

Course Syllabus

Course Purpose

By the end of this course, it is our hope that you will have greater capacity to serve others as a discerner and producer of truth claims using quantitative inquiry.

What this means is that you will be able to use the tools of quantitative inquiry or statistics to bring light to issues, which can benefit the lives of yourself and others both personally and professionally. We break this purpose down into four learning outcomes.

Learning Outcomes

The official learning outcomes of the course are:

1. **Conceptual Understanding of Statistics** - Gain a conceptual understanding of basic descriptive and inferential statistics for both parametric and non-parametric data sets.
2. **Hypothesis Testing** - Understand hypothesis testing theory and probability distributions.
3. **Basic Statistical Methods** - Select appropriate statistical methods to answer basic research problems.
4. **Complete Statistical Analysis** - Use statistical programs to complete statistical analysis.
5. **Interpret and Report Statistical Results** - Interpret and report statistical results in APA format.
6. **Critique Appropriateness of Statistical Methods Used** - Locate research articles and Critique the statistical methods used and reported.

In addition, in order to achieve the overall purpose of the course, you will learn how to do four important things:

1. Read hundreds of research questions and then **select** the correct statistical methods (among 18 methods) to answer them.
2. **Run** all 18 methods.
3. **Interpret** statistical results to a lay audience.
4. **Explain** basic statistical concepts to a lay audience.

How to Succeed in This Course

To be successful in this course, you will need a determination to complete

- all assignments in the course, and
- additional practice problems in areas where you may have gaps in your understanding or abilities.

To be successful in this course, you do **NOT** need

- more than a basic understanding of math (multiplication, division, addition, and subtraction), or
- to have taken any other statistics course.

Course Materials

You do not need a hard copy or an electronic copy of any book for this course.

You will access and use the following:

1. Current [student version of IBM SPSS Statistics software \("SPSS"\)](https://www.ibm.com/us-en/marketplace/spss-statistics-gradpack/details) [_ \(https://www.ibm.com/us-en/marketplace/spss-statistics-gradpack/details\)](https://www.ibm.com/us-en/marketplace/spss-statistics-gradpack/details)¹. Be sure to purchase the Premium Grad Pack license.
2. [Decision-Based Learning \(DBL\) software](https://dbl.byu.edu/) [_ \(https://dbl.byu.edu/\)](https://dbl.byu.edu/)

Course Organization

Lesson	Topic	Abilities Gained
1	Introduction	Orientation to Fundamental Concepts
2	Descriptive	Select, Run, Interpret Statistical Methods
3	t-tests	Select, Run, Interpret Statistical Methods
4	ANOVAs 1	Select, Run, Interpret Statistical Methods
5	ANOVAs 2	Select, Run, Interpret Statistical Methods
6	Midterm 1 Practice	Select, Run, Interpret Statistical Methods
7	Midterm 1	Select, Run, Interpret Statistical Methods
8	Relationships	Select, Run, Interpret Statistical Methods
9	Regression	Select, Run, Interpret Statistical Methods
10	Chi-square 1	Select, Run, Interpret Statistical Methods
11	Chi-square 2	Select, Run, Interpret Statistical Methods

12	Probability Theory (t-test)	Explain Statistical Methods
13	Probability Theory (ANOVA)	Explain Statistical Methods
14	Final Practice	Select, Run, Interpret, Explain Statistical Methods
15	Final	Select, Run, Interpret, Explain Statistical Methods

Grading

Your grade in this course will be based on these assignments and exams:

Assignment or Exam	Grading	Percent of Total Grade	Resubmission(s)	Fee to Resubmit
9 DBL Method Introduction	Computer	10.5%	Unlimited	
11 Homework	Computer	19.3%	Unlimited	
10 Quizzes	Instructor	23.4%	0	
1 Midterm Practice	Computer	5.8%	Unlimited	
1 Midterm	Instructor	11.7%	0	
1 Final Practice	Computer	5.8%	Unlimited	
1 Final Exam	Instructor	23.4%	0	

If you do the resubmittable assignments with the intent to learn and not just to get them done, there is a high likelihood that you will do very well on the quizzes, midterm, and final.

Homework, quizzes, exam practices, midterm and the final require using SPSS.

Grade Scale

Your letter grade is calculated according to these percentages:

A	100%–93%
A–	92.9%–90%

B+	89.9%–87%
B	86.9%–83%
B–	82.9%–80%
C+	79.9%–77%
C	76.9%–73%
C–	72.9%–70%
D+	69.9%–67%
D	66.9%–63%
D–	62.9%–60%
E (fail)	59.9%–0%

BYU Online Policies

Honor Code

In keeping with the principles of the BYU Honor Code, students are expected to be honest in all of their academic work. Academic honesty means, most fundamentally, that any work you present as your own must in fact be your own work and not that of another. Violations of this principle may result in a failing grade in the course and additional disciplinary action by the university. Students are also expected to adhere to the Dress and Grooming Standards. Adherence demonstrates respect for yourself and others and ensures an effective learning and working environment. It is the university's expectation, and my own expectation in class, that each student will abide by all Honor Code standards. Please call the Honor Code Office at [801-422-2847](tel:801-422-2847) if you have questions about those standards.

Preventing & Responding to Sexual Misconduct

Brigham Young University prohibits all forms of sexual harassment—including sexual assault, dating violence, domestic violence, and stalking on the basis of sex—by its personnel and students and in all its education programs or activities. University policy requires all faculty members to promptly report incidents of sexual harassment that come to their attention in any way and encourages reports by students who experience or become aware of sexual harassment. Incidents should be reported to the Title IX Coordinator at t9coordinator@byu.edu or [801-422-8692](tel:801-422-8692) or 1085 WSC. Reports may also be submitted online to the [Title IX Office](#) or by calling [1-888-238-1062](tel:1-888-238-1062) (24-hours a day). BYU offers a number of resources and services for those affected by sexual harassment, including the university's confidential Sexual Assault Survivor Advocate. Additional information about sexual harassment, the university's Sexual Harassment Policy, reporting requirements, and resources can be found in the University Catalog, by visiting [the Title IX Office website](#), or by contacting the university's Title IX Coordinator.

Student Disability

Brigham Young University is committed to providing a working and learning atmosphere that reasonably accommodates qualified persons with disabilities. If you have any disability which may impair your ability to complete this course successfully, please contact the University Accessibility Center (UAC), 2170 WSC or [801-422-2767](tel:801-422-2767). Reasonable academic accommodations are reviewed for all students who have qualified, documented disabilities. The UAC can also assess students for learning, attention, and emotional concerns. Services are coordinated with the student and instructor by the UAC. If you need assistance or if you feel you have been unlawfully discriminated against on the basis of disability, you may seek resolution through established grievance policy and procedures by contacting the Equal Employment Office at [801-422-5895](tel:801-422-5895), D-285 ASB.

In this spirit, BYU Online aspires to improve web accessibility for users. While not required by law, the Web Content Accessibility Guidelines (WCAG) 2.0 Levels A and AA provide a wide range of helpful recommendations to make Web content more accessible. BYU Online strives to apply WCAG 2.0 recommendations where feasible, but may deviate from any recommendations that would result in an undue hardship to BYU Online or alterations to program and course content and objectives. If you have questions about accessibility, or if you need to report problems with any accessibility features please see our [Accessibilities and Accommodations Web Page](#).

Academic Honesty

The first injunction of the Honor Code is the call to "be honest." Students come to the university not only to improve their minds, gain knowledge, and develop skills that will assist them in their life's work, but also to build character. "President David O. McKay taught that character is the highest aim of education" (The Aims of a BYU Education, p.6). It is the purpose of the BYU Academic Honesty Policy to assist in fulfilling that aim. BYU students should seek to be totally honest in their dealings with others. They should complete their own work and be evaluated based upon that work. They should avoid academic dishonesty and misconduct in all its forms, including but not limited to plagiarism, fabrication or falsification, cheating, and other academic misconduct.

Plagiarism

Intentional plagiarism is a form of intellectual theft that violates widely recognized principles of academic integrity as well as the Honor Code. Such plagiarism may subject the student to appropriate disciplinary action administered through the university Honor Code Office, in addition to academic sanctions that may be applied by an instructor. Inadvertent plagiarism, which may not be a violation of the Honor Code, is nevertheless a form of intellectual carelessness that is unacceptable in the academic community. Plagiarism of any kind is completely contrary to the established practices of higher education where all members of the university are expected to acknowledge the original intellectual work of others that is included in their own work. In some cases, plagiarism may also involve violations of copyright law. Intentional plagiarism is the deliberate act of representing the words, ideas, or data of another as one's own without providing proper attribution to the author through quotation, reference, or footnote. Inadvertent plagiarism involves the inappropriate, but non-deliberate, use of another's words, ideas, or data without proper attribution. Inadvertent plagiarism usually results from an ignorant failure to follow established rules for documenting sources or from simply not being sufficiently careful in research and writing. Although not a violation of the Honor Code, inadvertent plagiarism is a form of academic misconduct for which an instructor can impose appropriate academic sanctions. Students who are in doubt as to whether they are providing proper attribution have the responsibility to consult with their instructor and obtain guidance. Examples of plagiarism include:

- Direct Plagiarism: The verbatim copying of an original source without acknowledging the source.
- Paraphrased Plagiarism: The paraphrasing, without acknowledgement, of ideas from another that the reader might mistake for the author's own.
- Plagiarism Mosaic: The borrowing of words, ideas, or data from an original source and blending this original material with one's own without acknowledging the source.

- **Insufficient Acknowledgement:** The partial or incomplete attribution of words, ideas, or data from an original source.

Plagiarism may occur with respect to unpublished as well as published material. Copying another student's work and submitting it as one's own individual work without proper attribution is a serious form of plagiarism.

Respectful and Inclusive Environment

We embrace the university's mission to "assist individuals in their quest for perfection and eternal life." We strive to foster an environment that is respectful of all backgrounds, perspectives, and voices, that "all may be edified of all" (D&C 88:122). By extending a spirit of consideration, fellowship, and charity to everyone, we enable the discovery of common values and unique insights as we each pursue our worthy secular and spiritual goals.

"Sadly, from time to time, we do hear reports of those who are at best insensitive and at worst insulting in their comments to and about others... We hear derogatory and sometimes even defamatory comments about those with different political, athletic, or ethnic views or experiences. Such behavior is completely out of place at BYU, and I enlist the aid of all to monitor carefully and, if necessary, correct any such that might occur here, however inadvertent or unintentional. I worry particularly about demeaning comments made about the career or major choices of women or men either directly or about members of the BYU community generally. We must remember that personal agency is a fundamental principle and that none of us has the right or option to criticize the lawful choices of another." --President Cecil O. Samuelson, Annual University Conference, August 24, 2010

"Occasionally, we ... hear reports that our female faculty feel disrespected, especially by students, for choosing to work at BYU, even though each one has been approved by the BYU Board of Trustees. Brothers and sisters, these things ought not to be. Not here. Not at a university that shares a constitution with the School of the Prophets." --Vice President John S. Tanner, Annual University Conference, August 24, 2010.

Mental Health Concerns

Mental health concerns and stressful life events can affect students' academic performance and quality of life. BYU Counseling and Psychological Services (1500 WSC, [801-422-3035](tel:801-422-3035)) provides individual, couples, and group counseling, as well as stress management services. These services are confidential and are provided by the university at no cost for full-time students. For general information please visit [the BYU Counseling and Psychological Services website](#); for more immediate concerns please visit the [Helping Distressed Students at BYU web page](#).

Inappropriate Use of Course Materials

All course materials (e.g., outlines, handouts, syllabi, exams, quizzes, PowerPoint presentations, lectures, audio and video recordings, etc.) are proprietary. Students are prohibited from posting or selling any such course materials without the express written permission of the professor teaching this course. To do so is a violation of the Brigham Young University Honor Code.

The materials used in connection with this online course are only for the use of students enrolled in this course for purposes associated with this course and may not be retained or further disseminated. Any copying or further dissemination of these materials may be subject to applicable U.S. Copyright Laws. For questions or more information, please visit the [BYU Copyright Licensing Office](#) website.

"Members of the BYU community who willfully disregard this Copyright Policy or the BYU Copyright



Guidelines place themselves individually at risk of legal action and may incur personal liability for their conduct. The unauthorized use or distribution of copyrighted material, including unauthorized peer-to-peer file sharing, may subject individuals to civil and criminal liabilities, including actual and statutory damages.












¹SPSS Inc. was acquired by IBM in October, 2009.

Copyright © 2018 Brigham Young University. All rights reserved.












Published by
Independent Study
BYU Continuing Education
Brigham Young University
229 HCEB
Provo, Utah 84602-1502
801-422-2868
is.byu.edu












Course Summary:












Date	Details	Due
Wed Nov 27, 2019	 Thanksgiving Break (https://byu.instructure.com/calendar?event_id=80350&include_contexts=course_6980) 	12am to Nov 29 at 12am
Wed Sep 9, 2020	 1.2 Homework: Conceptual Overview-2 (https://byu.instructure.com/courses/6980/assignments/316540) 	due by 1:59pm
Wed Sep 9, 2020	 2.2 DBL: Introduction to Descriptive Statistics (https://byu.instructure.com/courses/6980/assignments/316562) 	due by 1:59pm
Wed Sep 16, 2020	 2.4 Homework: Descriptive—Select, Run, Report-2 (https://byu.instructure.com/courses/6980/assignments/316536) 	due by 1:59pm
Wed Sep 16, 2020	 2.5 Quiz: Descriptive—Select, Run, Report-2 (https://byu.instructure.com/courses/6980/assignments/316549) 	due by 1:59pm
Wed Sep 23, 2020	 3.2 DBL: Introduction to t-tests (https://byu.instructure.com/courses/6980/assignments/316563) 	due by 1:59pm
Wed Sep 23, 2020	 3.4 Homework: t-Tests-2 (https://byu.instructure.com/courses/6980/assignments/316531) 	due by 1:59pm
Wed Sep 23, 2020	 3.5 Quiz: t-Tests-2 (https://byu.instructure.com/courses/6980/assignments/316528) 	due by 1:59pm













Date	Details	Due
	 4.2 DBL: Introduction to ANOVAs (https://byu.instructure.com/courses/6980/assignments/316564)	due by 1:59pm
	 3.4 Homework: t-Tests-2 (https://byu.instructure.com/courses/6980/assignments/316531) (1 student)	due by 1:59pm
	 3.5 Quiz: t-Tests-2 (https://byu.instructure.com/courses/6980/assignments/316528) (1 student)	due by 1:59pm
Wed Sep 30, 2020	 4.2 DBL: Introduction to ANOVAs (https://byu.instructure.com/courses/6980/assignments/316564) (1 student)	due by 1:59pm
	 4.4 Homework: ANOVAs 1-2 (https://byu.instructure.com/courses/6980/assignments/316546)	due by 1:59pm
	 4.5 Quiz: ANOVAs 1-2 (https://byu.instructure.com/courses/6980/assignments/316535)	due by 1:59pm
	 5.2 DBL: Introduction to RM/Split Plot ANOVA (https://byu.instructure.com/courses/6980/assignments/316565)	due by 1:59pm
	 5.4.2 Homework: ANOVAs 2 (https://byu.instructure.com/courses/6980/assignments/316543)	due by 1:59pm
	 5.5 Quiz: ANOVAs 2 (https://byu.instructure.com/courses/6980/assignments/316523)	due by 1:59pm
Wed Oct 7, 2020	 5.4.1 Conceptual Activity: ANOVAs (https://byu.instructure.com/courses/6980/assignments/340939)	due by 1:59pm
	 6.2 Midterm Gap Analysis (In Class) (https://byu.instructure.com/courses/6980/assignments/316532)	due by 11:59pm

Date	Details	Due
Wed Oct 14, 2020	 5.4.2 Homework: ANOVAs 2	due by 1:59pm
	https://byu.instructure.com/courses/6980/assignments/316543 (2 students)	
	 5.5 Quiz: ANOVAs 2	due by 1:59pm
	https://byu.instructure.com/courses/6980/assignments/316523 (2 students)	
Fri Oct 16, 2020	 7.2 Midterm (In Class)	due by 11:59pm
	https://byu.instructure.com/courses/6980/assignments/316529	
Wed Oct 21, 2020	 7.2 Midterm (In Class)	due by 11:59pm
	https://byu.instructure.com/courses/6980/assignments/316529 (1 student)	
Wed Oct 21, 2020	 Mid-Course Survey	to do: 11:59pm
	 8.2 DBL: Introduction to Relationships	due by 11:59pm
	https://byu.instructure.com/courses/6980/assignments/316567	
Wed Oct 28, 2020	 8.4.2 Homework: Relationships	due by 1:59pm
	https://byu.instructure.com/courses/6980/assignments/316539	
	 8.5 Quiz: Relationships	due by 1:59pm
	https://byu.instructure.com/courses/6980/assignments/316522	
	 8.4.1 Conceptual Activity: Relationships	due by 1:59pm
https://byu.instructure.com/courses/6980/assignments/346959		
Wed Nov 4, 2020	 9.2 DBL: Introduction to Regressions	due by 1:59pm
	https://byu.instructure.com/courses/6980/assignments/316568	
	 9.4 Homework: Regression	due by 1:59pm
https://byu.instructure.com/courses/6980/assignments/316527		
 9.5 Quiz: Regression	due by 1:59pm	
https://byu.instructure.com/courses/6980/assignments/316550		

Date	Details	Due
	 10.2 DBL: Introduction to Chi-Square Test of Independence (https://byu.instructure.com/courses/6980/assignments/316556)	due by 1:59pm
	 10.4.2 Homework: Chi-square 1 (https://byu.instructure.com/courses/6980/assignments/316542)	due by 1:59pm
	 10.5 Quiz: Chi-square 1 (https://byu.instructure.com/courses/6980/assignments/316544)	due by 1:59pm
Wed Nov 11, 2020	 9.2 DBL: Introduction to Regressions (https://byu.instructure.com/courses/6980/assignments/316568) (1 student)	due by 1:59pm
	 10.4.1 Conceptual Activity: Chi-square (https://byu.instructure.com/courses/6980/assignments/350238)	due by 1:59pm
	 11.2 DBL: Introduction to Chi-Square Goodness of Fit (https://byu.instructure.com/courses/6980/assignments/316557)	due by 1:59pm
Wed Nov 18, 2020	 10.2 DBL: Introduction to Chi-Square Test of Independence (https://byu.instructure.com/courses/6980/assignments/316556) (1 student)	due by 1:59pm
	 11.4 Homework: Chi-square 2 (https://byu.instructure.com/courses/6980/assignments/316525)	due by 1:59pm
	 14.2 DBL: All Problems Review (https://byu.instructure.com/courses/6980/assignments/316558)	due by 1:59pm
Tue Nov 24, 2020	 15.2 Final Exam (In Class) (https://byu.instructure.com/courses/6980/assignments/316517) (6 students)	due by 11:59pm
Wed Dec 2, 2020	 14.3 Final Gap Analysis (In Class) (https://byu.instructure.com/courses/6980/assignments/316513)	due by 11:59pm

Date	Details	Due
	 14.4 Optional Supplemental Review https://byu.instructure.com/courses/6980/assignments/316519	due by 11:59pm
	 15.2 Final Exam (In Class) https://byu.instructure.com/courses/6980/assignments/316517 (8 students)	due by 11:59pm
Wed Dec 9, 2020	 11.5 Quiz: Chi-square 2 https://byu.instructure.com/courses/6980/assignments/316520	due by 1:59pm
	 9.4 Homework: Regression https://byu.instructure.com/courses/6980/assignments/316527 (1 student)	due by 1:59pm
	 9.5 Quiz: Regression https://byu.instructure.com/courses/6980/assignments/316550 (1 student)	due by 1:59pm
	 10.4.1 Conceptual Activity: Chi-square https://byu.instructure.com/courses/6980/assignments/350238 (1 student)	due by 11:59pm
	 10.4.2 Homework: Chi-square 1 https://byu.instructure.com/courses/6980/assignments/316542 (1 student)	due by 11:59pm
	 10.5 Quiz: Chi-square 1 https://byu.instructure.com/courses/6980/assignments/316544 (1 student)	due by 11:59pm
	 11.4 Homework: Chi-square 2 https://byu.instructure.com/courses/6980/assignments/316525 (1 student)	due by 11:59pm
	 14.2 DBL: All Problems Review https://byu.instructure.com/courses/6980/assignments/316558 (1 student)	due by 11:59pm
	 15.2 Final Exam (In Class) https://byu.instructure.com/courses/6980/assignments/316517	due by 11:59pm

Date	Details	Due
	 8.5 Quiz: Relationships	due by 11:59pm
	https://byu.instructure.com/courses/6980/assignments/316522 (1 student)	
	 End of Course Survey	to do: 11:59pm
Wed Dec 16, 2020	 14.5 Course Final Project	due by 11:59pm
	https://byu.instructure.com/courses/6980/assignments/316559	
Thu Dec 17, 2020	 15.3 Final Project	due by 11:59pm
	https://byu.instructure.com/courses/6980/assignments/316560	
Fri Dec 17, 2021	 14.3 Final Gap Analysis (In Class)	due by 11:59pm
	https://byu.instructure.com/courses/6980/assignments/316513 (1 student)	
	 1.2 Homework: Conceptual Overview	
	https://byu.instructure.com/courses/6980/assignments/316533	
	 12.2 Homework: Probability Theory (t-Tests) Part 1	
	https://byu.instructure.com/courses/6980/assignments/316534	
	 12.3 Homework: Probability Theory (t-Tests) Part 2	
	https://byu.instructure.com/courses/6980/assignments/316538	
	 12.4 Homework: Probability Theory (t-Tests) Part 3	
	https://byu.instructure.com/courses/6980/assignments/316545	
	 12.5 Homework: Probability Theory (t-Tests) Part 4	
	https://byu.instructure.com/courses/6980/assignments/316515	
	 12.6 Homework: Probability Theory (t-Tests) Part 5	
	https://byu.instructure.com/courses/6980/assignments/316518	

Date	Details	Due
	 12.7 Quiz: Probability Theory (t-Tests) (https://byu.instructure.com/courses/6980/assignments/316511)	
	 13.2 Homework: Probability Theory (ANOVA) (https://byu.instructure.com/courses/6980/assignments/316514)	
	 13.3 Quiz: Probability Theory (ANOVA) (https://byu.instructure.com/courses/6980/assignments/316547)	
	 15.3 Final Part 2 (In Class) (https://byu.instructure.com/courses/6980/assignments/316510)	
	 2.4 Homework: Descriptive—Select, Run, Report (https://byu.instructure.com/courses/6980/assignments/316526)	
	 2.5 Quiz: Descriptive—Select, Run, Report (https://byu.instructure.com/courses/6980/assignments/316524)	
	 3.4 Homework: t-Tests (https://byu.instructure.com/courses/6980/assignments/316521)	
	 3.5 Quiz: t-Tests (https://byu.instructure.com/courses/6980/assignments/316548)	
	 4.4 Homework: ANOVAs 1 (https://byu.instructure.com/courses/6980/assignments/316512)	
	 4.5 Quiz: ANOVAs 1 (https://byu.instructure.com/courses/6980/assignments/316516)	
	 5.4 Homework: ANOVAs 2 (https://byu.instructure.com/courses/6980/assignments/316551)	
	 5.5 Quiz: ANOVAs 2 (https://byu.instructure.com/courses/6980/assignments/316541)	

Date	Details	Due
	 6.2 Midterm Gap Analysis (In Class) (https://byu.instructure.com/courses/6980/assignments/316530)	
	 7.2 Midterm (In Class) (https://byu.instructure.com/courses/6980/assignments/316537)	