**Marshall University**

**MTH 130 Syllabus**

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| Course Title/Number  | **College Algebra / MTH 130 Sec 112 (CRN 3152)** |
| Semester/Year  | Fall 2017  |
| Days/Time  | WEB COURSE |
| Location  | MUOnline, Hawkes Learning Systems, and Desmos |
| Instructor  | Shannon Miller-Mace |
| Office  | SH 741B |
| Phone  | (304) 696-3697  |
| E-Mail  | miller207@marshall.edu  |
| Office/Hours  | SH 741B/MW 9:30 – 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 Math 21 or above)

# 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. Access code for Hawkes Learning Systems purchased with the e-book or textbook College Algebra book, 2nd Edition, by Paul Sisson.
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 | Learn and Practice on Hawkes Learning System and activities on Desmos  | Certifications on Hawkes Learning System and tests on MUOnline |
| Identify and graph standard algebraic functions | Learn and Practice on Hawkes Learning System and activities on Desmos  | Certifications on Hawkes Learning System and tests on MUOnline |
| Interpret graphs of functions | Learn and Practice on Hawkes Learning System and activities on Desmos  | Certifications on Hawkes Learning System and tests on MUOnline |
| Construct functions to model applications | Learn and Practice on Hawkes Learning System and activities on Desmos  | Certifications on Hawkes Learning System and tests on MUOnline |
| Communicate written mathematics using appropriate notation and explanation in English | Learn and Practice on Hawkes Learning System and activities on Desmos  | Certifications on Hawkes Learning System and tests on MUOnline |

**Attendance Policy**

There is no attendance policy for this online course. However, all assignments, activities, certifications and tests have strict due dates that must be met.

**Course Requirements / Due Dates**

Students will utilize an MUOnline/Blackboard course to access 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 MUOnline ([www.muonline.marshall.edu](http://www.muonline.marshall.edu)).

Learn, Practice, Activities, and Certifications are rolled out as the semester progresses and are open book/open notes assignments. A course schedule will be embedded in the MUOnline course to provide a suggested steady pacing through the weekly material. Tests are closed book/closed notes assessments, and to help preserve the integrity of the course, will be taken in one of two ways 1) using Respondus Lockdown Monitor with webcam or 2) setting up a proctoring session on campus. (see Proctoring Information link in MUOnline).

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| **MTH 130 Tentative Due Dates** |
|  | **Course Content** | **Due Date (11:59 pm)** |
|  | **Unit 1** |  |
| **Week 1** | Learn, Practice, Activities, and Certifications | *Sunday, August 27th*  |
| **Week 2** | Learn, Practice, Activities, and Certifications | *Sunday, September 3rd*  |
| **Week 3** | Learn, Practice, Activities, and Certifications | *Sunday, September 10th* |
| **Week 4** | Learn, Practice, Activities, and **Unit 1 Test** | *Sunday, September 17th*  |
|  | **Unit 2** |  |
| **Week 5** | Learn, Practice, Activities, and Certifications | *Sunday, September 24th*  |
| **Week 6** | Learn, Practice, Activities, and Certifications | *Sunday, October 1st*  |
| **Week 7** | Learn, Practice, Activities, and Certifications | *Sunday, October 8th*  |
| **Week 8** | Learn, Practice, Activities, and **Unit 2 Test** | *Sunday, October 15th*  |
|  | **Unit 3** |  |
| **Week 9** | Learn, Practice, Activities, and Certifications | *Sunday, October 22nd*  |
| **Week 10** | Learn, Practice, Activities, and Certifications | *Sunday, October 29th*  |
| **Week 11** | Learn, Practice, Activities, and Certifications | *Sunday, November 5th*  |
| **Week 12** | Learn, Practice, Activities, and **Unit 3 Test** | *Sunday, November 12th*  |
|  | **Unit 4** |  |
| **Week 13** | Learn, Practice, Activities, and Certifications | *Sunday, November 19th*  |
| **Week 14** | Learn, Practice, Activities, and Certifications | *Sunday, December 3rd*  |
| **Week 15** | Learn, Practice, Activities, Certifications, and **Comprehensive Final Exam** | ***Saturday, December 9th*** |

**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%** |

# 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