

MATH 1010-072
INTERMEDIATE ALGEBRA
FALL 2018 SYLLABUS

- INSTRUCTOR:** John Nordstrom, Associate Instructor, Continuing Education
- TIME & PLACE:** MW 3:30 PM-5:30 PM – Room 206 [Sandy Campus](#)
10011 Centennial Parkway, Suite 100, Sandy, UT 84070, 801-587-2520
- REQUIRED MATERIALS:** Math 1010 Course Packet, *Fall 2018, A Workbook for Math 1010, A Functional Approach to Intermediate Algebra*. Purchasing information will be sent out by e-mail before the semester starts.
- Turning Technologies QT Response Card, also known as a “clicker”, and an active license to use it. You are not allowed to use a mobile phone instead of a clicker device. The license is on a small piece of paper boxed with the clicker. Keep this paper. Follow directions on Canvas to register your clicker and license. Clicker points start counting towards your grade in Week 2.
- OFFICE HOURS:** Being adjunct faculty, I don’t have a University office; not having an office, I don’t have office hours. I generally try to be available both before and after class to answer any questions you have. I can also be reached by any of following methods (email is preferred):
- Phone:** 801-918-3974 (between 9:00 AM and 9:00 PM)
Email: nordstro@math.utah.edu (anytime) *Note the missing ‘m’ in my name!*
Website: Canvas
- PREREQUISITES:** "C" or better in MATH 990 or MATH 980 OR Accuplacer EA score of 54 or better OR ACT Math score of 18 or better OR SAT Math score of 470 or better.
- A scientific calculator is recommended for this course. Scientific calculators are available for around \$10 that will suffice for this course. Note that graphing calculators and cell phones are not allowed on the exams.
- COURSE DESCRIPTION:** Mathematics is a sense making activity to understand the world we live in. Scientists, social scientists, engineers, business leaders, health care providers, and politicians require a high degree of quantitative literacy to accomplish their goals. In this course, students will become adept at working with linear, exponential, basic logarithmic, quadratic, square root, and power functions, and see how these functions can be used to describe and analyze some of the most difficult problems our society faces. Along the way, functions are used to motivate important topics including evaluating expressions, solving equations and inequalities, graphing, and analyzing graphs.
- EXPECTED LEARNING OUTCOMES:** Upon successful completion of this course, a student should be able to:
1. Work with functions presented in tables, graphs, with algebraic expressions, or in words. Determine if relations presented in any of these formats are functions. The functions covered in this course are linear, exponential, logarithmic, quadratic, square root, power, and n th-root.

2. Find the domain, x -intercepts, y -intercepts, output given input, and input given output for all functions presented with tables, graphs, or algebra. Find the range of functions presented graphically.
3. Know the shapes of the graphs of all the above functions. Be able to recognize when a sufficient portion of the graph is sketched in order to indicate the graph shape.
4. Decide if a given function is linear, quadratic, exponential, or none of the above for functions presented algebraically, graphically, or in tables.
5. Graphing Techniques Vary by Function
 - a. Graph linear functions using either two points or one point and a slope.
 - b. Graph quadratic functions using either of these approaches:
 - i. the x -intercepts and the vertex (or line of symmetry);
 - ii. the vertex and an efficient table (be able to use symmetry and possibly the y -intercept).
 - c. Graph logarithmic functions with no transformations using the meaning of the logarithm.
 - d. Graph exponential and square root functions, when given in transformation form, using efficient tables.
 - e. Graph power functions and n th-root functions with no transformations using tables.
6. Solve linear, quadratic, exponential, logarithmic and square root equations.
 - a. Solve quadratic equations using factoring and the zero-product property, completing the square, and the quadratic formula.
7. Solve linear inequalities and give answers in inequality, interval, and graphical (number line) format.
8. Determine the slope of a line; find the equations of lines given information about them. Decide if lines are parallel, perpendicular, or neither.
9. Solve 2×2 systems of linear equations and functions using graphical and substitution methods.
10. Be able to factor quadratic expressions or decide if they cannot be factored; complete the square.
11. Perform composition of functions presented with tables, graphs, or algebra.
12. Decide if a function presented with a table or graph is invertible and give the inverse in the same format.
13. Find the algebraic inverse of a linear function presented algebraically.
14. Make sense of exponent rules, negative exponents, and rational exponents. Use exponent rules to simplify exponential expressions.
15. Understand n th-roots, rational exponents and the connection between the two. Simplify n th roots and exponential expressions with rational exponents.
16. Construct algebraic models to describe real life situations. Be able to decide what type of model fits a situation best:

- a. Use linear functions to model constant rates of growth.
 - b. Use exponential functions to model constant percent change.
 - c. Use quadratic functions to model constant acceleration.
17. Analyze linear, exponential, and quadratic models to answer questions about the situations they represent. In particular, relate graphical features (like the x - and y -intercepts of all functions or the vertex of a parabola) to specific aspects of the situation being modeled. For quadratics, be able to rewrite the function appropriately in order to find the information desired.

**COURSE
STRUCTURE:**

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 problems and asking questions as we will be work through the course packet in class. Each class you can expect to:

- Work with your partner(s) on the problems in class.
- Have whole class discussions and short lectures on pertinent material.
- Engage in problem solving during class. During these sessions you will work together in groups of two or three. I will be available during each session to help you as necessary. On occasion you may be asked to turn in your work.
- Think about and work on material ahead of time.
- Respond individually to *clicker questions*. These questions, answered using the Turning Technologies "clicker," will be frequently used to check in-class comprehension and to lead the discussions.

These activities are organized for your benefit. Work in class is meant to train you to become better problem solvers, inform you of how well you are understanding the material, and to inform me what we need to focus on. You are required to be in class and engage actively to maximize the benefits of class work. If you prefer to work in your own time, we recommend taking an on-line class that allows this flexibility.

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.

**APPROXIMATE
GRADING:**

Clicker Questions:	7%
Labs	10%
Weekly Quizzes:	10%
Homework:	8%
Three Midterms:	35%
Comprehensive Final:	30%

Please note that this is the *approximate* weight given to each of the components you will be graded on. In particular, I typically give more weight to your final if you do particularly well on it.

My grading scale is the standard one as follows:

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%

I find that I rarely need to curve grades. If I find I need to I will simply shift the scale by a point or two. Note that you must receive at least a 50% or higher on the final exam to receive a grade of 'C' or better for the course.

Unusual circumstances may dictate that we deviate from either the planned number of assignments and tests, or the grading and scoring guidelines as described. Any changes will be announced and discussed in class.

**CLICKER
QUESTIONS:**

Scoring is as follows: A total of 4 points will be awarded for a correct answer. A total of 3 points will be awarded for an incorrect answer. A total of zero points will be awarded if no answer at all is entered. Therefore, it is in your best interest to try to answer each question correctly, but enter your best guess regardless. At the end of the semester, those students who have accumulated 85% of the total clicker points will get the maximum points added to their overall score at the end of the semester. Those falling below the 85% threshold will receive a proportional amount of the maximum points.

LABS:

Lab worksheets are sets of problems written to help you practice course concepts, engage with the material more deeply, and make connections between different topics. Some are intentionally written as reviews for exams.

Scoring is as follows: 5 points for making a reasonable effort and being mostly correct, 3 points for a reasonable effort, 1 point for making a really weak effort, and zero points for not turning a lab in. The lowest lab score will be dropped at the end of the semester.

To get the most out of a lab, it is recommended that you work on the lab with guidance from a Learning Assistant and in a small group. I will give you a lab worksheet every week and collect it the following week. You then have three options to complete it:

- Attend an on-campus Math 1010 lab. You may attend any lab that is on campus that has seating available. When you go, please introduce yourself to the Learning Assistant leading the lab and be prepared to work in groups with other students. At the end, all other students will turn their labs in to the Learning Assistant, but you will keep yours to give to your teacher.
- Complete the worksheet on your own without attending either the Sandy or an on-campus lab.

Attending a lab is recommended, but not required. You may choose different options every week, though you will likely be most helped by trying to have as much continuity as possible.

Please see our Canvas site for more details about checking whether an on-campus lab has space available for off-campus students to attend.

HOMEWORK:

Working through problems and getting feedback on whether your process and calculations are correct is an important part of understanding material. WeBWorK is an online homework website that gives you instant feedback on your work, and allows you as many tries as you need to complete the problems. We will also answer question you have about the homework in class. There will

be two to five assignments every week with due dates announced in class. You will be able to access WeBWorK using links in Canvas.

You will receive credit for each problem you submit. There is no submit button at the end of each assignment; all you do is answer problem by problem. There are certain topics where there are not sufficient WeBWorK problems to practice the material. Paper-based supplements may be assigned and collected in class.

WEEKLY QUIZZES: Short quizzes will be given weekly. These quizzes will be based on the course packet content, WeBWorK, and labs. If you have questions about concepts/problems in any of these, ask about them! The quizzes provide feedback on your understanding of the course material and ability to explain this understanding. Use this feedback to prepare for exams. The lowest quiz score will be dropped at the end of the semester.

MIDTERMS: There will be three one-hour midterms. These tests will be taken in class on the days listed in the Exam Schedule at the end of this syllabus. You can take an alternate midterm if you talk to me about it before the exam occurs. If you miss an exam due to an unforeseeable emergency, contact me as soon as possible with documentation of what happened. Depending on the situation, you may be allowed to makeup the exam.

FINAL: There will be a two-hour comprehensive final. See the Exam Schedule at the end of this syllabus for the date and time of the final.

ONLINE GRADES: I will put your scores online in Canvas. I do my best to update the grades on a regular basis and keep everything accurate. However, I would advise you to check your grades often to make sure there were no data entry mistakes. I'm always happy to correct any mistakes I've made. You just need to let me know. Please realize that while Canvas is pretty good at giving you an average of how you are doing, it always just presenting you with a snapshot of your scores up to that point in time. Each exam, especially the final, can cause major shifts in how you are doing.

If you are new to Canvas, please let me know and I can assist you in logging onto the system.

GETTING HELP: You may find that you need some extra help beyond what the class can provide. The math department has a free tutoring center located on campus in the T. Benny Rushing Mathematics Center (www.math.utah.edu/undergrad/mathcenter.php). For more personalized attention, the ASUU Tutoring Center (www.sa.utah.edu/tutoring) provides both individual and group tutoring at reasonable rates.

RESPONSIBILITIES: All students are expected to maintain professional behavior in the classroom setting, according to the [Student Code](#), spelled out in the Student Handbook. You have specific rights in the classroom as detailed in Article III of the Code. The Code also specifies proscribed conduct (Article XI) that involves cheating on tests, collusion, fraud, theft, etc. Students should read the Code carefully and know you are responsible for the content. According to Faculty Rules and Regulations, it is the faculty responsibility to enforce responsible classroom behaviors, beginning with verbal warnings and progressing to dismissal from class and a failing grade. Students have the right to appeal such action to the Student Behavior Committee.

All students are expected to maintain adult and professional behavior in the classroom. Please respect your classmates by not engaging in distracting behavior, such as:

- excessive talking with your friends (even about math);
- using your phone for anything (voice, text, camera, games...);
- playing with other toys (electronic or otherwise);
- doing your homework while in class;
- eating and drinking (particularly noisy food);
- talking with your friends (there is a reason this bullet is repeated).

While I have tried to be as thorough as possible with the syllabus, situations can change once the semester begins. The syllabus is not a legally binding contract. As instructor, I reserve the right to change any portion of the syllabus provided you are given enough notice.

ACCOMMODATION: 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 the class, reasonable prior notice needs to be given to the [Center for Disability Services](#), 162 Union Building, 581-5020 (V/TDD). CDS will work with you and me to make arrangements for accommodations. All information in this course can be made available in alternative format with prior notification to CDA.

If you have any special needs or requests, please let me know. There is a good chance that we find a solution that meets your needs. Please let me know, discreetly, if you have any sort of phobia, anxiety disorder, TBI, PTSD, C-PTSD, or other challenge that would cause psychological harm to be called on in class. While I want students to feel mentally stretched during class, especially while working on problems as a large group, I definitely don't want to cause any human being harm. So, please tell me if that is the case for you and I will confidentially accommodate your request.

**CLASSROOM
SOCIAL EQUITY:**

I strive to be ethical, kind, fair, inclusive, and respectful in my classroom and expect students to behave similarly. Please let me know if there is a name you prefer to be called by. Likewise, please inform me of whichever pronouns you prefer me to use for you. I will put great effort into honoring your request and ask that you correct me if I do happen to make a mistake.

I would greatly appreciate if you would let me know if I inadvertently offend you in any way. I will take corrective action immediately. While I want this semester to be a challenging semester, I do not want it to be a painful semester for anyone.

IMPORTANT DATES:

Be sure to consult the official [Academic Calendar](#) for other important dates and to make sure there are no changes from these dates.

First classMonday, August 20
Last day to add/dropFriday, August 31
Labor Day (no class).....Monday, September 3
Fall Break (no class)October 7-14
Last day to withdrawFriday, October 19
Last classWednesday, December 5

EXAM SCHEDULE:

Midterm 1Monday, September 17
Midterm 2Monday, October 22
Midterm 3Monday, November 19
Final (comprehensive)Wednesday, December 12
from 3:30 – 5:30 PM

This is a departmental final, which means all students in all Math 1010 classes, both on and off campus, take the final exam on the same day and at the same time, instead of during the slot that is assigned based on class meeting time. You are required to take it at this time, unless you have multiple finals scheduled for the same time slot. If this applies to you, inform me by the deadline given in class. (Tardy notification of your instructor may result in a penalty on your exam). For all other students, make school/work/family arrangements at the start of the semester to be able to take the common final.