

# MATH 1040—Introduction to Statistics

Fall 2010—3 credits

**Instructor:** Max Rose

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**Office Hours:** Call me, set appointment

**Additional Help:** NIB 202 *or* Browning Learning Resource Center

Required Text: *Elementary Statistics: Picturing the World* (4<sup>th</sup> edition) by Larson and Farber

Prerequisite: You need to meet at least one of the following minimum requirements. Moreover, this requirement must have been met within the past two years.

- Passed Math 1010 with a “C” or better.
- Earned ACT math score of 23 or higher.
- Earned a suitable CPT score. [For details on this test, go to <http://new.dixie.edu/math>, click on FAQs, then click on “Which math class should I take?”.]
- You will need access to a good calculator, and/or you will need to use Excel.

## Course Description

Math 1040 is an introduction to the basic concepts and methods used in statistical data analysis. Course topics include descriptive statistics, sampling methods, and inferential statistics. The course emphasizes problem solving and critical thinking. Furthermore, Math 1040 is a lecture course with homework assignments, lab assignments, and tests—including a non-comprehensive final exam. Importantly, the basic principles learned in Math 1040 can greatly benefit anyone and everyone, regardless of which future career a person chooses.

## Course Objectives

All classes in mathematics at Dixie State College of Utah support the general education goals of the college. Each mathematics class will:

- Require students to perform mathematical processes including fractions, percentages, decimals, proportions/ratios, algebraic equations, and/or calculus techniques
- Provide students with application problems that use a variety of methods including arithmetical, algebraic, and geometric methods
- Challenge students to make inferences from mathematical models that include formulas, graphs, and tables
- Provide students with real-life applications that use a variety of mathematical functions

Upon successful completion of Math 1040, a student will demonstrate the ability to:

- Compute and interpret descriptive statistics, including mean, median, mode, standard deviation, and interquartile range
- Employ and interpret graphical representations of data
- Construct confidence intervals for population parameters of interest
- Determine the sample size required to satisfy a predetermined goal
- Test null hypotheses related to the mean, the proportion, or the variance of a sample
- Test null hypotheses related to the difference in mean or the difference in proportion between two samples
- Interpret the results of null hypothesis tests, including the role of the significance level  $\alpha$
- Interpret bivariate correlations and linear regression models
- Apply various other statistical tests, including goodness-of-fit tests, independence tests, and ANOVA

## Homework and Quizzes

The goal of your doing homework should be to gain understanding of statistics—above and beyond memorization and superficial knowledge of formulas and “facts.”

1. Please read a section from the textbook before attending the scheduled lecture about that particular section. After actively participating in the classroom discussion on the section, you will then complete (as homework) all assigned exercises from that section.
2. When completing homework, working together is ok—in fact, I encourage it. However, copying another person’s work is not ok. Furthermore, you should try your very best to do a problem before you look at the solutions manual for help.
3. Daily quizzes are worth 5 points each. Each quiz is comprised of two problems, usually from the textbook, which are like homework problems you had to do as part of your assignment. You will hand them in for credit. At the end of the semester, up to 15 points will be added to your quiz total in case you missed one or two class days due to unforeseen circumstances.

## Exam Policies

You should bring the following items to each exam: (a) scantron (form no. 882-E); (b) #2 pencil (not mechanical); (d) graphing calculator; (e) one “cheat sheet” (8½ by 11 inches, front and back).

Most importantly, sharing test information is not ok.

## Grading

Quizzes (attendance)	150 points
Exams (100 pts. each)	500 points

There are 650 total points possible. Your grade will be determined according to the percentage of points you earn in this course.

≥ 92.0% A	≥ 89.0% A–	≥ 86.0% B+	≥ 82.0% B
≥ 79.0% B–	≥ 75.0% C+	≥ 70.0% C	≥ 67.0% C–
≥ 64.0% D+	≥ 60.0% D	< 60.0% F	

## Disability Resource Center

If you are a student with a documented physical or mental impairment that will substantially limit a major life activity, please contact the Disability Resource Center (DRC) on the main campus. The center coordinator and staff will assist you in evaluating your eligibility for services. If you are deemed eligible, reasonable accommodations that are appropriate for your disability will be assigned. If you have any questions concerning this process, please contact the Center at (435) 652–7516 or go to the DRC on the ground floor of the Financial Aid Office.

## Website Resources

Library	<a href="http://library.dixie.edu/">http://library.dixie.edu/</a>
Writing Center	<a href="http://new.dixie.edu/english/dsc_writing_center.php">http://new.dixie.edu/english/dsc_writing_center.php</a>
Testing Center	<a href="http://new.dixie.edu/testing/">http://new.dixie.edu/testing/</a>
Tutoring	<a href="http://dsc.dixie.edu/tutoring/index.htm">http://dsc.dixie.edu/tutoring/index.htm</a>
Career Center	<a href="http://new.dixie.edu/career/">http://new.dixie.edu/career/</a>

## Communication Policy

Important class and college information, including lecture notes, syllabus changes, etc. for this class, will be sent to either the preferred email account you submitted to Dixie State College when you began school here or to your “Dmail” account. This information includes your DSC bill, financial aid and scholarship notices, notification of dropped classes, reminders of important dates and events, and other information critical to your success in this class and at DSC in general. You will be held responsible for any emailed information sent to you by me or by DSC, so please check your email account often. When trying to get in contact with me, the best option is to email me or call/text my cell phone.

## “Pep” Talk

I believe every dedicated student, including **you**, can learn the material taught in this course. I am confident that learning this material will make a **vital** difference in your ability to apply statistical reasoning to everyday problems. Learning about statistics should be **fun!**

## Lecture Schedule

MATH 1040—Fall 2010

<u>DATE</u>	<u>LECTURE</u>	<u>DATE</u>	<u>LECTURE</u>
8/23	Syllabus	10/18	Review ( <u>Test 3</u> )
8/25	1.1 & 1.2	10/20	6.1 & 6.2
8/30	1.3	10/25	6.3 & 7.1
9/1	2.1	10/27	7.1 & 7.2
9/6	2.2 & 2.3	11/1	Review ( <u>Test 4</u> )
9/8*	2.4 & 2.5	11/3	7.3 & 7.4
9/13	Review ( <u>Test 1</u> )	11/8	8.1 & 8.2
9/15	3.1 & 3.2	11/10	8.3 & 8.4
9/20	3.3 & 3.4	11/15	
9/22	4.1 & 4.2	11/17	Review ( <u>Test 5</u> )
9/27	4.3	11/22	Intro Chp. 9
9/29	Review ( <u>Test 2</u> )	11/24	<b>Thanksgiving Break</b>
10/4	5.1 & 5.2	11/29	9.1 & 9.2
10/6	5.3 & 5.4	12/1	10.1 & 10.2
10/11	5.5	12/6	10.4
10/13*		12/8	Review ( <u>Test 6</u> )

\* The last day you may drop the class without a “W” appearing on your transcript is Monday, September 13<sup>th</sup>. The last day you may drop the class is Monday, October 18<sup>th</sup>. Other important dates on the academic calendar for this semester can be found online at

<http://dixie.edu/reg/?page=fall2010>

The final exam will be at on Thursday, December 16<sup>th</sup>, in NIB 135.

# Homework Assignments

Syllabus, Info sheet.

1.1: 1–10, 11–37 odd

1.2: 1–6, 7–23 odd

1.3: 1–10, 11–29 odd, 30, 31, 33

2.1: 1–8, 9–31 odd

2.2: 1–8, 9, 11, 13–17 all, 23, 27, 30

2.3: 1–16, 17–33 e.o.o., 35–40, 41–49 e.o.o.

2.4: 1–6, 7–13 odd, 17–25 odd, 29–33 odd

2.5: 1, 3, 5, 7–10, 11–27 e.o.o., 29–33 odd

## Review Exam 1

### Exam 1

3.1: 1–4, 5–15 odd, 17–24, 25–33 e.o.o., 41(a & c), 43, 45, 49

3.2: 1, 3, 4, 5–11 odd, 13–29 e.o.o., 36(not d)

3.3: 3–8, 9, 11, 13–25 e.o.o.

3.4: 3–6, 7–13 odd, 15–18, 19–25 odd, 28, 37–49 e.o.o., 51(a)

4.1: 1, 5–8, 9–21 odd, 29–45 e.o.o.

4.2: 7–13 odd, 15, 19, 23, 28(not e)

4.3: 1–9 odd, 11–16, 17–23 odd

## Review Exam 2

### Exam 2

5.1: 2, 3, 4, 15–39 e.o.o., 47–59 e.o.o.

5.2: 1–29 e.o.o.

5.3: 1–45 e.o.o.

5.4: 1, 3, 5–8, 9–37 e.o.o.

5.5: 1–7 odd, 9–16, 19, 23

6.1: 1–4, 23–39 e.o.o., 51–63 e.o.o.

6.2: 9–21 e.o.o., 23, 27

6.3: 1, 2, 3–23 e.o.o., 27(a)

## Review Exam 3

### Exam 3

7.1: 1–8, 9, 11, 13, 19, 21, 23, 25–45 e.o.o.

7.2: 1, 3, 5, 13–19 odd, 25, 27, 29, 33(not b), 37(not b), 39\*, 43\*

\* Follow directions for problems 33 & 37 instead of those given on p. 392.

7.3: 2, 19, 20, 23–31(a, d, & e) e.o.o.

7.4: 2, 3, 5, 7, 9–13(a, d, & e) odd

8.1: 5–11 odd, 17, 18, 21–29(a, d, & e) e.o.o.

8.2: 2, 15–23(a, d, & e) e.o.o.

8.3: 1, 2, 3, 5, 9–17(a, e, & f) e.o.o.

8.4: 2, 3, 5, 7–15(a, d, & e) e.o.o.

## Review Exam 4

### Exam 4

9.1: 1–8, 13, 14, 15–27 e.o.o.

9.2: 1–12, 15, 17, 19

10.1: 2, 7(a & d), 11(a & d), 17(a & d)

10.2: 13–21(a & d) e.o.o.

10.4: 1, 2, 5–13(a & d) e.o.o.

## Review Exam 5

### Exam 5 (Or comprehensive exam if an exam is missed.)

**Math1040, Fall 2010, Information sheet**

Name \_\_\_\_\_

Birthday, (Day and month) \_\_\_\_\_

Phone Number \_\_\_\_\_

Preferred email address \_\_\_\_\_

Address \_\_\_\_\_

How do you want to be contacted for issues and information? \_\_\_\_\_

\_\_\_\_\_

In your family How many males? \_\_\_\_\_ How many females? \_\_\_\_\_

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