THE UNIVERSITY OF UTAH

Math 1050: College Algebra
Summer Semester 2024
MW, 6:00 – 7:50 PM, Room 107 of Sandy Campus

Instructor: John Nordstrom
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Office Hours: before and after class
Zoom Office Hours: TBD

Required Materials
The textbook for this course is available at no cost over Canvas.

Course Description
This course covers functions, inverses, and graphs; polynomial, rational, radical, exponential, and logarithmic functions; systems of equations and matrices; applications; arithmetic and geometric sequences and series.

Course Outcomes
1. Sketch the graphs of quadratic and cubic polynomials, rational, radical, exponential, logarithmic, and piecewise functions with or without transformations. Be able to identify important points such as x- and y-intercepts, maximum or minimum values; domain and range; and any symmetry.
2. Given the graph of a function, identify the domain, range, any asymptotes and/or symmetry, x- and y-intercepts, and find a rule for the function if it is obtained from a standard function through transformations.
3. Perform composition of functions and operations on functions
4. Find the inverse of a function algebraically and graphically.
5. For polynomial, rational exponential, and logarithmic functions, identify the x-intercepts, asymptotes, end behavior, and domain from algebraic and graphic representations. Convert back and forth between algebraic, graphical, and verbal representations.
6. Solve polynomial, rational, exponential, and logarithmic equations and inequalities.
7. Represent and interpret physical world situations using exponential and logarithmic functions.
8. Define i as the square root of -1 and know the complex arithmetic necessary for solving quadratic equations with complex roots.
9. Perform matrix arithmetic computations.
10. Solve systems of linear and non-linear equations in two or three variables, including the use of Gaussian elimination and matrix inverses in the linear case.
11. Understand sequences and be able to differentiate between geometric, arithmetic, and others such as Fibonacci-type sequences, giving direct formulas where available or a numeric representation.
12. Understand series notation and know how to compute sums of finite arithmetic and finite and infinite geometric series.

Teaching and Learning Methods

The class schedule lists this class as being a lecture course, and that is true as far as it goes. But like any mathematics course, this course will require your active participation to be effective. You will have to do much of the heavy lifting yourself, both in and out of class. You are expected to do the assigned homework, not for any points you might earn, but because:

You *learn* math by *doing* math.

We will spend the first part of every class going over questions from the homework; if you haven't done the homework, you won't know what questions to ask. I will expect you to be active participants in the class, working on problems, and asking questions.

Please don't be afraid to ask questions, either in or out of class. If there is something you do not understand, you can be assured there are other students who are also lost and will appreciate your question.

University Policies

1. ***The Americans with Disabilities Act***. The University of Utah seeks to provide equal access to its programs, services, and activities for people with disabilities. If you will need accommodations in this class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Olpin Union Building, (801) 581-5020. CDS will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in an alternative format with prior notification to the Center for Disability Services.

2. ***University Safety Statement.*** The University of Utah values the safety of all campus community members. To report suspicious activity or to request a courtesy escort, call campus police at 801-585-COPS (801-585-2677). You will receive important emergency alerts and safety messages regarding campus safety via text message. For more information regarding safety and to view available training resources, including helpful videos, visit safeu.utah.edu.

3. ***Addressing Sexual Misconduct***. Title IX makes it clear that violence and harassment based on sex and gender (which Includes sexual orientation and gender identity/expression) is a civil rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veteran's status or genetic information. If you or someone you know has been harassed or assaulted, you are encouraged to report it to the Title IX Coordinator in the Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801-581-8365, or the Office of the Dean of Students, 270 Union Building, 801-581-7066. For support and confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to the police, contact the Department of Public Safety, 801-585-2677(COPS).

4. ***Undocumented Student Support Statement.*** Immigration is a complex phenomenon with a broad impact—those who are directly affected by it, as well as those who are indirectly affected by their relationships with family members, friends, and loved ones. If your immigration status presents obstacles to engaging in specific activities or fulfilling specific course criteria, confidential arrangements may be requested from the Dream Center. Arrangements with the Dream Center will not jeopardize your student status, your financial aid, or any other part of your residence. The Dream Center offers a wide range of resources to support undocumented students (with and without DACA) as well as students from mixed-status families. To learn more, please contact the Dream Center at 801.213.3697 or visit dream.utah.edu.

5. ***Drop/Withdrawal Policies.*** Students may drop a course within the first two weeks of a given semester without any penalties. Students may officially withdraw (W) from a class or all classes after the drop deadline through the midpoint of a course. A "W" grade is recorded on the transcript and appropriate tuition/fees are assessed. The grade "W" is not used in calculating the student's GPA. For deadlines to withdraw from full-term, first-, and second-session classes, see the U's Academic Calendar.

6. ***Student Mental Health Resources***
   - Rates of burnout, anxiety, depression, isolation, and loneliness have noticeably increased during the pandemic. If you need help, reach out to campus mental health resources, including counseling, training, and other support.
   - Consider participating in a Mental Health First Aid or other wellness-themed training provided by our Center for Student Wellness and sharing these opportunities with your peers, teaching assistants, and department colleagues

Course Policies
As mentioned before,

> You *learn* math by *doing* math.

To that end, I expect students to be active participants in the classroom. That means not only being attentive, but also not being distracting. While I encourage questions in the classroom, those questions should be addressed to me or the class as a whole. Talking with your neighbor, even about math, can be distracting to both myself and the rest of the class.

Food & Drink: I'm okay with a small amount of food and drink in the classroom, but it must be quiet and neat food and drink. Quiet because I find random eating noises to be very distracting (and I suspect many of your fellow students do as well). Neat because the Sandy Center is a nice environment for learning and we want to keep it that way. In particular, the Sandy Center requests any drinks be in bottles with secure caps to reduce the chances of damaging spills.

Electronic Devices in Class: Since your textbook is provided in electronic form on Canvas, it seems pretty unreasonable to ban all electronic devices. This is not to say that all activity on electronic devices is allowed. In general, you should limit your use of such devices to taking notes and referencing the textbook. In particular, any activity not directly related to our class and the current lecture is strictly forbidden. Also, class time is *not* the time to be doing your homework.

Communication:

- Most of the course materials, such as lecture slides, assignments, solutions, grades, etc. will be posted on the Course Canvas site. Class announcements will be done via Canvas. You will be responsible for any information contained in them as well as the information announced in class.
- It is also your responsibility to check your Canvas messages regularly. There will be occasions during the semester that we may need to reach out to you individually (e.g. regarding a grade or assignment) and it is in your best interest to respond promptly.
- Feel free to contact me by email or Canvas message. I will do my best to answer emails promptly. I would like to encourage you to email me only if it is something personal that requires individual attention. If instead you have questions about the logistics of the class, course material and assignments, and anything else your classmates may wonder as well, please post a question on the Discussions Board instead. This way the information is shared quickly with the entire class and each of you can benefit from seeing other classmates' questions.
- I will always do my best to ensure the communication relevant to the course is clear and transparent, it is your responsibility as well to keep yourself updated by regularly checking: the announcements on Canvas, your Umail, the posts on the Discussions Board, and pay attention to the announcements given in class and Discussion Section.
- Students are expected to log in and check Canvas every day for posted announcements and assignments. Students are also strongly advised to set up notifications for Canvas so they do not miss any important notifications.

Exam Dates: Below are the planned dates of the exams and what will be covered on those exams. Please note that there is a very real chance that either the date or the content of either of the two midterm exams. The final's date and content will not change. Please note that the final is a comprehensive exam, covering material from throughout the semester.

- Exam 1 (covering chapters 1 and 2): Wednesday, June 12
- Exam 2 (covering chapters 3 and 4): Wednesday, July 17
- Final (comprehensive): Thursday, August 1

Important Dates: The last day to drop the class is Wednesday, May 22; the last day to withdraw from class is Friday, June 21. Please check the academic calendar for more information pertaining to dropping and withdrawing from a course. Withdrawing from a course and other matters of registration are the student's responsibility.

Holidays: There will be no class on May 27, June 17, and July 24.

Approximate Schedule: This is very rough, so use it with caution.

Week #	Monday	Wednesday	Schedule Notes	Sections	Assessments
1	5/13	5/15		1.1-1.3	
2	5/20	5/22		1.3-1.5	Quiz 1
3		5/29	No class on Monday	2.1-2.2	
4	6/3	6/5		2.3-2.6	Quiz 2
5	6/10	6/12		3.1	Exam 1 on 6/14
6		6/19	No class on Monday	3.2-3.3	Quiz 3
7	6/24	6/26		3.3-3.4	Quiz 4
8	7/1	7/3		4.1-4.2	
9	7/8	7/10		4.3-4.5	Quiz 5
10	7/15	7/17		6.1-6.3	Exam 2 on 7/19
11	7/22		No class on Wednesday	6.4-6.5	
12	7/29	7/31		7.1-7.2	
	Thursday 8/1 at 6:00 PM		FINAL EXAM		

Grading Policy (Evaluation Methods & Criteria): The grading scale is the standard one below.

A	**A-**	**B+**	**B**	**B-**	**C+**	**C**	**C-**	**D+**	**D**	**D-**	**E**
≥93%	90-93%	87-90%	83-87%	80-83%	77-80%	73-77%	70-73%	67-70%	63-67%	60-63%	<60%

The numerical grade consists of several components:

- **Homework: 20% of the course grade.** Homework is delivered online through the IMathAS system. These homework assignments will be linked through Canvas and are fully online (no file uploads needed). If you think you have caught a mistake in the online homework assignments, email me with an explanation of what you think is wrong.
- **Quizzes: 15% of the course grade.** There will be weekly quizzes. There are 5 planned quizzes in total. The two lowest quiz scores will be dropped. Quizzes may not be retaken.
- **Midterms Exams: 40% of the course grade.** There will be two midterm exams which are longer than quizzes. The lowest midterm exam score may be dropped and replaced by a higher final exam grade. Each midterm is worth 20%. If you do not take an exam, that score will not be dropped – it's best for you to attempt all the assigned work and exams in the course.
- **Final Exam: 25% of the course grade.** The final exam is a comprehensive exam covering all topics in the course. The final exam grade will replace the lowest midterm score, provided that the final score is greater than the lowest midterm score.

It is the student's responsibility to ensure the accuracy of all recorded homework, quizzes, online assignments, and exam grades. Also, you should keep a record of all your graded assignments. If you see any errors in your grades on Canvas, reach out to the instructor as soon as possible, or at the latest within two weeks from when the assignment was returned.

Syllabus subject to change: This syllabus is meant to serve as an outline and guide for our course. Please note that I may modify it with reasonable notice to you. I may also modify the Course Schedule to accommodate the needs of our class. Any changes will be announced in class and posted on Canvas.