Total** | **100%** |

**\*The Final Exam for this course is scheduled for Saturday, December 9th, 2017 at 2:00pm.\***

# Course Content:

1. Solving equations in one variable of the following types
	1. linear equations and inequalities, basic equations with absolute value
	2. quadratic equations with real and complex solutions (factoring and quadratic formula only - omit completing the square)
	3. equations with rational expressions
	4. equations with radicals
	5. equations with exponential and/or logarithmic expressions
2. Basic Functions
	1. definition of “function”, “domain”, and “range”
	2. graphing lines
	3. linear and quadratic functions and their applications
	4. identification of other common functions graphically
	5. graphing functions with translation and reflection (no stretching/compressing)
	6. identifying symmetry in functions (even/odd)
3. graphically determine where a function is increasing, decreasing, and constant
4. composition of functions and inverse functions
5. Polynomial and rational functions
	1. finding zeros of factored polynomials
	2. finding polynomials satisfying given zeros and end behavior
	3. basic graph sketching including end behavior at *±∞*
	4. intermediate value theorem
	5. equations of asymptotes - vertical and horizontal (no oblique)
6. Exponential and logarithmic functions and
	1. basic properties of exponential functions and their graphs
	2. basic properties of logarithmic functions and their graphs
	3. applications of exponential and logarithmic functions (focus on financial applications: Compound interest)
7. Systems of equations
	1. solving systems of linear equations in two variables using substitution and elimination