

1-2014

## M 121.00: College Algebra

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Instructor	Section	MWF	Room	Office	Phone	Email
Clinch	1	9 am	LA 105	Cor 354	243-4483	<a href="mailto:Adam.Clinch@umontana.edu">Adam.Clinch@umontana.edu</a>
Fouts	2	10 am	LA 302	Cor 359	243-5470	<a href="mailto:Cody.Fouts@umontana.edu">Cody.Fouts@umontana.edu</a>
Lask	3	11 am	GBB 205	Cor 367	243-4469	<a href="mailto:Elizabeth.Lask@umontana.edu">Elizabeth.Lask@umontana.edu</a>
Bjorlie	5	1 pm	MATH 211	Cor 357	243-5470	<a href="mailto:Soya.Bjorlie@umontana.edu">Soya.Bjorlie@umontana.edu</a>
Grilli	6	2 pm	NAC 103	Cor 356	243-4483	<a href="mailto:Michael.Grilli@umontana.edu">Michael.Grilli@umontana.edu</a>

**Math Learning Center (MLC):** Room Math 011 (basement); Mon–Thurs: 10–3pm, Friday: 10am–noon  
Starting Feb. 3<sup>rd</sup>, also at the Mansfield Library Main Floor; Mon–Thurs, 6:30–9pm  
More information at <http://www.umt.edu/math/MLC/>.

**Office Hours (for all instructors):** TBA (see <http://www.math.umt.edu/souza/oh.pdf>)

**Office Hours for Dr. Souza (Coordinator):** Mo: 3:10–4pm, Tu: 11:10–12pm, We: 1:10–2pm,  
Fri: 9:10–10pm, or by appointment.

**Contact information for Dr. Souza:** Room MA 104, 243-2166, [Regina.Souza@umontana.edu](mailto:Regina.Souza@umontana.edu)

**Text (bundled with access code to online homework):** *College Algebra, Trigonometry and Precalculus*, UM Custom 2<sup>nd</sup> ed., Connally, Hughes-Hallett, et al. (available at the bookstore). A used book will not be a good deal for you, since it does not include the access code. You can buy just the code ([www.wileyplus.com](http://www.wileyplus.com)) if you do not care for a paper copy of the book (the code gives you access to an electronic version of the book). If you are a returning student, please use your previous login information (and you won't need to purchase a new book nor a new code).

**Graphing Calculator:** A graphing calculator is required. Class demos will be given with a TI-83 or TI-84.

**Course Description:** (adapted from <http://www.umt.edu/catalog/cat/cas/math.html>)

**M 121 (MATH 111) College Algebra 3 cr.** Offered autumn and spring. Prereq. M 095 (MAT 100) or Aleks placement  $\geq 4$ . Intended to strengthen algebra skills. The study of functions and their inverses; polynomial, rational, exponential, and logarithmic functions. Credit not allowed for both M 121 (MATH 111, MAT 118), M 151 (MATH 121, MAT 120).

The central theme of College Algebra is functions as models of change. This course fulfills the prerequisites for M 122 (College Trigonometry) and for M 162 (Applied Calculus).

**Learning Goals:** Upon completion of this course, a student will be able to:

- Use factoring to solve, find zeros or x-intercepts of polynomial functions.
- Solve linear, quadratic, exponential and logarithmic equations and use them to solve applied problems.
- Use function notation; identify domain, range, and intervals of increasing/decreasing/constant values.
- Find zeros, asymptotes, and domain of rational functions.
- Evaluate and sketch graphs of piecewise functions and find their domain and range.
- Use algebra to combine functions and form composite functions, evaluate both combined and composite functions and determine their domains.
- Identify one-to-one functions, find and verify inverse functions, and sketch their graphs.
- Graph linear, polynomial, radical, rational, exponential and logarithmic functions.

**Course Content:**

1. Graphs, Functions and Applications (Functions and Graphs, Linear equations and Functions, Applications, Increasing, Decreasing, and Piecewise Functions, Algebra of Functions, Composition of Functions, Inverses, Concavity, Quadratic Functions)
2. Exponential and Logarithmic Functions (Inverse Functions, Exponential and Logarithmic Functions and their Graphs, Exponential and Logarithmic Equations, Applications)
3. Transformation of Functions and Their Graphs (Shifts, Vertical Stretches and Compression)
4. Power, Polynomial and Rational Functions (Short and Long-Run Behavior, Graphs, Comparing Power, Exponential and Logarithmic Functions, Fitting Exponentials and Polynomials to Data, Applications.)

## Grading and Policies

**Grading:** Your course grade will be based on 3 exams, a common final exam and other activities:

Three midterm tests (100 points each; Feb 19, Mar 26 & Apr 30)	300 points (50%)
Other activities (homework, quizzes, projects, etc...)	150 points (25%)
Cumulative Final Exam (all sections Tue, May 13, 6-8 pm)	150 points (25%)

≥ 93%	≥ 90%	≥ 87%	≥ 83%	≥ 80%	≥ 75%	≥ 70%	≥ 65%	≥ 62%	≥ 58%	≥ 55%	< 55%
A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F

M121 must be completed **with a C- or better** to fulfill the math literacy requirement. Taking it with the Cr/No Cr option will not fulfill the requirement.

### Information you might find useful:

**Prerequisite:** M 095 with a grade of C- or better taken less than a year ago or Aleks placement level 4.

**In-class activities:** In my experience, regular attendance is essential to successfully complete this course.

**“Doing math”:** One of the best ways to learn mathematics is to **do** mathematics. Instructors will provide opportunities for doing math in class; and will assign written and online homework (which will give you immediate feedback). Register and login at [www.wileyplus.com](http://www.wileyplus.com), then go to “assignments”. Check with your instructor about his/her policies regarding homework and quizzes. Most students spend about 6 hours a week outside of class for study and homework. In my experience, it is best to do this in 1–2 hour sessions each day and not in a marathon all one day. Study groups or a study partner work well for many students.

**Reading the text:** Here are some strategies: reading the authors’ introductory remarks to get a feel for the material, redoing examples on your own and comparing your solution with the authors’ approach, using the *Student Study Guide* (found under “Read, Study and Practice” on WileyPLUS), reading the “Summary” or the “Check Your Understanding” problems at the end of each chapter, or create your own summary and review.

**One-on-one interaction:** Besides seeing your instructor, you may also interact with other instructors and classmates at the Math Learning Center (MLC) in the basement of the Math building (MATH 011). For some of us this is the most effective (and most fun) way to learn math.

**Web Pages:** <http://www.math.umt.edu/souza/M121> (a link can be found in the Math Department’s web page).

### Miscellaneous policies and information:

**Disabilities:** Students with disabilities are welcome to discuss accommodations with me. More information can be found at the website of the Disabilities Services for Students (DSS): <http://life.umt.edu/dss> . Disability Services now requires one week’s notice for scheduling exams.

**Make-ups:** Exam make-ups will be given under special circumstances (illness, UM-sponsored travel, family emergency, etc.) Please make arrangements as soon as you know you will miss an exam. Early finals (Monday, May 12 or earlier on Tuesday, May 13) will be given only under exceptional circumstances; and need the approval of the course coordinator.

**Academic Policies:** Petitions to drop between April 8 and May 9 must be approved by the Dean of the student’s major. Incompletes may be given only if a student has been in attendance and doing passing work up to 3 weeks before the end of the semester. Acceptable reasons for late drops and incompletes are listed in the 2013/2014 student catalog: <http://www.umt.edu/catalog/acad/acadpolicy>

**Misconduct:** All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University.

**Student Conduct Code:** All students need to be familiar with the Student Conduct Code. You can find it in the “S” section of the “A to Z Index” on the UM home page (<http://umt.edu>).