



Elementary Probability & Statistics (MATH 181) Section 801

Instructor Info —



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Office Hrs: Wed. 11 am -12 pm



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[My BSU Profile](#)

Course Info —



Format: Asynchronous Online

Important Note —



I only check my emails from 8 am - 5 pm on weekdays (Mon-Fri) and it may take up to 48 hours to respond to your emails.



In your email, please include the course name/number (MATH 181-801).



I will use Zoom to hold online meetings and office hours for the class.

Overview/Course Description

Algebra-based introduction to statistical applications through descriptive methods, probability, normal distributions, confidence intervals, hypotheses tests, regression, and correlation. Misuses of statistics and common probability misconceptions are discussed. Statistical experiments and simulations are conducted. Technology use is integrated throughout.

Recommended background

Three years of college preparatory mathematics in high school or equivalent. Not open to students who have credit in MATH 221, MATH 320, or MATH 321.

Textbook & Technology

- Our textbook is Beginning Statistics, 3rd ed, Warren-Denley-Atchley, 2021. A physical textbook is not required.
- We will use the Hawkes Learning System (HLS) online platform associated with the text.
- To create an account in Hawkes, please use the “Hawkes Single Sign On” link in Canvas.
- For more information about obtaining required course materials, see Ball State First Day.
- Students are required to use a TI-83/84 Plus calculator or another graphing calculator. Instructor approved graphing calculator apps may be permitted.

Course Objectives

Students are expected to:

- Interpret and analyze various graphical representations of data including, but not limited to, histograms, box plots, and dot plots, to extract meaningful insights about the data's distribution and relationships.
- Interpret statistical measures such as mean, median, mode, and/or standard deviation within the context of a given data set.
- Create appropriate graphical displays of data to effectively represent categorical and quantitative data.
- Represent data in terms of numerical summaries, including measures of central tendency and measures of dispersion, to succinctly communicate the characteristics of a data set.
- Apply the rules of probability (addition and multiplication rules) to compute probabilities for simple and compound events in various contexts.
- Execute hypothesis tests for population means and proportions, utilizing appropriate statistical procedures to analyze data sets.
- Critically evaluate the validity of conclusions drawn from statistical analyses.
- Communicate the assumptions made when applying the Central Limit Theorem in estimating population parameters from sample statistics.
- Communicate the assumptions related to normality and independence when conducting hypothesis tests for means and proportions.
- Assess the reasonableness of statistical estimates and confidence intervals by examining their context.
- Evaluate the fit of a regression model.
- Identify the limitations of regression analysis and hypothesis testing.
- Communicate the findings of statistical analyses clearly and effectively, ensuring that conclusions are supported by the data.

Attendance Policy

Given the asynchronous online format of the course, attendance is NOT mandatory. Nevertheless, to enhance your academic success, it is crucial that you organize your schedule to allocate 2-3 hours per week for coursework for each credit you are enrolled in.

Grading Scheme

10%	<u>Skills Checks</u> : These assignments will be assigned for each chapter.
10%	<u>Projects</u> : There will be two projects. The first project is over chapters 1-3 and the second project covers chapters 7, 8, 10, & 12.
20%	<u>Hawkes Certify Homework</u> : Homework will be assigned every week, and they should be completed in Hawkes. You will be required to read the <u>LEARN</u> material online, complete the designated PRACTICE and CERTIFY exercises by the specified deadlines.
15%	<u>Quizzes</u> : There will be <u>three</u> online quizzes covering sections done on previous homework assignments.
20%	<u>Midterm Exam</u> : A midterm exam is scheduled to take place during a two-day period. See the course schedule for more details.
25%	<u>Final Exam</u> : The final exam is scheduled to take place during a two-day period. See the course schedule for more details.

Weight	Assignment Type
10%	Skills Checks
10%	Projects (2 projects, each worth 5%)
20%	Hawkes Certify Homework
15%	Quizzes (3 quizzes, each worth 5%)
20%	Midterm Exam
25%	Final Exam

Important Notes

- All exams and quizzes are closed-book and to be taken using the Hawkes system.
- Statistical tables and approved formula sheets will be provided for exams and Quiz 3.
- No formula sheets or additional resources are allowed for Quiz 1 and Quiz 2.
- Each exam provides only one attempt and both require the **Respondus Lock-down Browser**.

Late Submissions & Make-up Policy

- Skill Checks: The two lowest assignment scores will be dropped.
- Projects: Late submission is not allowed and no scores will be dropped.
- Hawkes Certify Homework: Penalties will be applied for late submissions. Hawkes will assess a 10% penalty per “day” that the assignment is submitted late. Hawkes Certify assignments submitted after 5 days will be worth 50% of their normal value. No scores will be dropped.
- Quizzes & Exams: Quizzes and the midterm exam can be made up at the discretion of the instructor and only if the student makes arrangements before the day of the exam! Documentation may be required!

Grade Categories and Weights

Grade	Percent	Grade	Percent
A	93–100	C	73–76.99
A-	90–92.99	C-	70–72.99
B+	87–89.99	D+	67–69.99
B	83–86.99	D	63–66.99
B-	80–82.99	D-	60–62.99
C+	77–79.99	F	Below 60

Communication Policy

Clear and timely communication is essential for success in this course.

- **Email Communication:** Please use your Ball State email account and include “MATH 181-821” in the subject line. Your email should clearly describe your question and include relevant details (e.g., assignment name).
- **Response Time:** I respond to emails Monday–Friday between 8:00 am and 5:00 pm. Please allow up to 48 hours for a response. Emails sent after 5:00 pm or on weekends will be addressed the next business day.
- **Course Content Questions:** General questions about assignments, quizzes, Hawkes, or course material should be sent by email or via Canvas Messages. If a question is relevant to the whole class, I may share a general clarification or announcement in Canvas.
- **Personal Questions:** Questions related to grades or personal matters should be sent via email or Canvas Messages.
- **Office Hours:** Office hours will be held via Zoom. You may attend during scheduled times or email me to arrange an appointment.
- **Plan Ahead:** Please do not wait until the last minute to ask questions about assignments or exams, as responses may not be immediate.

Technical Information

It is your responsibility to become familiar with the class interface and seek help if necessary. BSU provides resources to help you. A lack of Canvas knowledge is not an acceptable excuse for late or incomplete work.

- **Technical Equipment:** For you to be successful in this type of course (e.g. hybrid delivery, flexible delivery), access to the internet is essential. Consult with Ball State Online Division at 765-285-1581 or this link.
- **Technical Assistance:** If you have technical questions, you can contact Ball State’s Help desk. The helpdesk can be contacted at 765-285-1517 (Toll-Free 866-771-3276) or at this link. Hours of Operation: Monday-Thursday: 7:30am to 7:00pm & Friday: 7:30am-5pm.
- **Canvas-related Issues:** Click the Help icon in the lower-left corner of your Canvas screen. It looks like a question mark. In the populated list, you will see links for contacting Canvas 24/7 via chat or phone, as well as a quick orientation on how to use Canvas for discussion boards, quizzes, and assignments in your classes.
- **Hawkes Learning System:** If you have technical questions concerning the Hawkes Learning System, you can contact their Technical Support Monday-Friday 8:00 am – 10:00 pm Eastern via phone 800-426-9538, or 24/7 via LiveChat

Course Withdrawal

The course withdrawal period ends on **June 1st, 2026**. Before this date, students can elect to receive a “W” for the course by completing and submitting the proper form. The instructor’s permission is not required. For details, see this link as well as Degree Requirements and Time Limits in the current Undergraduate Catalog or Withdrawal Procedures in the current graduate catalog.

University Statement

We are committed to ensuring that all members of the community are welcome, through valuing the various experiences and worldviews represented at Ball State and among those we serve. We promote a culture of respect and civil discourse. If you need course adaptations or accommodations because of a disability, please contact me as soon as possible. Ball State’s Disability Services office coordinates services for students with disabilities; documentation of a disability needs to be on file in that office before any accommodations can be provided. Disability Services can be contacted at 765-285-5293 or dsd@bsu.edu.

Freedom of Expression

In this course, we are committed to fostering a learning environment that values intellectual diversity, encourages free expression, and promotes open inquiry. As members of the Ball State Community, we treat each person in the Ball State community with civility, courtesy, compassion, and dignity and respect and learn from differences in people, ideas, and opinions. Please review Ball State University’s Statement on Freedom of Expression, the resources on Ball State’s Freedom of Expression webpage, and Ball State’s Beneficence Pledge.

Academic Honesty

Ball State’s Academic Ethics Policy is given here. Violating this policy can lead to disciplinary action up to and including expulsion from the university. Ball State’s Code of Student Rights and Responsibilities is given here.

Student Academic Ethics Policy

See this link.

Code of Student Rights and Responsibilities

See this link.

Course Schedule

Please note that assignment dates are tentative and subject to change at instructor's discretion.

Weeks	Chapter	Homework	Due	Q/Ex/Proj.
W1: 05/11-05/15	Chapter 1: Introduction to Statistics <ul style="list-style-type: none"> • 1.1 Getting Started • 1.2 Data Classification • 1.3 The Process of a Statistical Study Chapter 2: Graphical Descriptions of Data <ul style="list-style-type: none"> • 2.1 Frequency Distributions • 2.2 Graphical Displays of Data • 2.3 Analyzing Graphs 	1.1-1.3 2.1-2.3 Chapter 1 SCH* Chapter 2 SCH	05/17	Quiz 1* Project 1*
W2: 05/18-05/22	Chapter 3: Numerical Descriptions of Data <ul style="list-style-type: none"> • 3.1 Measures of Center • 3.2 Measures of Dispersion • 3.3 Measures of Relative Position Chapter 4: Probability, Randomness, and Uncertainty <ul style="list-style-type: none"> • 4.1 Introduction to Probability • 4.2 Addition Rules for Probability • 4.3 Multiplication Rules for Probability Chapter 5: Discrete Probability Distributions <ul style="list-style-type: none"> • 5.1 Discrete Random Variables • 5.2 Binomial Distribution 	3.1-3.3 4.1-4.3 5.1-5.2 Chapter 3 SCH Chapter 4 SCH Chapter 5 SCH	05/24	Quiz 2* Project 1 Midterm Exam*
W3: 05/26-05/29	Chapter 6: Normal Probability Distributions <ul style="list-style-type: none"> • 6.1 Introduction to the Normal Distribution • 6.2 The Standard Normal Distribution • 6.3 Finding Probability Using a Normal Distribution • 6.4 Finding Values of a Normally Distributed Random Variable • 6.5 Approximating a Binomial Distribution Using a Normal Distribution 	6.1-6.5 Chapter 6 SCH	05/31	
W4: 06/01-06/05	Chapter 7: The Central Limit Theorem <ul style="list-style-type: none"> • 7.1 Sampling Distributions and the Central Limit Theorem • 7.2 Central Limit Theorem with Means • 7.3 Central Limit Theorem with Proportions Chapter 8: Confidence Intervals <ul style="list-style-type: none"> • 8.1 Estimating Population Means (Sigma Known) • 8.2 Estimating Population Means (Sigma Unknown) & Student's t-Distribution • 8.4 Estimating Population Proportions Chapter 10: Hypothesis Testing <ul style="list-style-type: none"> • 10.1 Fundamentals of Hypothesis Testing 	7.1, 7.2, 7.3 8.1, 8.2, 8.4 10.1 Section 7.1 SCH Chapter 8 SCH Section 10.1 SCH	06/07	Quiz 3* Project 2
W5: 06/08-06/12	Chapter 10: Hypothesis Testing <ul style="list-style-type: none"> • 10.2 Hypothesis Testing Population Means (Sigma Known) • 10.3 Hypothesis Testing Population Means (Sigma Unknown) • 10.4 Hypothesis Testing Population Proportions Chapter 12: Regression, Inference, and Model Building <ul style="list-style-type: none"> • 12.1 Scatter Plots and Correlation • 12.2 Regression Analysis (simple linear regression) 	10.2, 10.3, 10.4 12.1, 12.2 Section 10.2 & 10.3 SCH Chapter 12 SCH	06/10	Project 2* Final Exam* (due 5 pm (ET) on June 12th)

- *SCH: Skills Checks
- *Project 1: Chapters 1, 2, & 3
- *Quiz 1: Chapters 1-2
- *Quiz 2: Chapters 3-5
- *Midterm Exam: Chapters 1-5
- *Quiz 3: Chapters 7-8
- *Project 2: Chapters 7, 8, 10, & 12
- *Final Exam: Chapters 6, 7, 8, 10, & 12

Important Dates

Please note that assignment dates are tentative and subject to change at instructor's discretion.

First Day of Classes	May 11th, 2026
Quiz 1	May 11th-17th, 2026
Project 1	May 11th-24th, 2026
Quiz 2	May 18th-24th, 2026
Midterm Exam	May 21st-22nd, 2026
Memorial Day	May 25th, 2026 (No Classes)
Withdrawal Deadline	June 1st, 2026 (By 5 PM)
Quiz 3	June 1st-7th, 2026
Project 2	June 1st-10th, 2026
Final Exam	June 11th-12th, 2026 Due 5 pm (ET) on June 12th
End of the semester	June 12th, 2026