Spring 2-1-2022

M 121.03: College Algebra

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M 121 – College Algebra – Spring 2022

Basic Information:

- Masks are required in the classroom, and all other building on Campus.
- Covid vaccine is strongly advised. We are not implementing social distance protocols. We will take attendance, but at this moment Missoula County Health Department will not collect seating charts to assist in conducting contact tracing.
- If you feel sick and/or are exhibiting COVID-19 symptoms, please do not come to class; contact the Curry Health Center at (406) 243-4330. If you are in quarantine or isolation, contact your instructor for alternative ways of receiving and submitting course materials, and your advisor for resources or assistance.

Section	CRN	Meeting Times: MWF	Room	Instructor (email)
1	31079	9 – 9:50 AM	MATH 103	Howard Grotts
2	31080	10 – 10:50 AM	LA 204	Ryan Wood
3	31081	11 – 11:50 AM	LA 244	Van Magnan

Course Coordinator: Regina Souza
Email: regina.souza@umontana.edu
Office Phone: 406-243-2166 (for leaving voicemail messages; email is preferred)
Appointments: You can email me, leave a voice message, or use the booking calendar on my webpage.

Course Catalog 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.

Learning Outcomes

Upon completion of this course, students 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 Outcomes

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.

Required Textbook

Chapters 1-4 of *Precalculus: An Investigation of Functions (Edition 2.1)* by David Lippman and Melonie Rasmussen (free to download). You can download it from the website directly or from a folder to Moodle. You can also access an e-book online from LibreTexts. **If you prefer a bound printed copy, order it as soon as possible (use the first link above).**

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)
2. *Exponential and Logarithmic Functions* (Inverse Functions, Exponential and Logarithmic Functions and their Graphs, Exponential and Logarithmic Equations, Applications)
3. *Polynomial and Rational Functions* (Quadratic Functions, Short-run and Long Run Behavior of Polynomial and Rational Functions, Graphs, Formulas, Applications.)

Policies for Remote Quizzes, Tests, and the Final (if needed)

There will be a separate document, available on Moodle under "Course Information". It will describe the policies for remote exams if the situation changes and we need them.

Calculators

Calculators can be a useful tool for mathematics, making computations less tedious and aiding in exploration of sound mathematical intuition. However, we must be careful. Relying too heavily on calculators can hinder the development of reasoning, estimation, and mental mathematics skills. Plus, it's important to be able to trust your own brain's computational power. Calculators can make mistakes too, and you will never find these mistakes unless you can do enough math in your head to say "That doesn't look right …" For these reasons, **calculators will *not* be allowed on in-class exams**. In class, projects, possibly take-home assessments, and on homework, we will make computations and graphs with Desmos and WolframAlpha. Geogebra is also a good tool (apps can be downloaded and used offline).

Course Calendar

Dates	**Topic**
January 26 (5 pm)	Last day students can add a course on CyberBear without consent of instructor
February 7 (5 pm)	Last day to drop a course on CyberBear or change grading option to audit
February 18	**Test 1**
March 29 (5 pm)	Last day to add/drop course by paper without Dean's approval.
April 1	**Test 2**
April 29	**Test 3**
May 6 (5 pm)	Last class day, and last day to petition to drop/add and change to CR/NCR
May 10 (5:30-7:30pm)	**Cumulative final exam**; **Tuesday evening; same time for all Sections**

Grading Policy

Item	Percentage of Course Grade
Reading Quizzes (Moodle)	10%
WeBWorK (online homework)	15% (10% problem sets; 5% review for tests)
Quizzes	10%
Projects	10%
Participation and Attendance	5% (Attendance and additional Moodle Assignments)
Three midterm exams	30% (10% each)
Cumulative final exam	20%
Showing progress at the end / flexibility	The scaled score of the final exam can replace one of the other 10% items when computing the course final grade.

Grade Scale

Cutoff Percentage:	93%	90%	87%	83%	80%	75%	70%	65%	62%	58%	55%
Grade:	A	A-	B+	B	B-	C+	C	C-	D+	D	D-

Some strategies to complete this course successfully

Check you have the prerequisites

You need an Aleks placement level 4, M02 $\geq$ 14, consent of instructor, or completion of M 100.

Check this course is relevant to your educational goals

Take this course because you are interested in learning the material, because you have a purpose. It is hard to stay motivated otherwise.

Prepare (Read the Textbook and Complete the Reading Quizzes)

Before a new topic is introduced, you will be asked to read the section and to work on a Moodle quiz. The intended learning outcome is to increase your skills of retrieving mathematical information from a textbook, and to learn to assess how much you understand. The last quiz question will be a request for feedback, opening up the lines of communication between each individual student and the instructor.

Practice Together (Attend Classes and Engage in the Learning Activities)

Showing up regularly to class is the key to successfully completing this course. You will be given a chance to practice with your instructor and classmates right there with you. Attendance will be part of your grade; we will also be checking attendance for contact tracing.

Daily Individual Practice (Complete the WebWorK Assignments)

One of the best ways to learn mathematics is to do mathematics. Regular online homework assignments (on WeBWorK) are due Monday, Wednesday and Friday at 11:59 PM and the day before a test, at 8 PM. Please complete each assignment to the best of your ability 24 hours prior the deadline so you can identify any issues you would like to be discussed (in class, via email, in the Math Learning Center, or maybe with a classmate) before the homework closes. Expect at least 2 hours of work outside class every day.

Integration (Complete the Projects, Practice Tests and Review Assignments)

After we understand something piece by piece, it is time to construct an overview picture. The projects are designed to apply what you learned, using mathematical models (functions) to enrich your understanding of a particular case scenario. The requirement is to approach it from multiple points of view: conceptually (verbally), graphically, numerically (tables), symbolically (formulas) and report

(without any mathematical lingo) on what new information you have uncovered. The practice tests and review assignments will require you to choose a strategy for a particular problem (a skill quite different from the one required when you are doing your daily homework, where most of the time the skill required maybe in the previous page of the textbook, or is similar to something was discussed in class). These activities are best if started individually, and then discussed with others.

Get Support and Stay in Contact with your Instructor and Classmates

Form study groups, take advantage of the Math Learning Center, contact your instructor. To me, this is the main difference between learning from taking a class and learning from searching information on the WeB or in a textbook. Please let us know if you need to be absent as soon as possible (especially if you would miss an assignment).

Assessments (Quizzes, Midterm Exams and Final Exam)

Reading Quizzes

Due usually Sunday, Tuesday and Thursday on Moodle (the day before a new topic starts)

Quizzes

Weekly, mostly Fridays, taking about 15-20 minutes of class.

Projects

Total of 4 projects during the semester (see schedule overview)

Midterm Exams

There will be three 50-minute in-class exams during the semester; part of it will need to be completed at home. If you have a legitimate schedule conflict with an exam, please let me know as early as possible.

Final Exam

The final exam is held at the same time for all sections: Tuesday, May 10 from 5:30 to 7:30 PM. This time is *not* listed in the official final schedule for the course. By enrolling in this course, it is understood that you will be present for the final exam; let us know if you have a conflict. The in class final exam score is worth 20% of your final grade (30% if you choose to take advantage of the flexibility policy).

Course Guidelines and Policies

No recordings of class meetings are planned at this time

Please DO NOT come to class if you are experiencing Covid symptoms. Let your instructor know as soon as possible. We will work out an individual plan for you to learn while in quarantine.

Classroom and Course-related Behavior

University policy requires that all of us in the classroom treat each other with respect, and refrain from behavior that will disrupt the educational process. Please refrain from using any electronics during class that are not directly related to what we are doing. If you would prefer to be called by a **different name, or gender pronoun**, than listed on the course roster, please let your instructor and classmates know.

Student Conduct Code

All students need to be familiar with the Student Conduct Code. You can find it in the “A to Z” index on the UM home page. In particular, discrimination and harassment are not tolerated at the University of Montana. If you feel that you have been subjected to discriminatory or harassing behavior, please

contact the Office of Equal Opportunity and Title IX at 243-5710 or read UM's Policy on Discrimination, Harassment, Sexual Misconduct, Stalking, and Retaliation for help in addressing the situation. You can also report the discrimination or harassment to me or to another faculty member or advisor you trust.

Academic Honesty

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.

Disability Modifications

The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and the Office for Disability Equity (ODE). If you anticipate or experience barriers based on disability, please contact the ODE at: (406) 243-2243, ode@umontana.edu, or visit www.umt.edu/disability for more information. Retroactive accommodation requests will not be honored, so please, do not delay. As your instructors, we will work with you and the ODE to implement an effective accommodation, and you are welcome to contact us privately if you wish.

Statement on Digital Access

Digital devices (like laptops and cell phones) are becoming increasingly important to success in college. In this course, you may need digital devices to access readings, complete and submit written assignments, complete online quizzes, verify your attendance, take in-class polls, and more. I recognize that some students are unable to afford the cost of purchasing digital devices and that other students rely on older, more problem-prone devices that frequently break down or become unusable. I also recognize that those technology problems can be a significant source of stress for students. Given those challenges, I encourage students to contact me if they experience a technology-related problem that interferes with their work in this course. This will enable me to assist students in accessing support.

Due Dates and Late Work

Extensions for Reading Quizzes and Webwork Assignments: If you cannot meet a deadline for a good reason, contact your instructor before the due date has passed, and we will usually be able to give you an extension. (If this policy is abused and we receive too many extension requests, we might have to modify this policy and only grant extensions in cases of documented illness or other exceptional circumstances beyond your control.) **Except in exceptional circumstances, quizzes/exams must be taken at their scheduled time.** If you know you have a conflict with a quiz/exam, please contact me or your instructor **early** to see what arrangements can be made.

UM Resources to support academic, wellness, and other basic needs

Personal Wellness

- ASUM Bear Necessities supports students experiencing basic needs insecurity. Services include assistance with the difficulties including but not limited to housing, food, and financial insecurity. Bear Necessities is in UC 118 or can be contacted by calling (406) 243-2017.
- Wellness Center offers programs and services on a variety of topics impacting health and wellbeing including stress management, healthy sexuality, safe partying, tobacco cessation, safe sex, exercise, and mindful eating. The Wellness Center is at the East entrance of Curry Health Center, Room 112 or can be contacted by calling (406) 243-2809.
- Curry Health Center: Provides quality, affordable, accessible health care for students.
    - Call (406) 243-2122 to schedule a tele-health appointment with medical or counseling. Individual therapy includes a no cost initial consultation and up to 12 sessions per academic year (for $25 per session, group counseling is free).

    - Be Well at Home
    - What to do if I think I have been exposed to COVID-19? (scroll down the page)
- Campus Rec: Keep up with your fitness workouts! Check out the Campus Rec website for modified hours and classes available.
- University of Montana Emergency Student Support Fund: Established to help enrolled students with unexpected crisis or hardship created by COVID-19.
- UM Food Pantry: Currently providing free meal kits and hygiene products for students, staff, faculty, and community members. Provides food, personal care items, and SNAP application assistance to students. The Food Pantry is in UC 119 and can be contacted by emailing umpantry@mso.umt.edu or calling (406) 243-5125.
- Student Advocacy Resource Center (SARC) supports students and their right to an academic setting free from discrimination, unwelcome physical, sexual, emotional or social coercion, and provides services to listen, believe, assist, and support students who may be facing these issues. The SARC office is located at Curry Health Center, Room 108 or can be contacted by calling (406) 243-4429 and the twenty-four (24) hour crisis line number is (406) 243-6559.

Academic Support

- Advising Center and Tutoring Resources: Schedule advising or tutoring appointments, available online or by phone. Tutoring available for math, writing, public speaking, Study Jam groups, and TRiO services.
- Office for Disability Equity: Ensures students receive appropriate accommodations, services, and assistance to fully access the campus programs and facilities.
- Writing and Public Speaking Center: Provides help at any point with writing, presentation, and research projects. Online and in-person appointments available.
- Office for Student Success (OSS): Helps students to meet three goals: transition smoothly to college, remain enrolled and progress in a program of study, and graduate in a timely manner.
    - OSS COVID-19 Website
    - Download the OSS Online Student Success Guide or condensed Student Success Checklist

Technical Support

- The UM IT Help Desk is available to provide technical support from 8AM-5PM, M-F.
    - For help with email, UMBox, Zoom, or other technical issues:
        - Call 406-243-HELP
        - Submit a ticket by emailing ithelpdesk@umontana.edu or by filling out the General Help/Questions request form.
    - For help with Moodle:
        - Call 406-243-HELP
        - Submit a ticket by emailing umonline-help@umontana.edu or by filling out the Moodle Help request form.
    - View UM IT's Self-Help Articles.

Land Acknowledgement

The University of Montana acknowledges that we are in the aboriginal territories of the Salish and Kalispel people. Today, we honor the path they have always shown us in caring for this place for the generations to come.