

Professional Statistics

MATH-202

CG Section 8WK 11/08/2019 to 04/16/2020 Modified 04/08/2022

Course Description

This course provides a foundation in elementary statistics that facilitates data interpretation and statistical analysis.

Requisites

For information regarding prerequisites for this course, please refer to the [Academic Course Catalog](https://catalog.liberty.edu/) (<https://catalog.liberty.edu/>).

Rationale

As members of a field increasingly devoted to the use of data and studies to guide practice, students must learn to correctly interpret statistical presentations to understand when various statistical tools can be appropriately employed, and have a broad grasp of statistical terminology and techniques. This course emphasizes the major applications of statistical knowledge rather than its theory. The course seeks to educate men and women who will make important contributions to their workplaces and communities, follow their chosen vocations as callings to glorify God, and fulfill the Great Commission.

Course Learning Outcomes

Upon successful completion of this course, the student will be able to:

- A. Construct and interpret appropriate graphical representations of data.
- B. Compute statistical measures which describe the location, dispersion, and placement of data values.
- C. Identify probability distributions and unusual events.
- D. Construct and interpret hypothesis tests.
- E. Determine the correlation between two variables and develop linear regression models which predict the value of one variable as a function of the other.
- F. Distinguish between the contexts of various statistical tests and identify appropriate methodology for a variety of applications

Foundational Skills Learning Outcomes: *Technological Solutions and Quantitative Reasoning:* the ability to apply technology and mathematics to analyze information, establish plans, and predict outcomes in various contexts.

- 1. *TSQR 1:* Analyze data and inform action through a structured method.
- 2. *TSQR 2:* Predict the output based on an input in practical scenarios using technological solutions and/or quantitative reasoning.
- 3. *TSQR 4:* Relate technology and quantitative reasoning to participation in God's redemptive work

Course Resources

Click on the following link to view the required resource(s) for the term in which you are registered: [Liberty University Online Bookstore](https://bncvirtual.com/liberty) (<https://bncvirtual.com/liberty>)

Additional Materials for Learning

- A. Computer with basic audio/video output equipment
- B. Internet access (broadband recommended)
- C. Canvas [recommended browsers](https://community.canvaslms.com/t5/Canvas-Basics-Guide/What-are-the-browser-and-computer-requirements-for-Canvas/ta-p/66) (<https://community.canvaslms.com/t5/Canvas-Basics-Guide/What-are-the-browser-and-computer-requirements-for-Canvas/ta-p/66>)
- D. Scientific Calculator or Microsoft Excel
- E. Please note, technical skills for this course include basic Blackboard navigation skills

☰ Course Assignments

Textbook readings and lecture presentations

Course Requirements Checklist

After reading the Course Syllabus and [Student Expectations](https://www.liberty.edu/institutional-effectiveness/student-expectations/) (<https://www.liberty.edu/institutional-effectiveness/student-expectations/>), the student will complete the related checklist found in Module/Week 1.

Discussions (2)

Discussions are collaborative learning experiences. Therefore, the student is required to provide a thread that will apply statistics to real-life situations and demonstrate links between statistics and participation in God's redemptive work in the world. Two of the projects will be completed in Discussion Forums 1 and 2 (CLO: C, E; FSLO: TSQR 1, 2, 4).

Quiz: Homework (8)

Each module/week, the student will complete a set of exercises which will correlate with the assigned Reading & Study material. These exercises will be completed using Blackboard. Students are required to earn at least a 50% on each exercise to move ahead in the course. (CLO: A, B, C, D, E, F; FSLO: TSQR 1, 2)

Project Assignments (2)

The student will complete two individual projects that will apply statistics to real-life situations and further explore some of the ideas introduced in the textbook. (CLO: B, D; FSLO: TSQR 1, 2, 4).

Quizzes (4)

The student will complete 4 exams throughout the course. Each exam will be timed, open-book/open-notes, and will cover 2 modules/weeks of material. The exams will be taken in Blackboard. Unlike the homework assignments, students will only have one attempt on each test. (CLO: A, B, C, D, E, F; FSLO: TSQR 1, 2).

✓ Course Grading

Course Requirements Checklist		10
Discussions	(2 at 40 pts ea)	80
Quiz: Homework	(8 at 40 pts ea)	320
Project Assignments	(2 at 40 pts ea)	80
Quizzes	(4 at 130 pts ea)	520
Total		1010

Mathematical Late Assignment Policy

Mathematical assignments that are submitted after the due date without prior approval from the instructor will receive the following deductions

1. Late *mathematical* assignments submitted within one week after the due date will receive a 10% deduction.
2. *Mathematical* assignments submitted more than one week late or after the final date of the course will not be accepted.
3. Discussion board assignments submitted within one week after the due date will receive a 10% deduction.
4. Discussion board submitted more than one week and less than 2 weeks late will receive a 20% deduction.
5. Discussion board submitted more than 2 weeks late will not be accepted.
6. Group projects, including group discussion board threads and/or replies, and assignments will not be accepted after the due date.

Special circumstances (e.g. death in the family, personal health issues) will be reviewed by the instructor on a case-by-case basis.

For other assignments, please refer to the standard Late Assignment Policy, below.

Late Assignment Policy

Course Assignments, including discussions, exams, and other graded assignments, should be submitted on time.

If the student is unable to complete an assignment on time, then he or she must contact the instructor immediately by email.

Assignments that are submitted after the due date without prior approval from the instructor will receive the following deductions:

1. Late assignments submitted within one week after the due date will receive up to a 10% deduction.
2. Assignments submitted more than one week and less than 2 weeks late will receive up to a 20% deduction.
3. Assignments submitted two weeks late or after the final date of the course will not be accepted outside of special circumstances (e.g. death in the family, significant personal health issues), which will be reviewed on a case-by-case basis by the instructor.
4. Group projects, including group discussion threads and/or replies, and assignments will not be accepted after the due date outside of special circumstances (e.g. death in the family, significant personal health issues), which will be reviewed on a case-by-case basis by the instructor.

Disability Assistance

Students with a disability and those with medical conditions associated with pregnancy may contact Liberty University's Online Office of Disability Accommodation Support (ODAS) at LUOODAS@liberty.edu for accommodations. Such accommodations require appropriate documentation of your condition. For more information about ODAS and the accommodations process, including how to request an accommodation, please visit <https://www.liberty.edu/online/online-disability-accommodation-support/> (<https://www.liberty.edu/online/online-disability-accommodation-support/>). Requests for accommodations not related to disabilities or pregnancy must be directed to the Registrar's Office, which generally handles medical needs support.

If you have a complaint related to disability discrimination or an accommodation that was not provided, you may contact ODAS or the Office of Equity and Compliance by phone at (434) 592-4999 or by email at equityandcompliance@liberty.edu. Click to see a full copy of Liberty's [Discrimination, Harassment, and Sexual Misconduct Policy](https://www.liberty.edu/media/1226/Liberty_University_Discrimination_Harassment_and_Sexual_Misconduct_Policy.pdf) (https://www.liberty.edu/media/1226/Liberty_University_Discrimination_Harassment_and_Sexual_Misconduct_Policy.pdf) or the [Student Disability Grievance Policy and Procedures](http://www.liberty.edu/media/8021/Disability_Grievance_Procedures.pdf) (http://www.liberty.edu/media/8021/Disability_Grievance_Procedures.pdf).

Course Attendance

In an effort to comply with U.S. Department of Education policies, attendance is measured by physical class attendance or any submission of a required assignment within the enrollment dates of the course (such as examinations, written papers or projects, any discussion posts, etc.) or initiating any communication with one's professor regarding an academic subject. More information regarding the [attendance policy](https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwiki.os.liberty.edu%2Fdisplay%2FIE%2FOnline%2BAttendance%2Band%2BNon-) (<https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwiki.os.liberty.edu%2Fdisplay%2FIE%2FOnline%2BAttendance%2Band%2BNon->

[Attendance&data=02%7C01%7Caccollins2%40liberty.edu%7Cd91431fa6ac547056b5408d833029e1a%7Cbf8218eb3024465a9934a39c97251b2%7C0%7C0%7C637315433613729132&sdata=DjjhMiRBNF%2B2ZJUC8eBd1OdNb26S9ADukODYsilXIA%3D&reserved=0](https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.liberty.edu%2Findex.cfm%3FPID%3D791&data=02%7C01%7Caccollins2%40liberty.edu%7Cd91431fa6ac547056b5408d833029e1a%7Cbf8218eb3024465a9934a39c97251b2%7C0%7C0%7C637315433613729132&sdata=DjjhMiRBNF%2B2ZJUC8eBd1OdNb26S9ADukODYsilXIA%3D&reserved=0)) can be found in the [Academic Course Catalogs \(https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwiki.os.liberty.edu%2Fdisplay%2FIE%2FUnofficial%2BWithdrawals&data=02%7C01%7Caccollins2%40liberty.edu%7Cd91431fa6ac547056b5408d833029e1a%7Cbf8218eb3024465a9934a39c97251b2%7C0%7C0%7C637315433613729132&sdata=MoMvZdPfa69InuhVHMHAVgu59ZP0Fw45xJTU9PIBrU%3D&reserved=0\)](https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwiki.os.liberty.edu%2Fdisplay%2FIE%2FUnofficial%2BWithdrawals&data=02%7C01%7Caccollins2%40liberty.edu%7Cd91431fa6ac547056b5408d833029e1a%7Cbf8218eb3024465a9934a39c97251b2%7C0%7C0%7C637315433613729132&sdata=MoMvZdPfa69InuhVHMHAVgu59ZP0Fw45xJTU9PIBrU%3D&reserved=0). Regular attendance in online courses is expected throughout the length of the term. Students who do not attend within the first week of a sub-term by submitting a required academic assignment (such as the Course Requirements Checklist, an examination, written paper or project, discussion post, or other academic activity) will be dropped from the course. Students who wish to re-engage in the course are encouraged to contact Academic Advising to discuss their enrollment options. Students who begin an online course, but at some point in the semester cease attending, and do not provide official notification to withdraw, will be assigned a grade of "FN" ([Failure for Non-Attendance \(https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwiki.os.liberty.edu%2Fdisplay%2FIE%2FUnofficial%2BWithdrawals&data=02%7C01%7Caccollins2%40liberty.edu%7Cd91431fa6ac547056b5408d833029e1a%7Cbf8218eb3024465a9934a39c97251b2%7C0%7C0%7C637315433613729132&sdata=MoMvZdPfa69InuhVHMHAVgu59ZP0Fw45xJTU9PIBrU%3D&reserved=0\)](https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwiki.os.liberty.edu%2Fdisplay%2FIE%2FUnofficial%2BWithdrawals&data=02%7C01%7Caccollins2%40liberty.edu%7Cd91431fa6ac547056b5408d833029e1a%7Cbf8218eb3024465a9934a39c97251b2%7C0%7C0%7C637315433613729132&sdata=MoMvZdPfa69InuhVHMHAVgu59ZP0Fw45xJTU9PIBrU%3D&reserved=0)). Students wishing to withdraw from courses after the official start date should familiarize themselves with the [withdrawal policy](#).

Grading Scale

A	B	C	D	F
900-1010	800-899	700-799	600-699	0-599

For courses with a Pass/NP final grade, please refer to the Course Grading section of this syllabus for the assignment requirements and/or point value required to earn a Passing final grade.

Add/Drop Policy

The full policy statement and procedures are published in the [Policy Directory \(https://wiki.os.liberty.edu/display/IE/Dropping+and+Adding+Online+Classes\)](https://wiki.os.liberty.edu/display/IE/Dropping+and+Adding+Online+Classes).

Honor Code

Liberty University comprises a network of students, Alumni, faculty, staff and supporters that together form a Christian community based upon the truth of the Bible. This truth defines our foundational principles, from our Doctrinal Statement to the Code of Honor. These principles irrevocably align Liberty University's operational procedures with the long tradition of university culture, which remains distinctively Christian, designed to preserve and advance truth. Our desire is to create a safe, comfortable environment within our community of learning, and we extend our academic and spiritual resources to all of our students with the goal of fostering academic maturity, spiritual growth and character development.

Communities are predicated on shared values and goals. The Code of Honor, an expression of the values from which our Doctrinal Statement was born, defines the fundamental principles by which our community exists. At the core of this code lie two essential concepts: a belief in the significance of all individuals, and a reliance on the existence of objective truth.

While we acknowledge that some may disagree with various elements of the Code of Honor, we maintain the expectation that our students will commit to respect and uphold the Code while enrolled at Liberty University.

Adherence to the principles and concepts established within facilitates the success of our students and strengthens the Liberty community.

The Code of Honor can be viewed in its entirety at <http://www.liberty.edu/index.cfm?PID=19155> (<http://www.liberty.edu/index.cfm?PID=19155>).

Schedule

When	Topic	Notes
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When	Topic	Notes
Course Overview	Student Acknowledgements	Course Requirements Checklist
Module 1: Week 1	Learn	Read: 2 items Watch: 3 items
	Apply	Project: Frequency Distribution Assignment Quiz: Homework: Data, Frequencies & Percentiles Assignment
Module 2: Week 2	Learn	Read: 2 items Watch: 3 items
	Apply	Quiz: Homework: Graphs, Descriptive Statistics & Probability Assignment Quiz: Data, Graphs & Descriptive Statistics Exam
Module 3: Week 3	Learn	Read: 2 items Watch: 2 items
	Apply	Discussion: Screening Tests Quiz: Homework: Measurement and Sampling Methods Assignment
Module 4: Week 4	Learn	Read: 2 items Watch: 2 items
	Apply	Quiz: Homework: Hypothesis Tests Assignment Quiz: Measurement, Sampling & Hypothesis Testing Exam
Module 5: Week 5	Learn	Read: 2 items Watch: 2 items
	Apply	Project: T-Tests Assignment Quiz: Homework: Chi-Squared & T-tests
Module 6: Week 6	Learn	Read: 1 item Watch: 2 items
	Apply	Quiz: Homework: Analysis of Variance Assignment Quiz: Chi-Squared, T-tests, and ANOVA Exam
Module 7: Week 7	Learn	Read: 2 items Watch: 2 items
	Apply	Discussion: National Life Expectancies Quiz: Homework: Correlation & Simple Regression Assignment
Module 8: Week 8	Learn	Read: 2 items Watch: 2 items

When	Topic	Notes
	Apply	Quiz: Homework: Multiple Regression & Risk Assignment Quiz: Correlation, Regression & Risk Exam