**Marshall University**

**MTH 130 Syllabus**

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| Course Title/Number | **College Algebra / MTH 130 Sec 207 (CRN 3934)** |
| Semester/Year | Spring 2018 |
| 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/MT 9:30am – 12:00pm, 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.

**Class Structure / Course Requirements / Due Dates**

Students will utilize an MUOnline/Blackboard course participate in **Discussion Forums** ([www.muonline.marshall.edu)](http://www.muonline.marshall.edu)) and the course content including, Hawkes Learning System ([www.learn.hawkeslearning.com](http://www.learn.hawkeslearning.com)) for the individualized **Learn and Practice** portion of each lesson. Students will also use Desmos ([www.desmos.com](http://www.desmos.com)) to complete individual and peer-to-peer **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** and the **Final Exam** in MUOnline ([www.muonline.marshall.edu](http://www.muonline.marshall.edu)).

**Discussions, Learn, Practice, Activities,** and **Certifications** are rolled out as the semester progresses and are open book/open notes assignments. A course schedule is embedded in the MUOnline course to provide a steady weekly pacing through the material. **Tests** and the **Final Exam** 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).

The Due Dates chart below gives *soft deadlines* for each week to help student pace through the material. **Hard deadlines** exist at the end of each unit and are **bolded** on the chart.

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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, January 14th* |
| **Week 2** | Learn, Practice, Activities, and Certifications | *Sunday, January 21st* |
| **Week 3** | Learn, Practice, Activities, and Certifications | *Sunday, January 28th* |
| **Week 4** | Learn, Practice, Activities, and **Unit 1 Test** | ***Sunday, February 4th*** |
|  | **Unit 2** |  |
| **Week 5** | Learn, Practice, Activities, and Certifications | *Sunday, February 11th* |
| **Week 6** | Learn, Practice, Activities, and Certifications | *Sunday, February 18th* |
| **Week 7** | Learn, Practice, Activities, and Certifications | *Sunday, February 25th* |
| **Week 8** | Learn, Practice, Activities, and **Unit 2 Test** | ***Sunday, March 4th*** |
|  | **Unit 3** |  |
| **Week 9** | Learn, Practice, Activities, and Certifications | *Sunday, March 11th* |
| **Week 10** | Learn, Practice, Activities, and Certifications | *Sunday, March 18th* |
| **Spring Break** | | |
| **Week 11** | Learn, Practice, Activities, and Certifications | *Sunday, April 1st* |
| **Week 12** | Learn, Practice, Activities, and **Unit 3 Test** | ***Sunday, April 8th*** |
|  | **Unit 4** |  |
| **Week 13** | Learn, Practice, Activities, and Certifications | *Sunday, April 15th* |
| **Week 14** | Learn, Practice, Activities, and Certifications | *Sunday, April 22nd* |
| **Week 15** | Learn, Practice, Activities, Certifications, and **Comprehensive Final Exam** | ***Sunday, April 29th*** |

**Grading Policy**

**Learning Activities** make-up 15% of the semester grade and are learning assignments. Students should resubmit until they earn full credit. **Hawkes Certifications** will be worth 20% of the semester grade and are open book, open notes assessments. As long as the required mastery for each section (80-90%) is met, the score will be recorded as 100% in the gradebook. Each **Unit** **Test** (three tests) will be worth 15% and the **Comprehensive Final Exam** (one exam) will be worth 20% of the semester grade. Students have two attempts on semester tests and one attempt for the Final.

Grade Calculation Grade Scale

A = 90 – 100%

B = 80 – 89%

C = 70 – 79%

D = 60 – 69%

F = Below 60%

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| Learning Activities | 15% |
| Hawkes Certifications | 20% |
| Test 1 | 15% |
| Test 2 | 15% |
| Test 3 | 15% |
| Comprehensive 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