

# MATH 1040—Introduction to Statistics

Section 02, TR, 1:00–2:20 pm, NIB 150, CRN: 43813  
Fall 2009—4 credits

**Instructor:** Taylor Jensen

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**Office:** NIB 137

**Office Hours:** MTRF 10:00–11:00 am; TR 2:30–3:30 pm; W 8:00 am–12:00 noon

**Additional Help:** NIB 134 *or* Browning Learning Resource Center

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

Calculator Requirement: You *must* have a graphing calculator. The TI–83 (any version) or TI–84 (any version) is recommended.

Prerequisite: You *must* meet at least one of the following minimum requirements:

- Passed Math 1010 with a “C” or better
- ACT math score of 23 or higher
- A suitable CPT score (check at the Testing Center)

## 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, two sample  $F$ -tests, and ANOVA

## Behavior Policies

1. **Your attendance and behavior are expected to reflect your dedication to excellence as a university student.** You are expected to attend class, participate in discussions and group work, and to use class time for Math 1040 activities only.
2. **You must abide by all regulations set forth in the “Student Rights and Responsibilities Code” (DSC Policy 5.33).** These regulations can be found online at <http://www.dixie.edu/humanres/polstu.html> (then click on the link to DSC Policy 5.33). In particular, you should be aware of your obligations pertaining to academic performance (“Academic Performance Responsibilities,” DSC Policy 5.33.5).

## Homework Policies

The goal of your doing homework should be to gain *understanding* of statistics—above and beyond rote memorization and superficial knowledge of formulas and “facts”. My homework policies are designed to incite your full engagement when doing homework, so you feel it is to your benefit both to do the homework and to do it well. With that in mind, let me present the policies:

1. You will read a section from the textbook and the corresponding lecture notes as well as complete assigned “Try It Yourself Problems” for that section *before* attending the scheduled lecture about that particular section. After actively participating in a classroom discussion, you will then complete all assigned “Exercises” from that section. Together, “Try It Yourself Problems” and “Exercises” constitute the homework problems of Math 1040. Homework is due at the *beginning* of class on the due date scheduled. **Late homework will not be accepted for any reason.** If you are involved in extracurricular activities (such as an athletic team), and one of your scheduled events conflicts with a homework due date, it is your responsibility to finish the homework and turn it in *early*.
2. Seven homework problems will be randomly selected from each assignment and graded. Three “Try It Yourself Problems” will be graded on *following directions only*. Three “Exercises” will be graded on *correctness*. Each homework assignment will be worth 15 points.
3. There will also be 4 labs you will need to complete and turn in during the semester. Each of these labs will be worth 10 points. **Late labs will not be accepted for any reason.**

4. Because exam dates and homework due dates always coincide (or nearly so), you should photocopy all homework assignments before turning them in. That way, you can use your completed homework assignments as study aids for exams.
5. At the end of the semester, one of the following two “helps” will be added to your grade: (i) up to 10 points will be added to your lowest homework score; (ii) up to 5 points will be added to your lowest homework score and up to 5 points will be added to your lowest lab score.

## Exam Policies

1. **Exams cannot be made up for any reason.** Midterm exams will be administered in the Testing Center, while the final exam will be administered in our regular classroom.
2. If you miss a midterm exam, your score on that exam will be extrapolated from the *next* midterm exam (or from the final exam, if necessary). Extrapolated midterm exam scores are subject to an automatic penalty of 30% of the total value of the missed exam.
3. If you miss a second midterm exam or the final exam, you will receive an automatic **zero** for that exam, regardless of excuse.
4. You are allowed to bring one “cheat sheet” (8½ by 11 inches, front and back) to each midterm exam. You should photocopy your cheat sheet before you take the corresponding midterm exam because the Testing Center staff will **not** allow you to take it with you after you complete the exam. You will be allowed to bring a “cheat sheet” to the final exam as well.

## Grading

Assignments (15 pts. each)	90 points
Labs (10 pts. each)	40 points
Exams (60 pts. each)	360 points

There are 490 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 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 Student Services Center, Room 201.

## 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>

## Communication Policy

Important class and college information, including syllabus changes 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 call my office phone and leave a message. If you are not comfortable with that option, please email me.

## My Teaching Philosophy

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!** If we’re not having fun while we learn, we’re not really learning! ☺

## Lecture Schedule

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<u>DATE</u>	<u>LESSON</u>	<u>DATE</u>	<u>LESSON</u>
8/25	Introduction	10/20*	<i>Review</i>
8/27	1.1 & 1.2	10/22	6.1 & 6.2
9/1	1.3 & 2.1	10/27	6.3 & 6.4
9/3	2.2 & 2.3	10/29	7.1 & 7.2
9/8	2.4 & 2.5	11/3	<i>Review</i>
9/10	<i>Review</i>	11/5	7.3 & 7.4
9/15*	3.1 & 3.2	11/10	7.5 & 8.1
9/17	3.3 & 3.4	11/11 (Wed.)	Chats on 8.2
9/22	4.1 & 4.2	11/17	<b>Career Day</b>
9/24	4.3	11/19	8.3 & 8.4
9/29	<i>Review</i>	11/24	<i>Review</i>
10/1	5.1	11/26	<b>Thanksgiving Break</b>
10/6	5.2 & 5.3	12/1	9.1 & 9.2
10/8	5.4	12/3	10.1 & 10.2
10/13	5.5	12/8	10.3 & 10.4
10/15	<b>Fall Break</b>	12/10	<i>Review</i>

\* The last day you may drop the class without a “W” appearing on your transcript is Monday, September 14<sup>th</sup>. The last day you may drop the class is Monday, October 19<sup>th</sup>. Other important dates on the academic calendar for this semester can be found online at <http://new.dixie.edu/reg/?page=calendar&sid=200940>.

Midterm exams open the class day on which we review the preceding material. They close *two days* later. The final exam will be at 12:30 pm on Tuesday, December 15<sup>th</sup>.

# Homework/Lab Assignments

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**Important!** As part of the homework, you must complete all “Try It Yourself” Problems which appear on the reading assignment pages.

<u>Due Date</u>	<u>Reading (pages)</u>	<u>Exercises</u>
9/10	1.1: 3–7 1.2: 11–14 1.3: 18–24 2.1: 39–44* 2.2: 55–61 2.3: 67–73 2.4: 82–88 2.5: 102–105, 107–108	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
9/17	————	Lab 1 (directions sent via email)
9/29	3.1: 131–141 3.2: 149–153 3.3: 160–164 3.4: 172–177 4.1: 193–200 4.2: 206–214 4.3: 222–225	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. 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, 52 4.1: 1, 5–8, 9–21 odd, 29–45 e.o.o. 4.2: 7–13 odd, 15, 19, 23, 28 4.3: 1–9 odd, 11–16, 17–23 odd
10/20	5.1: 239–247 5.2: 253–255 5.3: 261–265 5.4: 270–277 5.5: 285–290	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
10/22	————	Lab 2 (directions sent via email)
11/3	6.1: 309–316 6.2: 325–329 6.3: 334–338 6.4: 344–347 7.1: 363–373 7.2: 379–388	6.1: 3–15 e.o.o., 23–39 e.o.o., 51–63 e.o.o. 6.2: 1–21 e.o.o., 23, 27 6.3: 1, 2, 3–23 e.o.o., 27(a) 6.4: 1, 3–19 e.o.o. 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(not c), 43(not c)
11/11 (Wed.)	————	Lab 3 (directions sent via email)

\* Additionally, you need to understand the vocabulary terms in boldface type on pp. 45–46.

<b><u>Due Date</u></b>	<b><u>Reading (pages)</u></b>	<b><u>Exercises</u></b>
11/24	7.3: 397–402 7.4: 407–410 7.5: 414–419 8.1: 437–443 8.2: 452–455 8.3: 461–465 8.4: 471–474	7.3: 1, 3, 7, 11, 19, 20, 23–31(not c) e.o.o. 7.4: 2, 3, 5, 7, 9–13(not c) odd 7.5: 1, 2, 3, 5, 7, 13, 14, 15, 19, 23 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, 4, 6, 9–17(a, e, & f) e.o.o. 8.4: 2, 4, 5, 7–15(a, d, & e) e.o.o.
12/8	—————	Lab 4 (directions sent via email)
12/10	9.1: 495–501, 504–506 9.2: 513–516 10.1: 552–559 10.2: 565–570 10.3: 579–584 10.4: 588–593	9.1: 1, 2, 5–8, 13, 14, 15–27 e.o.o. 9.2: 1–12, 15, 17, 19 10.1: 2, 7, 11, 17 10.2: 1–6, 7, 11, 13–21(a & d) e.o.o. 10.3: 1–9 odd, 13, 14, 17–21(a, d, & e) odd\ 10.4: 1, 2, 5–13(a & d) e.o.o.

**Remember!**

The final exam will be administered in NIB 150 at 12:30 pm on Tuesday, December 15<sup>th</sup>.