MATH 1010-071 Spring 2019 Intrm Algebra

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Math 1010 - Intermediate Algebra (4 cr)

Spring 2019 Syllabus

Instructor: Tom Brennan   **Location** Sandy Campus, Room 107

Class meetings: Tuesday and Thursday 5:30 to 7:30 PM

Office Hours: Before and after class

E-mail address: tombrennan@waterfordschool.org

Website: Canvas

Required Materials:

- Math 1010 Course Packet, *A Workbook for Math 1010, A Functional Approach to Intermediate Algebra*. Purchasing information will be sent out by e-mail before the semester starts.
- Consult with your instructor on a topic-by-topic basis for additional online resources.

Dates:

Mon 1/7 First Day of Class	Tues 2/5 Exam 1
Fri 1/18 Last Day to Add/Drop	Tues 3/6 Exam 2
Fri 1/18 Last Day to Elect CR/NC or Audit	Tues 4/7 Exam 3
Mon 1/21 Martin Luther King Jr. Day Holiday	
Mon 2/18 Presidents' Day Holiday	
Fri 3/8 Last Day to Withdraw	
Sun-Sun Mar 10-17 Spring Break	
Fri 4/19 Last Day to Reverse CR/NC option	

Tues 4/23 Last Day of Class

Thurs 4/25, 3:30-5:30 pm, Final Exam

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.

PREREQUISITES: "C" or better in (MATH 980 OR Math 990) OR Accuplacer EA score of 54 or better OR ACT Math score of 18 or better OR SAT Math score of 470 or better.

AFTER MATH 1010: Math 1010 is designed to prepare students who are entering STEM, business, and education fields for their future math classes. Math 1010 is also a prerequisite for such courses. The following grades in Math 1010 are needed to proceed:

- C in Math 1010 for Math 1050 (College Algebra) or Math 1090 (Business Algebra)
- B- in Math 1010 for Math 4010 (Mathematics for Elementary School Teachers I)
- B in Math 1010 for Math 1080 (Precalculus which is an accelerated College Algebra-Trig course)

Note, Math 1010 is not the ONLY prerequisite. You can also enter the above courses with certain ACT or Accuplacer scores or other class scores. Use this link for information about prerequisites: http://catalog.utah.edu/preview_entity.php?catoid=14&ent_oid=1782&returnto=1554.

If you are in a major with no math requirement other than the university's QA requirement, then MATH 1030 (Introduction to Quantitative Reasoning), is likely the best math class for you. Note, the prerequisite cut-offs for Math 1010 and Math 1030 are close to each other: an ACT score of 18 gets you into Math 1010; an ACT score of 19 gets you into Math 1030. If you were able to register for Math 1010 based on your ACT score but want to be in Math 1030, consider taking the Accuplacer placement exam, and trying to test into Math 1030 using your Accuplacer score (the Accuplacer placement exam is used by and given at the University of Utah.) You can find information about it here: http://testingcenter.utah.edu/students/placement-tests/newstudents.php (Links to an external site.)Links to an external site. . Also, to do your best on the Accuplacer, do use the review material (also available from the link).

If you are intending to take Math 1030 (Intro to Quantitative Reasoning) or Math 1040 (Intro to Statistics and Probability), and would like to use a course as your prerequisite, it is suggested that you take Math 980 instead of Math 1010. While Math 1010 is a prerequisite for these classes, it also covers many topics that will not be used in Math 1030 or Math 1040.

If you have any questions about which math class to take, you should check with your advisor or meet with a math department advisor. The math department advisors are there for all students at the university who have questions about math classes, not just math majors. You can find information about them at http://www.math.utah.edu/ugrad/advising.php.

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 th-root.
2. Find the domain, -intercepts, -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
    1. Graph linear functions using either two points or one point and a slope.
    2. Graph quadratic functions using either of these approaches:
        1. the -intercepts and the vertex (or line of symmetry);
        2. the vertex and an efficient table (be able to use symmetry and possibly the -intercept).
    3. Graph logarithmic functions with no transformations using the meaning of the logarithm.
    4. Graph exponential and square root functions, when given in transformation form, using efficient tables.
    5. Graph power functions and th-root functions with no transformations using tables.
6. Solve linear, quadratic, exponential, logarithmic and square root equations.
    1. 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 2x2 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 th-roots, rational exponents and the connection between the two. Simplify 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:
    1. Use linear functions to model constant rates of growth.
    2. Use exponential functions to model constant percent change.
    3. 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 - and -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.

Teaching and Learning Methods:

- In class: We will be working through the course packet in class. You can expect to:
  - o Work with your partner(s) on the problems in class sometimes
  - o Have whole class discussions and short lectures on pertinent material.

- 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. 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. Your teacher will give you your lab worksheet every week and collect it the following week. You then have two options to complete it:

1. Attend an on-campus Math 1010 lab. You may attend any lab that is on campus. 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. T [(Links to an external site.)Links to an external site.](#)
2. Not attend an on-campus lab and complete the worksheet on your own.

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.

- 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 questions you have about the homework in class when time permits. 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.

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. Grades on these will count to your WeBWorK grade.

- In-Class 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. Your lowest two quiz scores will be dropped so there will be no make-up quizzes.

Course Grade Components: Semester grades will be calculated as follows:

Quizzes	15%	
Labs	10 %	
Homework (WeBWorK)	10%	
Midterms	35%	Three total
Final Exam	30%	You have to take the final to

pass the course!

Scoring Information for the Above Activities:

- Lab Worksheets: 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 in the worksheet. The lowest lab score will be dropped at the end of the semester.

- WeBWorK: 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.

- Quizzes: The two lowest quiz scores will be dropped.

- Midterm Exams: There are three in-class midterms.

- Final Exam: The final exam for this class is comprehensive. The date is above and the location will be announced.

This is a departmental final, which means all students in all on-campus 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 your instructor 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.

Absences: Make-ups for documented absences that are required as part of a University of Utah obligation (e.g. athletes participating in an event, participating in a debate contest, etc.) will be granted. For all make-ups of this type, timely notification prior to the event is required.

For other absences, documentation of a reason beyond your control must be provided and make-ups will be granted only in the most extreme cases and at the sole discretion of the instructor.

Grading Scale: The grading scale is: A (93,100], A- [90,93), B+ [87,90), B [83,87), B- [80,83), C+ [77,80), C[72,77), C- [69,72), D+ [66,69), D [60,66), D- [50,60), E [0,50).

If I do need to curve the grades, I will do so on individual assignments or exams, not on the course grade at the end of the semester.

Additional support: This course is designed to challenge students. You may require additional support:

- Come to my office hours. This time is scheduled for you to come and ask questions on any of the material covered in class/homework/exams or any mathematical inquiry you may have.
- The math department offers free drop-in tutoring for students enrolled in this class. The center is located underneath the walkway between LCB and JWB and can be accessed by entering either building. They are open Monday - Thursday 8 AM - 8 PM and Friday 8 AM - 6 PM.
- A list of private tutors is available from the Math Department office.

Accommodations: 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 & Access, 162 Olpin Union Building, 581-5020 (V/TDD). CDA will work with you and the instructor to make arrangements for accommodations. All information in this course can be made available in alternative format with prior notification to the Center for Disability & Access.

Student 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. http://regulations.utah.edu/academics/6-400.php.

Faculty and Student Responsibilities:

1. It is your responsibility to be ready for class. This means you will have your clicker and the course packet with you at all times. No make-ups will be allowed and no written responses to clicker questions will be accepted.

2. You will receive regular communication from me in Canvas about the assignments and other information. I expect you will read those in a timely manner. (If you do not check Canvas mail regularly, forward it to an address you do check often). I am happy to respond to any questions you have, but check my previous communication to make sure they were not answered already. All correspondence should be considered a formal means of communication. Please be thoughtful of your tone, grammar, and sentence structure. You may expect me to respond to emails between 9 and 5 Monday through Friday. I am happy to use email to respond to questions that have short answers. Please see me in office hours or make an appointment for more involved discussions.

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3. The lowest of your quiz scores will be dropped which means you can miss one. Otherwise, no quizzes can be made up.

4. You may take an alternate midterm exam if you talk to me about it before the exam occurs and document the extenuating circumstances that make it necessary. Talking to me after the exam occurs is too late and you will get a 0 on the exam.

5. If you miss an assignment or exam due to an unforeseeable emergency, contact me as soon as possible with documentation of what happened. Depending on the situation, this assignment/exam may be waived.

6. In an effort to create a vibrant learning community, extraneous use of cell phones and other electronic devices is not allowed. Turn them off and put them away. Use of electronic devices distracts you, those around you, and me. If you are using a computer to take notes, it must lie flat on the desk. (No computers with open screens). If you need to use your phone during class, please leave the classroom. You will be asked to leave if your phone is visible.

7. You will be allowed to use a scientific calculator on all exams. A graphing calculator will not be allowed on exams. You are not allowed to use a cell phone for its calculator in class or on exams.

8. If you have questions about any exam/quiz/homework grade, or you want to appeal the grading of the exam/quiz/homework, you must bring it to me within one week of the return of the exam/quiz/homework. I am happy to look over your appeal and/or questions and give my feedback in order to benefit your learning.

9. If you cheat on any lab, quiz or exam, you will automatically get a zero for that grade. Depending on the severity of the cheating, I may decide to fail you from the class. Also, if you exhibit any other behavior that are unethical, like offering me a bribe to give you a better grade (even if you later claim you were joking), I will report your behavior to the Dean of Students.

10. The syllabus is not a legally binding contract. As the instructor, I reserve the right to change any portion of the syllabus provided you are given enough notice.