Statistics with Aviation Applications

WW-STAT 211

EagleVision

Course Syllabus

Worldwide 2024-03 March

Course Information

Term Dates: Mar 18, 2024 - May 19, 2024
Credit Hours: 3
Meetings: 01:00 PM - 04:20 PM Monday Time Zone: Eastern
Location: *EagleVision Home
Delivery Method: EagleVision Classroom/Blended

Instructor Information

Name: Beverly Wood
Email: woodb14@erau.edu
Phone: 1-540-244-9232 (cell)
Office Hours: Fridays, 1:00 - 4:00 pm or by appointment

Required Course Materials

Title: Business Statistics
ISBN: 978-0137584352MyLab Stat Canvas for Business Statistics w Direct Integration for ERAU WW: Ebook and physical access code
Authors: N. R. Sharpe, R. D. De Veaux, and P. F. Velleman
Publisher: Pearson Education, Inc.
Publication Date: 2019
Edition: 4th
Format: Textbook and Access Code
Notes
You must purchase the ebook and access code through the Worldwide Bookstore or Pearson via Canvas. If you purchase an access code through online retailers that specialize in used items, it will not be guaranteed by Pearson.If you need a stand alone, printed textbook, the ISBN is 9780134705217. You must also purchase an access code to reach the course assignments.

Title: Calculator
Format: Calculator
Notes
Students are required to have a calculator – handheld or virtual. A basic scientific or business calculator such as the TI-30X II or its many equivalents will be sufficient.

Catalog Course Description

Apply basic descriptive and inferential statistics; Identify types of data and sampling techniques; compute and interpret measures of central tendency, dispersion, elementary probability, confidence intervals, hypothesis tests and linear regressions.

Prerequisite(s):STAT 211 Prerequisite is MATH 111 or MATH 140 or MATH 143 or MATH 201 or MATH 202 or MATH 241;

Course Goals

Apply basic descriptive and inferential statistics; Identify types of data and sampling techniques; compute and interpret measures of central tendency, dispersion, elementary probability, confidence intervals, hypothesis tests and linear regressions.

Student Learning Outcomes

1. Construct, compute, and use appropriate graphical displays and numerical measures to make accurate conclusions about data.
2. Identify various discrete and continuous probability distributions, identify skewness and symmetry in a distribution, and compute appropriate parameters and probabilities associated with probability distributions including sampling distributions.
3. Explain the importance of randomness in sampling, select and apply appropriate sampling techniques.
4. Select and apply appropriate procedures to estimate parameters and test claims about parameters.
5. Given a set of data, choose appropriate software, use the software to analyze the data, and accurately interpret the output from the software.
6. Communicate the results of statistical analyses in a clear and concise manner.
7. Be a critical consumer of statistics presented by the media and other sources. Accurately interpret the statistics presented, identify ways in which they might be

subject to misinterpretation either intentional or unintentional, and apply ethics to the interpretation and presentation of statistics.

8. Apply the concepts addressed in the course to problem solving including problems related to aviation/aerospace.

Program Outcomes

All learning outcomes above relate to Embry-Riddle Worldwide Arts and Sciences Program Outcomes 2 and 7 below:

- PO 2 - Apply statistical methods in the analysis and interpretation of data for the pu rpose of drawing valid conclusions relating to the solutions of problems.
- PO 7 - Use digitally-enabled technology to organize and manipulate data, perform calculations, aid in solving problems, and communicate solutions, ideas, and concepts.

Disability and Special Needs

Disability Services Support

ERAU-WW is committed to the success of all students. It is a University policy to provide reasonable accommodations to students with disabilities, who qualify for services. If you would like to request accommodations due to a physical, mental or learning disability, please visit the Disability Services Support ERNIE page or contact our office at 386-226-7334 or via email at wwdss@erau.edu. ALL DISCUSSIONS ARE CONFIDENTIAL.

Mental Well-Being Statement

ERAU recognizes that life stressors, such as depression, anxiety, alcohol/drug problems, relationship problems and various other experiences can hinder the learning process. All ERAU students have access to free, confidential counseling through TELUS Health. You can access a counselor 24/7 via phone, computer or chat in the Student Support app. Please download the app or add the link to your computer and consider using this valuable resource during your educational journey at ERAU. More information on TELUS can be found on the WW Dean of Students ERNIE page.

Grading

Scale	Grade
90 - 100	A (Superior)
80 - 89	B (Above Average)
70 - 79	C (Average)
60 - 69	D (Below Average)
Below 60	F (Failure)

Evaluation Items & Weights

Discussions 25%
Assignments 15%
MyLab Homework 25%
MyLab Midterm Exam 15%
Final Practical Exam 15%
Participation 5%
Total: 100%

Discussions

Most modules have graded discussion (blended learning) activities. Discussion activities require you to participate, calculate, interpret, and report on a variety of topics. Some discussions require attaching the Excel Spreadsheet to the post. Some of the discussions also focus on interpreting data – reporting not only the data but also what the data mean for decision-making. For each of the discussion activities, you should make your initial post to the discussion forum by the fourth day of the module week, then return later in the same module week and respond to at least two classmates' posts. Discussion posts must be meaningful. Posts like, "I agree," or "Good post!" will not count for credit. Points will be deducted for poor grammar, misspelled words, improperly cited web/textbook references, late initial posts, and posts made all at one time (do not "post and run"). Posts made after the end of the module will be reviewed by your instructor, but you will not get any credit for them. Your instructor will use the Discussion Grading Rubric that is in each discussion. The discussion activities are worth 25% of your final grade.

Your active participation in the discussion activity is mandatory. You are expected to comment on at least two of the initial discussion threads.

Assignments

Some assignment activities require you to analyze data initially created in a discussion, draw a conclusion, and then report the information. Other assignments give you a scenario to analyze. Follow the directions in the assignments closely. Some require attaching an Excel spreadsheet in addition to a document. Remember that any document submitted is a college paper and should be written in a professional tone. Your instructor may not accept late work. If accepted late by the instructor, assignments are penalized 20% for each day they are late. The assignment activities are worth 15% of your final grade.

MyLab Homework

MyLab Homework assignments allow you to practice learned concepts to gain proficiency. You have three (3) attempts to accomplish each homework assignment. MyLab is a virtual mathematics lab. Help is available within MyLab for each problem in the assignment. Homework is where course material is learned. Homework and tests are where learning is demonstrated. Homework is worth 25% of your final grade.

Homework is due by the end of the module in which they are assigned. **If your assignment is late, there is a 10% penalty applied every day after the due date.** The penalty is only applied to questions you have not answered.

MyLab Midterm Exam

You will take the course cumulative Midterm exam in Module 5 using MyLab. It will cover all material covered from Module 1 thru Module 4. You have one (1) attempt to take the Cumulative Midterm exam and have two hours (120 minutes) to accomplish. Once you start the exam, you must complete it. The Cumulative Midterm exam is worth 15% of your final grade.

Final Practical Exam

Work on the Final Practical exam will span two modules. You will state a hypothesis, select variables from a provided data set, run the appropriate t (means) test and interpret the results. You will turn in the Excel file to complete this project. The Final Practical exam is worth 15% of your final grade.

Participation (Classroom or EV only)

Points for class participation will be earned each night by working a problem on the whiteboard with the instructor and or participating in class when called upon. NOTE: simply attending class will not result in earning any points. You must actively participate

when called on individually and/or in group activities. Participation is worth 5% of your final grade.

Additional Information

Please note that you may be able to see the course content up to 4 (four) days prior to the official term start date. However, you will not be able to actively participate in the course (e.g., submit assignments, participate in discussions, receive credit for an activity, etc.) until 12am on the official day of term start.

APA Format
Go to the **APA website** for additional information about the *American Psychological Association Publication Manual*.

Library
Embry-Riddle Aeronautical University has one of the most complete library collections of aviation-related resources in the world. The Hunt Library is the library for all Worldwide students regardless of location. For help finding resources for your assignment, project, or topic, or to learn more about the library services available to you, please contact our librarians using the following information:

- **Hunt Library Worldwide: Information, Services, Help**
  - **Library Basic Training**
  - **Ask-a-Librarian**
  - **Library Hours**
- Contact Information
  - Email: **library@erau.edu**

TITLE IX
The Title IX Office oversees compliance of Title IX Sexual Harassment in accordance with Federal Regulations, as well as incidents falling under the University Sexual Misconduct policy. Policy violations can include sex discrimination, sexual harassment, or sexual violence, such as rape, sexual assault, relationship / dating violence, sexual misconduct, and stalking.

Anyone **may** report suspected or known violations to the Title IX Office and may be able to receive supportive measures. Please see the Title IX website for additional information.

WW Title IX Office
Email: wwtitle9@erau.edu
Website: https://worldwide.erau.edu/administration/title-ix-compliance
Online Complaint Form

Course Policies

1. **Plagiarism**: Presenting as one's own the ideas, words, or products of another. Plagiarism includes use of any source to complete academic assignments without proper acknowledgment of the source. All papers submitted for grading in this course will be submitted to Turnitin where the text of the paper is compared against information contained in the Turnitin database. Papers submitted will be included in the Turnitin database and become the source documents for the purpose of detecting plagiarism.

2. **Cheating**: A broad term that includes the following:

- Giving or receiving help from unauthorized persons or materials during examinations.
- The unauthorized communication of examination questions prior to, during, or following administration of the examination.
- Collaboration on examinations or assignments expected to be individual work.
- Fraud and deceit, that include knowingly furnishing false or misleading information or failing to furnish appropriate information when requested, such as when applying for admission to the Univerity.

3. The most current **APA Edition** format is the ERAU Worldwide standard for all research projects

4. Course-Specific Policies:

- **Blended Learning Policy:** This course is offered in blended format; 70% of the required course will be conducted in-class and 30% will take place online in Canvas. Class meetings will be composed of lectures, audio-visual presentations, discussions, exercises (also in small groups), student presentations and other course activities. Online activities will include discussion with classmates, posting of your work, reviewing classmates' work, and feedback from the instructor on your work. During the first face-to-face session, we will thoroughly review the online Blended Course Activities.

- **Missed Class Policy:** You are required to attend each live class in its entirety. Grade penalties of 10% of the final grade will be incurred for each unexcused absence, and for each excused absence for which you do not complete the missed class make-up assignment. Notify the instructor as soon as possible if you will not be present or if you will miss part of class. Excused absences may require third party documentation. If you miss any part of class, you must review the EagleVision recording and complete the make-up work assigned to you by the instructor.
- **Late Work Policy:** All course work is expected to be completed on time and should be submitted before 11:59 PM ET on the date indicated in the Course Schedule below. Unless otherwise specified in this document, late work will be downgraded 10% for each day it is past due, up to 5 days beyond the deadline. After that, a permanent score of zero (0) will be entered in the Canvas Grades area. Please coordinate with the instructor as soon as possible if you know your assignment will be late. In some special cases, a penalty-free extension might be granted if you provide your expected date of submission in addition to the reason you cannot make the deadline (expect to provide supporting documentation). Keep in mind that you are always allocated a sufficient time to complete your assignments, so difficulties encountered less than 24 hours prior to the deadline will not be viewed in a favorable light.

  Exceptions: Instructors may choose to develop and implement their own policies regarding the following:
  1. Discussion boards (initial posts and replies to classmates)
  2. Assignments submitted after the last class day

3. Assignments submitted using third-party integrations

Any such deviations must be clearly posted in the Instructor Bio & Policies page.

Note: The Instructor reserves the right to use any form of digital method for checking plagiarism. Several electronic systems are available and other methods may be used at the Instructor's discretion.

EagleVision Web-Conferencing and Technology

EagleVision courses utilize Zoom, web conferencing software that enables students and instructors to connect in real-time through the use of web cameras, microphones, file sharing, chat and more. Students are expected to participate using audio and/or video when requested by the instructor. Review the **Computer Requirements for Worldwide Courses** and run the **ERAU Computer Check** to verify your computer meets the technical specifications and system requirements prior to your first class.

Visit the **EagleVision** ERNIE page for details on using the application, to join a test meeting, and to confirm that your equipment meets the requirements.

Students not in compliance with equipment requirements can be withdrawn at the second class meeting.

It is in your best interest to become familiar with the application ahead of the first class, so you know how to interact with your instructor and classmates. Attend class in an area where there are no distractions (TV, kids, phones, etc.) to impede your learning, the instructor's teaching, or your classmates' attention.

Course Schedule

Module 1 Using Data to Make Good Decisions

- Discussion: Introduce Yourself!
- Assignment: Microsoft Excel: Download Data Analysis Toolpak
- Readings, Resources & MyLab Registration
- M1-Ch 0 Hw
- M1-Ch 1 Hw

Module 2 Visualizing, Describing Categorical and Quantitative Data

- Readings & Resources
- M2-Ch 2 Hw
- M2-Ch 3 Hw
- Keeping it Real Discussion: How High Are You?

Module 3 Correlation and Probability

- Readings & Resources
- M3-Ch 4 Hw
- M3-Ch 5 Hw: Sections 5.1-5.7
- Keeping It Real Discussion: Statistics in the Media
- Assignment: Does Being Higher Lead to More Error?

Module 4 Normal Distribution and Data Sources: Observational Studies and Surveys

- Readings & Resources
- M4-Ch 7 Hw Sections 7.1-7.2
- M4-Ch 8 Hw
- Keeping It Real Discussion: What's Up with Data Visualization?
- Assignment: Random Number Generators

Module 5 Midterm Exam and Data Visualization

- Assignment: Beyond Paper & Ink
- M-5 Modules 1-4 Hw rev
- M-5 Modules 1-4 MT Exam

Module 6 Data Sources for Experiments, Sampling Distributions and Confidence Intervals for Proportions

- Readings & Resources
- M6-Ch 9 Hw

- M6-Ch 10 Hw
- Keeping It Real Discussion: Results from Unrepresentative Samples

Module 7 Confidence Intervals and Hypothesis Testing

- Readings & Resources
- M7-Ch11 Hw
- M7-Ch12 Hw
- Keeping It Real Discussion: Confidence Intervals We Use Everyday
- Heads Up: Final Practical Exam

Module 8 Hypothesis Testing, P Values, and Confidence Intervals

- Readings & Resources
- M8-Ch13 Hw
- M8-Ch14 Hw
- Keeping It Real Discussion: What's a P Value Anyway?
- Final Practical Exam: Part I

Module 9 Final Practical Exam

- Resources
- Keeping It Real Discussion: Why Should Companies Design Based on the Normal Distribution?
- Final Practical Exam: Part II
- Assignment: Reflection Video

Summary

Due Date	Name (link)	Event type	Points
3/24	Module 1 - Discussion: Introduce Yourself!	Discussion	100
3/24	Module 1 - Assignment: Microsoft Excel: Download Data Analysis Toolpak	Assignment	0
3/31	Module 2 - Keeping It Real Discussion: How High Are You?	Discussion	100
4/7	Module 3 - Assignment: Does Being Higher Lead to More Error?	Assignment	100
4/7	Module 3 - Keeping it Real Discussion: Statistics in the Media	Discussion	100
4/14	Module 4 - Assignment: Random Number Generators (PLG1)	Assignment	100
4/14	Module 4 - Keeping It Real Discussion: What's Up with Data Visualization?	Discussion	100
4/21	Module 5 - Assignment: Beyond Paper & Ink (PLG1)	Assignment	100
4/28	Module 6 - Keeping It Real Discussion: Results from Unrepresentative Samples	Discussion	100
5/5	Module 7 - Keeping It Real Discussion: Confidence Intervals We Use Everyday	Discussion	100
5/12	Module 8 - Keeping It Real Discussion: What's a P-Value Anyway?	Discussion	100
5/12	Module 8 - Final Practical Exam: Part I	Assignment	100
5/19	Module 9 - Assignment: Reflection Video	Assignment	100

Due Date	Name (link)	Event type	Points
5/19	Module 9 - Keeping It Real Discussion: Why Should Companies Design Based on the Normal Distribution?	Discussion	100
5/19	Module 9 - Final Practical Exam: Part II	Assignment	100
	M4-Ch 8 Hw	Assignment	10
	Student Lounge	Discussion	0
	M8-Ch13 Hw	Assignment	10
	M7-Ch12 Hw	Assignment	10
	Participation - 7	Assignment	100
	Participation - 6	Assignment	100
	M2-Ch 2 Hw	Assignment	10
	Participation - 9	Assignment	100
	M3-Ch 4 Hw	Assignment	10
	M6-Ch10 Hw	Assignment	10
	Online Office	Discussion	0
	Participation - 2	Assignment	100

Due Date	Name (link)	Event type	Points
	M5-M1-4 MT Exam	Assignment	20
	Participation - 1	Assignment	100
	M7-Ch11 Hw	Assignment	10
	M-5-M1-4 Hw rev	Assignment	20
	Participation -3	Assignment	100
	M1-Ch O Hw	Assignment	6
	M3-Ch 5 Hw	Assignment	10
	M4-Ch 7.1-7.2 Hw	Assignment	10
	M6-Ch 9 Hw	Assignment	10
	M1-Ch 1 Hw	Assignment	10
	M8-Ch14 Hw	Assignment	10
	Participation - 4	Assignment	100
	Participation - 8	Assignment	100
	Participation - 5	Assignment	100

Due Date	Name (link)	Event type	Points
	M2-Ch 3 Hw	Assignment	10

© Embry-Riddle Aeronautical University

Last Updated: 03/01/2023

By: Dr. John Griffith