

# Introduction to Quantitative Reasoning

## Math 1030-004, Spring 2018

**Class meets:** 01/09/2018 to 04/24/2018

**Time:** TH 03:40PM-05:00PM

**Holidays:** March 18-25 (Spring Break)

**Place:** LCB 225

**Instructor:** Sung Chan Choi, JWB 121

**Website:**

**Email:** [choi@math.utah.edu](mailto:choi@math.utah.edu)

**Office Hours:** TBA

### **Tutoring, Computer Lab, and Printing: LCB 155 and LCB 155 C**

Free tutoring and free printing are available in the T. Benny Bushing Mathematics Center, located between LCB and JWB. The regular hours is M-Th 8:00am - 8:00pm, Fri 8:00am - 6:00pm. See <http://www.math.utah.edu/ugrad/mathcenter.html> .

**Text:** *Using and Understanding Mathematics: A Quantitative Reasoning Approach*, 6th edition, by Jeffrey O. Bennett and William L. Briggs

ISBN-10: 1-269-74850-5

ISBN-13: 978-1-269-74850-6

Textbook Information:

See <http://www.math.utah.edu/schedule/bookInfo/1030bookorder-1.pdf>

### **Calculators:**

I will only allow scientific calculators (no graphing, programmable calculators, or smart phones will be allowed ever) on exams or quizzes.

### **Course Objectives:**

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

1. use Venn diagrams to examine relationships between sets and the validity of simple deductive arguments.
2. use an appropriate sentence to describe both the absolute and percent change in a given quantity and interpret such statements about the change.
3. use simple and compound units, making conversions when necessary, and develop accurate comparisons between units.
4. evaluate the impact of compound interest on simple financial decisions.
5. Use the savings plan and loan formulas to calculate the payment amount into the savings plan when a certain financial goal needs to be achieved, to calculate the mortgage payment or interest paid over the life of the loan and discuss whether those results are realistic (or not), compare several loans with different interest rates in order to financial decisions.
6. compare and illustrate the features of linear and exponential growth using practical examples
7. determine simple areas, volumes, and explain the differential effect of scaling on perimeter, area, volume as well as some of the practical implications of scaling .

**Prerequisites:** "C" or better in (MATH 980 OR MATH 1010) OR Accuplacer EA score of 60 or better OR ACT Math score of 19 or better OR SAT Math score of 500 or better.

**Requirement Designation:** Quantitative Reasoning (Math)

**Grade Distribution:**

Quiz	20%
Midterm Exam 1	15%
Midterm Exam 2	15%
Group Project	20%
Final Exam	30%

**Grading Scale:**

$\geq 93$	A	73 - 76.99	C
90 - 92.99	A-	70 - 72.99	C-
87 - 89.99	B+	67 - 69.99	D+
83 - 86.99	B	63 - 66.99	D
80 - 82.99	B-	60 - 62.99	D-
77 - 79.99	C+	$\leq 59.99$	E

**Course Policies:**

- **General**

- Exams and quizzes are closed book, closed notes.
- If you cheat on any quiz or exam, I will automatically give you a zero for that grade.
- You may need a scientific calculator for the course. No other types of calculators, such as graphing, programmable or cell phone calculators will be allowed in homework and exams.

- **Group Project**

- The project assignment will be posted by the 5th week on CANVAS and due on Tuesday, April 24 in class.
- There are absolutely no extensions of the deadline for any reason. The project is worth 20% of your grade.

- **Daily Homework**

- Practice is important for the mastery of mathematical concepts. Homework will be assigned daily but not collected. Although no grade is assigned for homeworks, you are strongly encouraged to complete (or at least attempt) assigned problems.
- Homework assignment will be posted on CANVAS. You need to check CANVAS every-day.

- **Daily Quizzes**

- 19 quizzes will be given daily on the material covered of the previous class in class.
- Quiz problems will be based on assigned homework problems.
- 8 minutes will be given.
- **No makeup** quiz will be given if you don't have a document to verify your reasonable absence, for example sickness. But **2 lowest scores** will be dropped.

- **Midterms**

- There will be two in-class midterm exams.
- **2/20(Tuesday) and 4/3(Tuesday)** in the regular classroom.
- 60 minutes will be given.
- You will need a scientific calculator for the course. No other types of calculators, such as graphing, programmable or cell phone calculators will be allowed in homework and exams.
- **No makeup exams will be given** except in the case of a documented emergency. Please contact the instructor ASAP, or at least two classes ahead of time so that the instructor and student can make arrangements to make up the test. I reserve the right to make makeup exams more difficult than the scheduled exam.

- **Final (Comprehensive and Departmental)**

- The comprehensive and departmental final exam will be on **May 2 (W), 3:30 PM - 5:30 PM**.
- See <http://registrar.utah.edu/academic-calendars/final-exams-spring.php>
- The exact room will be announced later in the term and communicated to you through the course announcements.

- **Other Policies**

- I do NOT allow the use of laptop computers in my classroom. But tablets are okay if you are taking notes on it.
- There will be no retakes of exams . . . ever. Your score is what you get.
- You may take an alternate exam if you submit a documented verification about it to me first and explain the extenuating circumstances that make it necessary. Needing to work, babysitting your siblings, oversleeping, or needing more time to study do not pass as acceptable reasons.
- I will demand respectful behavior in my classroom. Examples of disrespect include reading a newspaper or magazine in class, social chatting with your friend in class, text-messaging your buddies during class or cuddling with your girl/boyfriend in class.
- There will be no cursing nor negative ranting (for example, "math sucks") on any written work turned in. The penalty for such things on your written work will be a zero score on that assignment or test!
- You need to have a valid email address registered with Campus Information System.
- You need to check CANVAS everyday.

- 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.  
See <http://regulations.utah.edu/academics/6-400.php>
- I reserve the right to change my policies stated in this syllabus at some point in the semester. If I do make a change to a policy, I will announce it in class and send the change in email.

### **Other Important Dates:**

- 1/19(F): Last Day to Add,Drop(Delete),Elect CR/NC,or Audit Classes
- 3/2 (F): Last Day to Withdraw from classes
- See <http://registrar.utah.edu/academic-calendars/spring2018.php>

### **ADA:**

The American with Disabilities Act requires that reasonable accommodations be proved for students with physical, cognitive, systemic learning, and psychiatric disabilities. The student needs to have such a disability approved by the Disability Service Office (162 UNION, 581-5020) in order to have the accommodations provided. The instructor need to be informed about such a disability and approved accommodations at the beginning of the semester.

### Tentative Course Outline:

The weekly coverage might change as it depends on the progress of the class. Any change will be announced. However, you must keep up with the reading assignments.

Week	Content
Week 1	<ul style="list-style-type: none"><li>• 1/9 Intro, Algebra review</li><li>• 1/11 1C (Sets and Venn Diagrams)</li></ul> Quiz A
Week 2	<ul style="list-style-type: none"><li>• 1/16 1D (Analyzing Arguments)</li><li>• 1/18 2A (Working with Units)</li></ul> Quiz 1 Quiz 2
Week 3	<ul style="list-style-type: none"><li>• 1/23 2B (Problem Solving with Units)</li><li>• 1/25 3A (Uses and Abuses of Percentages)</li></ul> Quiz 3 Quiz 4
Week 4	<ul style="list-style-type: none"><li>• 1/30 3B (Putting Numbers in Perspective)</li><li>• 2/1 3C (Dealing with Uncertainty)</li></ul> Quiz 5 Quiz 6
Week 5	<ul style="list-style-type: none"><li>• 2/6 4A (Taking Control of Your Finances)</li><li>• 2/8 4B (The Power of Compounding)</li></ul> Quiz 7 Quiz 8
Week 6	<ul style="list-style-type: none"><li>• 2/13 Review 1 for Midterm Exam 1</li><li>• 2/15 Review 2 for Midterm Exam 1</li></ul> Quiz 9
Week 7	<ul style="list-style-type: none"><li>• 2/20 Midterm Exam 1</li><li>• 2/22 4C (Saving Plans and Investments)</li></ul>
Week 8	<ul style="list-style-type: none"><li>• 2/27 4D (Loan Payments, Credit Cards, and Mortgages),</li><li>• 3/1 8A (Growth: Linear vs. Exponential),</li><li>9A (Functions: The Blocks of Mathematical Models)</li></ul> Quiz 10 Quiz 11
Week 9	<ul style="list-style-type: none"><li>• 3/6 9B (Linear Modeling)</li><li>• 3/8 8B (Logarithmic &amp; Exponential Rules Review)</li></ul> Quiz 12 Quiz 13
Week 10	<ul style="list-style-type: none"><li>• 3/13 8B (Doubling Time and Half-Life)</li><li>• 3/15 9C (Exponential Modeling)</li></ul> Quiz 14 Quiz 15
Week 11	<ul style="list-style-type: none"><li>• 3/20 Spring Break</li><li>• 3/22 Spring Break</li></ul>
Week 12	<ul style="list-style-type: none"><li>• 3/27 Review 1 for Midterm Exam 2</li><li>• 3/29 Review 2 for Midterm Exam 2</li></ul> Quiz 16
Week 13	<ul style="list-style-type: none"><li>• 4/3 Midterm Exam 2</li><li>• 4/5 8C (Real Population Growth)</li></ul>
Week 14	<ul style="list-style-type: none"><li>• 4/10 10A (Fundamentals of Geometry)</li><li>• 4/12 10A (Fundamentals of Geometry)</li></ul> Quiz 17 Quiz 18
Week 15	<ul style="list-style-type: none"><li>• 4/17 Review 1 for Final Exam</li><li>• 4/19 Review 2 for Final Exam</li></ul> Quiz 19
Week 16	<ul style="list-style-type: none"><li>• 4/24 Review 3 for Final Exam</li></ul> Due of Project