University of Cincinnati

I. Course Information:

Title: Data Analysis
Course #: 22-BANA7011-01
Credit Hours: 2
Term: Summer 2018
Prerequisites: N/A

II. Instructor Information:

Name: Dr. Denise White
Title: Assistant Professor – Educator, OBAIS Department
Office Information: LCB, Room 516
Office: (513)556-2228
Email: whited5@ucmail.uc.edu
Office Hours: TBD
Communication Policy: Students are encouraged to contact me anytime via email or phone. Please use email as the primary mode of contact. A response will be given within 36-48 hours. Please understand that I cannot guarantee an immediate response if you contact me very close an assignment deadline. Virtual office hours will be held using WebEx.

III. Link to Pace:

This course aligns with PACE, the Lindner College of Business platform for developing the total business professional.

P – Professionalism

- Enhance oral & written communication, express ideas clearly, logically and persuasively.
- Develop and practice teamwork skills through group projects and exercises.
- Practice professional habits of punctuality, preparation, respect and participation.

A – Academics

- Develop foundational knowledge of core business functions and their interactions within firms.
- Begin applying functional and cross-functional knowledge to critically analyze business problems; for example applying techniques for business plan development.

C – Character
• Learn and apply *leadership* techniques for project management (plan, brief, execute, debrief).
• Build an understanding and initial skills of *managing diversity*, including understanding cultural differences, and challenges and opportunities of global business.
• Understand importance of *ethics and social responsibility* in business and personal settings.

**E – Engagement**

• Build understanding of importance and practices of *networking* through interactions with business professionals and guest speakers.
• Develop awareness and appreciation of *involvement* in social organizations, community service, and professional group opportunities.

**IV. Course Materials**

**Required**

• Please download all the online Excel data files from [www.pearsonhighered.com/evans](http://www.pearsonhighered.com/evans). Click on the *Business Analytics 2e* book cover or the *Online Data Files* link (see below).

These are the files used in the textbook examples and referred to in the homework problems.

**Options for Purchasing the Text Include:**

• (UC Bookstore, Dubois Bookstore, Amazon, Etc.)

**V. Course Description:**

Introduction to data analysis and statistical methods with focus on practical decisions using quantitative models in a spreadsheet environment. Topics include sources of data, descriptive and graphical statistical methods, probability, distributions, sampling and sampling distributions, estimation, confidence intervals, and hypothesis testing.
This course is the first of a sequence of two courses in the MBA program that provides an introduction to business analytics (the second course is BANA 7012). This course focuses on basic topics of data analysis and statistics, emphasizing data visualization and summarization, descriptive statistical measures, probability distributions and data modeling, sampling and estimation, and statistical inference.

This book was designed around Microsoft Excel 2013 for Windows. Excel will be used as the platform for conducting analyses and performing statistical calculations. Since the second edition of the book was published, new versions of Excel have been released (The author is incorporating this into the third edition which won’t be published for over a year). You may also use the newer Excel 2016 for Windows or Excel 2016 for Mac, which has the statistical procedures that we will be using. IMPORTANT! You cannot use any earlier versions of Excel for Mac as it does not have the capabilities you will need. If you use Excel 2016, note that menus are somewhat different from the screen shots in the book; it is your responsibility to ensure that you are using the correct commands and menus that you will need. Students may purchase Microsoft Office at greatly discounted prices from UCIT.

VI. Student Learning Outcomes:

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

- Identify sources of data.
- Use tabular and graphical methods to summarize and describe data.
- Formulate probability models of uncertain or risky quantities.
- Take unbiased random samples from relevant populations.
- Work with sampling distributions to quantify uncertainty in estimates from samples.
- Form point estimates of, and confidence intervals for, unknown population parameters such as the mean and proportion, and differences between means and proportions.
- Formulate and test hypotheses about means, proportions, and differences.
- Interpret data-analysis methods in business contexts.
- Develop facility with using spreadsheets for data analysis and description.

VII. Instructional Methods (Including Description about Bb):

The following course utilizes the Blackboard (Bb) Learning Management System to provide student-centered online learning that will enhance the teaching and learning process. Through a variety of instructional methods (e.g. discussion boards, video lectures, readings, online assessments, etc.) the learner will become immersed and
engaged in the learning process. If you are not familiar with these tools, please visit https://kb.uc.edu/kbarticles/blackboard-landing.aspx.

Everything you need to take this course (except for the textbook files and software) is available on Blackboard.

- Use the Discussion Board Q&A to post questions regarding clarification of assignments or lecture and text material. Please read the posts to avoid asking duplicate questions; you can click on the “Subscribe” button to get email announcements when a new entry has been posted to the Discussion Board with a link to click on and take you directly to the new post. This is the best way to keep up.
- For questions of a personal nature or for help with assignments, contact the instructor directly; all Discussion Board posts are available to the entire class.
- Check Blackboard announcements every day! You are responsible for any changes/corrections/etc. that are posted regarding assignments or course material.

VIII. Course Communication:

University policy requires that the email set up in Blackboard is the primary means of communication. It is advisable that you use your UC email for this purpose and that you check it often. If you choose to change your email in Blackboard to a non-UC email it is your responsibility to ensure you check it frequently. Please see the attached Student Email Policy for more information: http://www.uc.edu/content/dam/uc/infosec/docs/general/Policy_StudentEmail.pdf.

IX. Course and Grading Policies:

1. Course Structure: Changes to the syllabus, due dates, course requirements or grading requirements will be made as far in advance as possible. Due dates will be clearly marked in Blackboard. All assignments will be submitted via Blackboard using a Word document, PDF document or an Excel document. When completing discussion board assignments please make sure to abide by the rules of netiquette which are posted under course documents.

2. Academic Integrity: As with all Lindner College of Business efforts, in this course you will be held to the highest ethical standards, critical to building character. Ensuring your integrity is vital and ultimately is your responsibility. To help ensure the alignments of incentives, the Lindner College of Business has implemented a “Two Strikes Policy” regarding Academic Integrity that supplements the UC Student Code of Conduct (see: http://www.uc.edu/conduct/Code_of_Conduct.html)

- All academic programs at the Lindner College of Business use this “Two Strikes Policy”; Any student who has been found responsible for two cases of academic misconduct may be dismissed from the College.
• All cases of academic misconduct (e.g., copying other students’ assignments, failure to adequately cite or reference, cheating, plagiarism, falsification, etc.) will be formally reported by faculty; and
• Students will be afforded due process for allegations as outlined in the policy.
• The submittal of an assignment, project, or quiz is an implicit statement that the work is that only of the student submitting the material, and that no assistance was obtained from any other person. Any clear violations of this policy will result in a zero grade for that assignment or quiz and possible failure of the course, and will be reported to the university and the CoB Associate Dean for Graduate Programs for further action. Academic integrity also means that you will not copy any exam questions by any means (e.g., screen shots), save them, or distribute them to others, at anytime, either during the course or after the course is completed.

3. **Disability:** Students with disabilities who need academic accommodations or other specialized services while attending the University of Cincinnati will receive reasonable accommodations to meet their individual needs as well as advocacy assistance on disability-related issues. Students requiring special accommodation must register with the Disability Services Office. [http://www.uc.edu/aess/disability.html](http://www.uc.edu/aess/disability.html)

4. **Counseling Services, Clifton Campus:** Students have access to counseling and mental health care through the University Health Services (UHS), which can provide both psychotherapy and psychiatric services. In addition, Counseling and Psychological Services (CAPS) can provide professional counseling upon request; students may receive five free counseling sessions through CAPS without insurance. Students are encouraged to seek assistance for anxiety, depression, trauma/assault, adjustment to college life, interpersonal/relational difficulty, sexuality, family conflict, grief and loss, disordered eating and body image, alcohol and substance abuse, anger management, identity development and issues related to diversity, concerns associated with sexual orientation and spirituality concerns, as well as any other issue of concern. After hours, students may call UHS at 513-556-2564 or CAPS Cares at 513-556-0648. For urgent physician consultation after-hours students may call 513-584-7777.

5. **Title IX:** Title IX is a federal civil rights law that prohibits discrimination on the basis of your actual or perceived sex, gender, gender identity, gender expression, or sexual orientation. Title IX also covers sexual violence, dating or domestic violence, and stalking. If you disclose a Title IX issue to me, I am required forward that information to the Title IX Office. They will follow up with you about how the University can take steps to address the impact on you and the community and make you aware of your rights and resources. Their priority is to make sure you are safe and successful here. You are not required to talk with the Title IX Office. If you would like to make a report of sex or gender-based discrimination, harassment or violence, or if you would like to know more about your rights and resources on campus, you can consult the website [www.uc.edu/titleix](http://www.uc.edu/titleix) or contact the office at 556-3349.

6. **Missed and/or late examinations, quizzes, and graded exercises:** All quizzes and assignments must be completed by the prescribed due dates and times (Eastern time if you are in another time zone) As a student engaged in graduate level
study it is your responsibility to review the syllabus, know the deadlines, and plan accordingly. I will not accept excuses that you simply forgot, had too much to do at work, or didn’t see the deadlines (this applies to exams also – I have had students in the past who didn’t take the exams on time because they simply forgot; they received a 0). Back up your work as you do it, and have a plan for potential Internet connection or other technology failures and do not leave assignments or exams to the last minute.

7. **LCB Weather Related Protocol:**
When inclement weather threatens the safety of the University of Cincinnati community, the Senior Vice President for Administration and Finance may invoke University Rule 3361: 10-55-01 and declare an emergency closing.

The Lindner College of Business will observe the university emergency closing protocol for all on-campus classes. During a university emergency closing, all college offices will be closed.

Students should clarify with their course instructors how the closure will affect assignments and deadlines, and whether class information from the missed session(s) will be posted on Blackboard, and/or if the class will meet virtually during the closure.

*In the event of inclement weather and the university is closed, the closure will not affect online courses. All course assignments and activities will remain as scheduled in the course syllabus.*

8. **Criteria for letter grades:**
Total points for each course component are given in the table below.

<table>
<thead>
<tr>
<th></th>
<th>Module 1</th>
<th>Module 2</th>
<th>Module 3</th>
<th>Module 4</th>
<th>Module 5</th>
<th>Module 6</th>
<th>Module 7</th>
<th>Total Points</th>
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</thead>
<tbody>
<tr>
<td>Lecture Quizzes</td>
<td>46</td>
<td>50</td>
<td>20</td>
<td>60</td>
<td>40</td>
<td>38</td>
<td>36</td>
<td>290</td>
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<tr>
<td>Survey / Case Assignments</td>
<td>10</td>
<td></td>
<td>200</td>
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<td>210</td>
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<tr>
<td>Homework Quizzes</td>
<td>16</td>
<td>18</td>
<td>10</td>
<td>16</td>
<td>8</td>
<td>32</td>
<td></td>
<td>100</td>
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<tr>
<td>Exams</td>
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<td></td>
<td></td>
<td>100</td>
<td>100</td>
<td>100</td>
<td></td>
<td>300</td>
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<tr>
<td>Total Points</td>
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<td>130</td>
<td>276</td>
<td>148</td>
<td>70</td>
<td>136</td>
<td>900</td>
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**Grading Scale**

90% and above (810 points of above) = A
87% (783-810 points) = A-
85% (765-783 points) = B+
80% (720-765 points) = B
77% (693-720 points) = B-
75% (675-693 points) = C+
70% (630-675 points) = C
67% (603-630 points) = C-
65% (540-603 points) = D
Below 60% (539 points or below) = F

**Description of Graded Items**

- **Survey:** (10 pts.)
  - By Tuesday of Module 1, students must complete an availability survey to identify when they might be available for office hours. Completion of the survey on time will give students full credit for the assignment.

- **Lecture Quizzes:** (Various numbers depending on module 290 pts total)
  - Lecture quizzes are easy and designed to test your understanding of basic concepts. You can take these twice; if you don't understand something the first time, you should review the lecture again. Problems from the text are assigned for each module. All problems are to be done in Excel. After working the problems you will take a short quiz based on your answers to the homework.

- **Case Assignment:** (1 @ 200 pts.)
  - The case assignment is assigned in module 2. It must be submitted as a Word document (NOT PDF) that summarizes and explains the results in a clear and professional manner, along with an Excel workbook that provides the analysis and statistical output from your work. Read the instructions very carefully! The written report must be submitted through SafeAssign. Your Excel worksheets should be neat and organized, with clear text labels and additional comments and/or explanations inserted in the worksheet as needed to fully explain your work. Each project will be graded using a rubric that will be provided on Blackboard. Review these so you know my expectations! Students may choose to work with 1 other student for the project. If you choose to do this, please send a joint email to me that includes both student names by May 20th. Note – working this is optional but if you choose to do this, both students will receive the same grade.

- **Homework Quizzes:** (6 @ various pts. each)
  - A homework assignment with problems assigned from the book will be given for each Module. The assigned problems must be completed before taking the weekly homework quiz. Homework quizzes can only be taken 1 time and are due by midnight on Sunday for each module.

- **Exams:** (3 @ 100 points each)
  - Exams are scheduled for a 96-hour periods (from 12:00 am until midnight 4 days later) on May 24-27, June 7-10 and June 16-19; You
MUST take the exams during these time windows. Mark your calendars! Failure to take the exams during these time windows will result in a 0. I will not accept any excuses after the deadline.

- You may use any resources such as the book, a calculator, and Excel, but I guarantee if you are not prepared, you won’t be able to waste a lot of time trying to find the answer or approach to use in the book and complete the exam during the limited time. Exams are timed and will automatically stop when the time limit has been reached, and you must complete them in one sitting. Questions are randomized from pools of questions covering similar concepts. Should your Internet connection fail or Blackboard crash, you can restart where you left off, but the timer will keep running. So it is your responsibility to insure the integrity of your technology.

X. Course Schedule:
The course runs from Monday, May 7 – Tuesday, June 19. All modules start on Mondays but will be available on Blackboard on Sunday at 12:00 a.m., the week before. Please mark key dates for quizzes, assignment deadlines, and exams on your calendar. Start reading the book and viewing the lectures early to give you time to do the assignments and work the practice problems.

<table>
<thead>
<tr>
<th>Dates and Modules</th>
<th>Readings</th>
<th>PowerPoint Lectures</th>
<th>Assignments</th>
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<tbody>
<tr>
<td>Module 1&lt;br&gt;May 7-13</td>
<td>Chapter 1 pages 1-18&lt;br&gt;Chapter 2 pages 37-47&lt;br&gt;Chapter 3 pages 53-66</td>
<td>Lecture 1.1: Introduction to Business Analytics&lt;br&gt;Lecture 1.2: Data in Business Analytics&lt;br&gt;Lecture 1.3 Basic Excel Skills&lt;br&gt;Lecture 1.4 Data Visualization – Excel Charts&lt;br&gt;Lecture 1.5 Data Visualization – Additional Tools</td>
<td>Lecture Quizzes and Problem Assignment Quiz 1 Due date is set for Sunday, May 13 at 11:59 pm</td>
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<td>Module 2&lt;br&gt;May 14-20</td>
<td>Chapter 3 pages 72-89&lt;br&gt;Chapter 4 pages 96-110</td>
<td>Lecture 2.1 Frequency Distributions and Histograms&lt;br&gt;Lecture 2.2 Additional Tools for Summarizing Data&lt;br&gt;Lecture 2.3 Supplement – Additional Features of PivotTables&lt;br&gt;Lecture 2.4 Measures of Location</td>
<td>Lecture Quizzes and Problem Assignment Quiz 2 due at the end of the day (11:59 pm) on Sunday May 20&lt;br&gt;Begin working on the Case Assignment; due Thursday, May 31 at 11:59</td>
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<td>Lecture 2.5 Measures of Dispersion</td>
<td>Lecture 2.6 Measures of Shape</td>
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Exam 1 open **Thursday, May 24** at 12:00 am to **Sunday May 27** at midnight. Covers Modules 1 and 2 only

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<tr>
<th>Module 3</th>
<th>Chapter 4 pages 110-125</th>
<th>Lecture 3.1 Computing Descriptive Statistics</th>
<th>Lecture 3.2 Measures of Association</th>
<th>Lecture 3.3 Outliers and Statistical Thinking</th>
<th>Lecture Quizzes due at the end of the day (11:59 pm) on Sunday, May 27 and Problem Assignment Quiz 3 <strong>Tuesday, May 29</strong> at the end of the day (11:59 pm). I gave you a couple of extra days because of the exam and the holiday weekend.</th>
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| Module 4 | Chapter 5 pages 132-161 | Lecture 4.1 Basic Probability Concepts | Lecture 4.2 Joint and Marginal Probability | Lecture 4.3 Conditional Probability | Lecture 4.4 Random Variables and Probability Distributions | Lecture 4.5 Expected Value and Variance of Probability Distributions | Lecture 4.6 Common Discrete Probability Distributions | Lecture 4.7 Introduction to Continuous Distributions | Lecture 4.8 Normal and Exponential Distributions | Lecture Quizzes and Problem Assignment Quiz 4 due at the end of the day (11:59 pm) on Sunday, June 3. |
|----------|-------------------------|---------------------------------------------|-----------------------------------|--------------------------------------------|----------------------------------------------------------------------------------|

Exam 2 open **Thursday, June 7th** at 12:00 am to **Sunday June 10th** at midnight. Covers Modules 3 and 4 only

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<thead>
<tr>
<th>Module 5</th>
<th>Chapter 5 pages 161-170</th>
<th>Lecture 5.1 Random Sampling from Probability Distributions</th>
<th>Lecture 5.2 Data Modeling and Distribution Fitting</th>
<th>Lecture 5.3 Statistical Sampling</th>
<th>Lecture 5.4 Sampling Distributions</th>
<th>Lecture Quizzes due at the end of the day (11:59 pm) on Sunday, June 10 and Problem Assignment Quiz 5 Sunday June 10 at the end of the day (11:59 pm).</th>
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</table>
| Module 6 | June 11 – June 17 | Chapter 7 pages 206-226 | Lecture 6.1 Basic Concepts of Hypothesis Testing  
Lecture 6.2 One-Sample Hypothesis Testing Procedures  
Lecture 6.3 Two Sample Hypothesis Tests  
Lecture 6.4 F-Test and Analysis of Variance  
Lecture 6.5 Chi-Square Test | Lecture Quizzes and Problem Assignment Quiz 6 and Assignment Quiz 7 due at the end of the day (11:59 pm) on Sunday, June 17 |
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<td>Exam 3 open Saturday, June 16th at 12:00 am to Tuesday, June 19th at midnight. Covers Modules 5, 6, and 7 only.</td>
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<tr>
<td>Module 7</td>
<td>June 18 – June 19</td>
<td>No new material – Time reserved for Exam 3</td>
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