EMBRY-RIDDLE
Aeronautical University
WORLDWIDE

Business Statistics
STAT 222
EagleVision Home – Blended Learning
Course Syllabus

Credit Hours: 3 Credits

Academic Term: 2474: 7 January 2019 – 10 March 2019

Meetings: 4:00 – 7:20 PM Mountain Time; Tuesday

Location: EagleVision Home-Blended Learning (EVH + Online)

Instructor: Gerald Belton

Office Hours: Telephone or Skype: Mon, Wed, Fri 8:00 – 9:00 PM and
Saturday 10:00 – 11:00 AM Eastern Time Zone
EagleVision: Thu 8:00 – 9:00 PM Eastern Time Zone

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Course Description:
This course is a study of basic descriptive and inferential statistics. Topics include types of data, sampling techniques, measures of central tendency and dispersion, elementary probability, discrete and continuous probability distributions, sampling distributions, hypothesis testing, confidence intervals, and simple linear regression. Lecture hours per week (4:45).
Prerequisite(s): MATH 111 or MATH 140 or MATH 143 or MATH 241 or MATH 250

Course Goals:
The purpose of this course is to enable students to select and apply appropriate descriptive and inferential statistical techniques to analyze varying types of data, to defend the rationale for selection of the techniques and to effectively communicate results to their analyses. It will prepare students for techniques used in upper level management courses and provide them with the knowledge necessary to evaluate statistics as they are used and/or misused in business, politics, and other fields.

Learning Outcomes:

Alignment with Worldwide College of Arts and Sciences general education program outcomes is indicated in parentheses. Upon completion of the course, students will be able to do the following:

1. Summarize and make appropriate conclusions about data by using appropriate graphical displays and by calculating and interpreting measures of central tendency and dispersion. Calculate z-scores and percentiles. (PO 2 & 7)
2. Calculate probabilities of events and unions, intersections and complements of events using basic counting rules and the basic laws of probability. (PO 2 & 7)
3. Calculate probabilities using binomial, Poisson and normal distributions. (PO 2 & 7)
4. Explain the importance of randomness in sampling, select and apply appropriate sampling techniques. (PO 2 & 7)
5. Calculate confidence intervals for population means or proportions from sample data using the normal distribution for large samples and student's t-distribution for small samples and interpret the result. (PO 2 & 7)
6. Test hypotheses concerning population means and proportions using either large or small sample data and interpret results. (PO 2 & 7)
7. Calculate confidence intervals and perform hypothesis test for differences in two population means or proportions and interpret the results. (PO 2 & 7)
8. Communicate the results of statistical analysis in a clear and concise manner. (PO 2 & 7)
9. 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. (PO 2 & 7)
10. Apply the concepts addressed in the course to problem solving including problems related to business. (PO 2 & 7)

Added Learning Outcomes for Worldwide Campus:
11. Compute the correlation coefficient and simple linear regression equation relating two numerical variables, interpret the meaning of each, and use them to summarize the relationship.
12. Given a set of data, choose appropriate software, use the software to analyze the data, and accurately interpret the output from the software. (PO 2 & 7)

List of Program Outcomes for General Education of Arts and Sciences
PO2 - Apply statistical methods in the analysis and interpretation of data for the purpose of drawing valid conclusions relating to the solutions of problems;
PO7 - Use digitally-enabled technology to organize and manipulate data, perform calculations, aid in solving problems, and communicate solutions, ideas, and concepts;

Required Course Materials:
Tintle, N., Chance B. L., Cobb, G.W., Rossman, A.J., Roy, S., Swanson, T., Vanderstope, J. (2016) *Introduction to statistical investigations* with WileyPLUS access card (1st edition). Hoboken, NJ: John Wiley & Sons, Inc.

ISBN 978-1119404637 Looseleaf/Binder Ready Version Text with WileyPLUS LMS Code Card

ISBN 978-1119379201 eText access (no physical text) with WileyPLUS access

Note: You may purchase either the looseleaf or the eText. Both come with a wileyPLUS access code.

WileyPLUS (WP) is a course requirement. All the homework, quizzes and exams are offered within WP. In addition to this, WP has some helpful videos and an online copy of the textbook. You may choose to purchase the WP access via the Canvas link to use only the electronic version of the book. There is a 14-day grace period to access WileyPLUS to get started on work while waiting for the textbook (with the code) to arrive by mail.

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. Whatever calculator you select, be sure that you know how to use it as this will alleviate a lot of mistakes and frustration.

Suggested Supplemental Materials:
None

Free tutoring for this course is available via a link in the Canvas navigation menu. The Course Specific module includes a page describing the services available.

Grading:

Discussions (BL)	10%
WP Homework	15%
WP Quizzes	15%
WP Exam I (Ch. 1-4, App B)	20%
WP Exam II (Ch. 5-7, 10)	20%
Course Project	20%
Total	100%

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

Library:
The Jack R. Hunt Library, located on the Daytona Beach Campus, is the primary library for all Worldwide Campus students.

Web & Chat: http://huntlibrary.erau.edu/
Email: library@erau.edu
Text: (386) 968-8843
Library Phone: (386) 226-7656 or (800) 678-9428
Hours: http://huntlibrary.erau.edu/about/hours.html

Course Project (20% of your course grade):
This course requires the student to prepare and submit a project report on an independent statistical investigation during week 9. The project includes all six steps of that process as used throughout the course. Preliminary assignments in weeks 6 through 8 assure that you are making progress toward the final report and allow ample opportunity for questions or receiving peer and faculty feedback during your investigation. Writing should show college-level work and adhere to APA 6th Edition standards. Don't forget the basics: spelling, grammar, and format.

- The module 6 discussion will help you work out difficulties in completing the *Project Plan* which is <u>due in module 7</u>.
- The module 7 discussion will help you consider different ways to display your data before your *Project Data* is <u>due in module 8</u>.
- The *Project Report* <u>is due in module 9</u> via a TurnItIn Assignment in Canvas. This will check your paper for plagiarism and other types of cheating.
- The full project is worth 20% of your final grade: 15 pts for the *Plan*, 25 pts for the *Data*, and 60 pts for the *Report*.

Assignments, Discussion area Participation (If required for Blended Delivery), and/or special administrative:
All assignments will be completed in a professional manner and on time, unless prior arrangements have been made with the professor. This course includes weekly activities, each of which may have grade points associated with them. Unless prior arrangements have been made with the instructor, students are expected to participate each week, according to the course schedule. This is especially important with regards to discussion activities. Weekly Canvas discussions typically include both an initial posting and one or more substantive replies in courses offered via Blended Learning. Note: Proper etiquette has to do with keeping it simple by using proper English and proper spelling – spell check works well in Canvas.

1. **Reading:** You are required to read the assigned chapters ***before*** class and before attempting any of the assignments each week. Please make time to take notes while you read the text and watch the videos or use the applets embedded in the text. *This is not a graded component of the course, but your success in subsequent assignments depends on your understanding of this material.*

2. **WileyPLUS (WP) Homework assignments:** There will be homework assignments delivered via WileyPLUS in every module. Each student gets the same question, but different values in these assignments. You can work on your problem set throughout the week up until the due date. You will get unlimited chances to answer each question/problem. *Homework completed after the deadline in the Course Schedule will have an automatic grade deduction of 20% for the first 3 days after the deadline and 70% beginning on the 4th day after the deadline. The penalty applies only to the portion of the homework completed after the deadline.*

3. **WileyPLUS Quizzes:** The quizzes cover the material you have learned in the current module's materials, chapter readings, and homework assignments. There is one attempt allowed for each quiz but within the quiz you will have 2 attempts on each question. WP

will give you immediate feedback after taking the quiz. A one-time review is allowed only immediately after submitting the final quiz attempt.

4. **WileyPLUS Exams:** There is a mid-term exam over the material from the first four modules in module 5 and an end-of-term exam over the material from modules 5-8 in module 9. The exams are administered out of class via WP. You will have a single opportunity to answer the set of questions. Once you start the exam, you must complete it. Each test will be graded immediately by WP, but *your instructor will review your entries before determining your final score.* Due to exam security concerns, students **will not** be able to review their work after completing the exam. Be sure to keep a copy of your scratch work while taking the exam. You may ask the instructor to review your scratch work for possible partial credit. If you experience any technical difficulties with the exam, contact your instructor as soon as possible for assistance. All exams will be available for a one-week period, after which the link will become unavailable. *Because you have 7 days to find the time to complete each exam, late work is not accepted for this component of your grade.*

5. **Blended Learning Assignments:** Every module contains online Discussion activities covering a variety of topics related to statistics. For each of the discussion activities, you should make your initial post to the discussion forum by the end of the fourth day of the module then return later in the same week and give meaningful responses to the posts of at least two classmates. Your instructor will use the Discussion rubric that is in each discussion module item; be sure to look at it to judge your own contributions before grades are assigned. *Blended Learning activities completed after the deadline in the Course Schedule will not be accepted.*

Course Policies:
Embry-Riddle is committed to maintaining and upholding intellectual integrity. All students, faculty, and staff have obligations to prevent violations of academic integrity and take corrective action when they occur. The adjudication process will include the sanction imposed on students who commit the following academic violations, which may include a failing grade on the assignment, a failing grade for the course, suspension, or dismissal from the University:

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 acknowledgement 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 source documents for the purpose of detecting plagiarism.
2. **Cheating:** A broad term that includes the following:
   a. Giving or receiving help from unauthorized persons or materials during examinations.
   b. The unauthorized communication of examination questions prior to, during, or following administration of the examination.
   c. Collaboration on examinations or assignments expected to be individual work.
   d. 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 University.

3. **APA 6th edition** format is the ERAU Worldwide standard for all research projects.

4. **Course Specific Policies:**

   a. **Blended Learning Policy:** This course is offered in blended format. 70% of the required course will be conducted in-class. 30% will take place online in Canvas. Class meetings will be comprised of lectures, audio-visual presentations, discussions, exercises, and student presentations. 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 class meeting, we will thoroughly review the online Blended Course activities.

   b. **Missed Class Policy**: You are expected to attend each class session in its entirety. Notify the instructor as soon as possible if you will not be present or if you will miss part of class. If you miss any part of class, you will need to view the recorded session. You will also need to contact the instructor during office hours to verify that you have watched the recorded session, and to resolve any questions you have about the materials covered. Students who fail to complete this make-up assignment 48 hours before the start of the next class session will lose 10% off their homework assignment for the week.

   c. **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. The instructor has sole discretion as to whether or not late work will be accepted. The instructor does not have to accept late work. Unless otherwise specified in this document, **if the instructor chooses to accept late work** it will be downgraded 20% if it is turned in within 3 days after the deadline, and 70% 3-5 days beyond the deadline. After that, a score of 0 will be entered in the Canvas Grades area. **Discussion boards, quizzes, and exams must be completed by the due date. Homework will follow the above policy.** 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 always have at least 7 days to complete your assignments, so difficulties encountered less than 24 hours prior to the deadline will not be viewed in a favorable light.

EagleVision Web-Conferencing Technology:

EagleVision is a web video conferencing platform, powered by Adobe Connect, which provides a real time collaborative environment with tools to enhance learning. Visit the ERNIE page for EagleVision to run the Adobe Connect Diagnostic Test, and 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 review the Student Quick Start Guide to 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.

Disability and Special Needs:
ERAU 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 contact the Worldwide Campus Disability Support Service Office at (888) 292-5727 or via email wwdss@erau.edu or worldwide.disability.support.services@erau.edu.

Course Schedule:

Week	Topics	L/O	Activities
1	*NOTE: The term starts on Monday, January 7. Log on to Canvas this day and get started on your ungraded assignments. Our first class meeting is on* Tuesday, January 8. Statistical Investigation and Evidence	1, 2, 5, 6, 8	**Readings:** Preliminaries **_and_** Chapter 1, sections 1-3 **In-class Assignments:** Assignment: The Chance Model Example(Simulation-Based) Discussion: *Standard Deviation* (BL) **Canvas Assignments:** Review the Course Syllabus Groups: Self Sign-up Discussion: The Chance Module (Simulation-Based) (BL) Discussion: *Standard Deviation* (BL) Knowledge Quick Check **WP Assignments:** Register for WP **_and_** Mod 1 HW **_and_** Mod 1 Quiz
2	Significance and Generalization	1, 2, 5, 6, 7, 8	**Readings:** Chapter 1, sections 4-5 **_and_** Chapter 2, sections 1-3 **In-class Assignments:** Assignment: The Chance Model Example (Theory-Based) Discussion: The Chance Model Example (Theory-Based) (BL) **Canvas Assignments:** Discussion: *Mean versus Median* (BL) Knowledge Quick Check **WP Assignments:** Mod 2 HW **_and_** Mod 2 Quiz

Week	Topics	L/O	Activities
3	Estimation	1, 2, 3, 5, 6	**Readings:** Chapter 3 **In-class Assignments:** Assignment: Confidence Interval Example Discussion: Confidence Interval (BL) **Canvas Assignments:** Discussion: *Reading a Statistical Report* (BL) Knowledge Quick Check **WP Assignments:** Mod 3 HW ___and___ Mod 3 Quiz
4	Association and Causation	2, 5, 6, 8	**Readings:** Chapter 4 ___and___ Appendix B **In-class Assignments:** None **Canvas Assignments:** Discussion: *Published Confidence Intervals* (BL) Knowledge Quick Check **WP Assignments:** Mod 4 HW ___and___ Mod 4 Quiz
5	Comparing Two Proportions	1, 2, 3, 5, 6, 8	**Readings:** Chapter 5 **In-class Assignments:** None **Canvas Assignments:** Discussion: *Study Hall* (BL) Knowledge Quick Check **WP Assignments:** Midterm Exam ___and___ Mod 5 HW ___and___ Mod 5 Quiz
6	Comparing Two Means	1, 2, 4, 5, 6, 7, 8	**Readings:** Chapter 6 **In-class Assignments:** None

Week	Topics	L/O	Activities
			Canvas Assignments: Discussion: *Project Planning* (BL) **WP Assignments:** Mod 6 HW **_and_** Mod 6 Quiz
7	Paired Data	1, 2, 4, 5, 6, 7, 8	**Readings:** Chapter 7 **In-class Assignments:** None **Canvas Assignments:** Submit the Project Plan (Module 7 – Project Plan) Discussion: *Data Visualization* (BL) **WP Assignments:** Mod 7 HW **_and_** Mod 7 Quiz
8	Bivariate Data	1 - 12	**Readings:** Chapter 10 **In-class Assignments:** None **Canvas Assignments:** Submit the data for your project (Module 8 – Project Data) Discussion: *Data and Analysis* (BL) **WP Assignments:** Mod 8 HW **_and_** Mod 8 Quiz
9	The Course Project and Final Exam *NOTE: This is a shorter week because the term ends on Sunday, March 10. All work must be submitted by 11:59 PM ET on the last day of the term. Be sure to check in on this final day to read any announcements from your instructor and make sure all of your assignments are accounted for.*	1 - 12	**Readings:** None **In-class Assignments:** None **Canvas Assignments:** Discussion: *Study Hall* (BL) Submit your completed Course Project Report (Module 9 – Project Report) **WP Assignments:** Final Exam

Submitted by: Gerald Belton

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