Fall 9-1-2018

M 121.03: College Algebra

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M 121 (College Algebra) **Fall 2018** **Course Coordinator: Regina Souza**

Section	MWF	Room	Instructor (Click for email)	Office
3	11 am	LA 106	Rick Darnell	MATH 002

Walk-in Tutoring Centers: Math Learning Center (MLC) and Math@UC (click for location/hours).

Office Hours: Mo: 2-4 pm; Wed: 2-3 pm; Th 9 am -12 pm; or by appointment

Course Coordinator: Dr. Souza: Room MA 104, 243-2166, Email: Regina.Souza@umontana.edu
Office Hours for Dr. Souza: Mo, Wed: 2-2:50pm; Tue: 4-4:50pm, Th: 10-10:50am, or by appointment.

Text book:

Precalculus: An investigation of functions (copies posted on Moodle). Check the Open Textbook Store for electronic versions and solutions manuals, or Lulu for a printed copy ($8 plus shipping and handling)

Graphing Calculator

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

Course Description

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). Offered autumn and spring. Prereq., M 095 or ALEKS placement >= 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, and M 151.

This section will work on a "flipped classroom" model, meaning that I will assign readings and videos for you to read and watch BEFORE class, followed by activities and instruction during class time where you will be working with your peers on the material individually, and in small groups.

Learning Outcomes

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

- Demonstrate conceptual understanding of functions and solve problems using four different points of view: geometric (graphs), numeric (tables), symbolic (formulas), and written (verbal descriptions and interpretations).
- Be flexible and have the ability to choose between these points of view when solving problems such as evaluating functions; solving equations; identifying where a function is increasing, decreasing, positive, or negative; finding domain and range, intercepts, slope, vertex, concavity, symmetries, end-behavior, and asymptotes.
- Create graphs when given a formula; write a formula when given a graph.
- Build new functions from existing ones: using transformations, composition, and the algebra of functions. Identify when a function has an inverse, identify domain and range, and compute a formula for the inverse, when possible.
- Describe real world situations using linear, quadratic, piecewise, polynomial, power, rational, exponential and logarithmic functions, and interpret functions and their parameters in real word contexts.

General Education Learning Outcome: Upon completion of the mathematical literacy requirement, a student will be able to apply effectively mathematical or statistical reasoning to a variety of applied or theoretical problems.

Course Content

1. - *Graphs, Functions, Applications* (Function Notation, Linear Functions, Equations of Lines, Applications, Solving Linear Inequalities, Increasing, Decreasing, and Piecewise Functions, Algebra of Functions, Composition of Functions, Symmetry and Transformations; Quadratic Functions)

2. - *Exponential and Logarithmic Functions* (Inverse Functions, Exponential and Logarithmic Functions and their Graphs, Exponential and Logarithmic Equations, Applications)
3. - *Polynomial and Rational Functions* (Short-run Behavior, Graphs, Comparing Power, Exponential and Logarithmic Functions, Fitting Exponentials and Polynomials to Data, Applications.)

Grading Policies

Your course grade will be based on 3 midterm exams, a common final exam and other activities. A tentative schedule was distributed in class, is available on Moodle or in the course webpages.

Assignments	Points and Percentages
Three midterm exams (100 points each; schedule TBA)	300 points (50%)
Other activities (homework, WeBWorK, quizzes, in-class activities, etc.)	150 points (25%)
Cumulative Final Exam (all sections Tuesday, Dec 11, 5:30-7:30 pm)	150 points (25%)

Grading scale:

≥ 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 M121 with the Credit/NoCredit option will not fulfill prerequisite requirements either.

Some Strategies to Complete This Course Successfully

- **Check you have the prerequisites:** you need an Aleks placement level 4, M02 ≥ 12 or consent of instructor.
- **Regular attendance:** give support to and get support from your classmates and instructor during class.
- **Read the textbook both before and after the topics are covered in class:** read the authors' introductory remarks to get a feel for the material, take the reading assessment if your instructor provides one, or use the ``Check Your Understanding" problems at the end of each chapter. Redo examples on your own and then compare your solution with the authors' approach. Read the ``Summary'' or create your own summary before you start your homework.
- **"Do math":** One of the best ways to learn mathematics is to do mathematics. Each class will have both written homework and online WebWorK assignments. Expect at least 2 hours of work outside class every day.
- **Get some one-to-one interaction:** take advantage of your instructor's regular office hours (also available by appointment), meet with tutors or with your classmates at the Math Learning Center (in the Math building, Room Math 011) or Math@UC, create a study group or find a study partner. For some of us this is the most effective (and most fun) way to learn math.
- Use course webpages or login to the Moodle supplement for more information.

Some General University Policies

- **Make-ups:** Exam make-ups will be given only 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, December 10 or earlier on Tuesday, December 11) will be given only under exceptional circumstances; and need the approval of the course coordinator.
- **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://www.umt.edu/dss/). Disability Services now requires one week's notice for scheduling exams.

- Important Dates/Deadlines (click for links): Petitions to drop between October 30 and December 7 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. See these and other policies in the student catalog.
- **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. See Student Conduct Code.