

SYLLABUS

SPRING 2016

MATHEMATICS 1040 (Section 1)
Introduction to Statistics and Probability (3 Credits)
9:40 am – 10:30 am MWF in JFB 101

Math 1040 is a three credit course satisfying the QB Quantitative Reasoning Requirement. The course addresses the Essential Learning Outcomes: Inquiry and Analysis, Critical Thinking, Quantitative Literacy, and Foundations of Skills for Lifelong Learning.

Textbook: Elementary Statistics: Picturing the World, by Ron Larson and Betsy Farber
Third Classroom Edition for the University of Utah (Taken from: Sixth edition)

You are required to print and bring to every lecture the handout available at:
www.math.utah.edu/~ahacon/1040.html

Instructor: Aaron Bertram; Office JWB 302
e-mail address : bertram@math.utah.edu
course web page: www.math.utah.edu/~bertram/1040

Office hours: Monday: 11:40 am- 12:30 am
Wednesday: 8:30 am – 9:20 am
Friday: 8:30 am – 9:20 am

Classroom Etiquette:
PLEASE TURN OFF YOUR CELL PHONES WHILE YOU ARE IN CLASS.
IF YOUR CELL PHONE RINGS DURING CLASS YOU WILL BE ASKED TO LEAVE.
The use of headphones/computers/laptops is not allowed in class.

Prerequisites: C or better in Math 1010 (Intermediate Algebra), or University Math Placement score of 3, or Accuplacer CLM (College Level Math) score of 50 or better (available through the Testing Center). This means that you should be able to manipulate variable expressions, work with simple linear equations and graphs and work with fractions, exponents and radicals.

Course objectives: Math 1040 will fulfill your Quantitative reasoning – Statistic/Logic (QB) requirement for graduation. This course addresses the following Essential Learning Outcomes: inquiry and analysis, critical thinking, oral communication, quantitative literacy/problem solving. Math 1040 is an introductory statistics and probability course. We will learn how data is collected, organized, analyzed and interpreted, how to determine the probability that an event will occur, how to create and use probability distributions, recognize normal (bell-shaped) distributions and use the properties of distributions in real-life applications. Statistics and probability are applicable to a wide variety of academic disciplines, from the natural and social sciences to the humanities, government and business.

The course is based on Chapters 1-5, and Sections 9.1 and 9.2. You are expected to read each section that we cover. We will also try to bring and analyze recent newspaper/magazine articles that describe the results of a statistical study. For every hour of lecture, the university requires/suggests that you invest 2-3 hours of additional work (every week). For this 3 credit hour class, it means that you need to put in 6-9 hours of additional work on a weekly basis.

At the end of the course you should be able to:

- **Recognize different ways of collecting data and decide what method would be the best for a given situation.**
- **Distinguish between various sampling techniques and decide what sampling technique would work the best in a given situation.**
- **Use different tables and graphs to organize and analyze data.**
- **Calculate the mean, median, mode, range, quartiles, interquartile range, outlier(s), find percentiles and interpret the results in variety of ways.**
- **Find the z-score (the standard score) and compare z-scores from different data sets.**
- **Find the mean, variance and standard deviation; interpret standard deviation using the Empirical Rule for the bell-shaped distribution; interpret standard deviation in connection with a distribution that is not bell-shaped or it is unknown using Chebychev's Theorem; find the standard deviation for grouped data.**
- **Determine the probability of an event using the Fundamental Counting Principle, conditional probability, the multiplication rule, and the addition rule.**
- **Create and use probability distributions; find the mean and standard deviation.**
- **Recognize a binomial experiment and calculate the binomial distribution using the Binomial Probability Formula.**
- **Recognize normal (bell-shaped) distributions and standard normal distributions; calculate the areas/probabilities using the standard normal distribution table.**
- **Use the standard normal distribution table to find probabilities or values in connection with real-life applications.**
- **Explain the meaning of different values of the correlation coefficient and relate the concept to the strength/weakness of linear relationship between two variables when examining different scatter plots.**
- **Find the equation of the regression line (line of best fit) and predict values using the equation of the regression line.**

Homework: Homework problems are assigned for each section. Homework will not be collected, but I strongly recommend that you do these problems.

Quizzes: Approximately every 2 weeks there will be a quiz covering the material that we have done. The problems will be very similar to the text or examples that we have done in class; or the assigned suggested homework problems. **No make-up quizzes will be given (regardless of the reason), but the 2 lowest quiz scores will be dropped.**

Exams: You will have 3 exams (50 minutes each). You MUST bring a valid ID to the exam. **No make-up exams will be given (regardless of the reason), but the lowest exam score will be dropped. Please plan ahead of time.**

The first exam is scheduled for February 19th (Friday), the second exam is scheduled for March 23rd (Wednesday), and the third exam is scheduled for April 15th (Friday).

Final Exam (comprehensive): Monday, May 2nd, 8am-10am (in class).

I will not allow students to take an early/late final, so please do not schedule your summer trip before this date, and do not ask me to give you extra time to study.

Grading policy: Your grade will be based on:

Quizzes (4)	25% total
Exams (2)	20% each (40% total)
Final exam	35%

Course Grades (Evaluation methods and criteria): Your grade will be determined on the basis of quizzes (25%), midterms (40%), and a final exam (35%). Your final letter grade will be determined by your overall percentage as follows:

A	93% - 100%	C+	77% – 79.9%	D-	55% - 59.9%
A-	90% - 92.9%	C	73% – 76.9%	E	below 55%
B+	87% - 89.9%	C-	70% – 72.9%		
B	83% - 86.9%	D+	65% – 69.9%		
B-	80% - 82.9%	D	60% – 64.9%		

Calculators: You will need a calculator for this course. A scientific calculator will be sufficient. You are required to bring the calculator to every lecture/exam since I cannot provide a calculator for students. You are not allowed to use your cell phone as a calculator.

ADA Statement: 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 Olpin Union Building, 581-5020 (V/TDD). CDS 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 Services.

Withdrawals: You may withdraw from the class without consulting anyone until March 4th (Friday). If you withdraw before January 22nd (Friday) there will not be any tuition penalty.

Tutoring: The Rushing Math Center offers free drop-in tutoring, a computer lab, and study areas for undergraduates. The Rushing Student Center is adjacent to the LCB and JWB. The hours for the Fall semester are: 8 am – 8 pm Monday-Thursday and 8 am – 6 pm on Friday. The tutoring center will open the second week of classes.