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Faculty & Staff

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Communication Policy: Students are encouraged to contact me anytime via email (preferred) or phone. A response will be given within 36-48 hours except on weekends. Please do not phone after 9:00 PM. If you need to reach me after 9:00, please send an email requesting a time to talk. Virtual office hours will be held using Adobe Connect (see Bb for more information).
Syllabus

Program Name: Master of Health Informatics

Course Title: Advanced Health Care Data Analytics, Business Intelligence and Reporting

Course Number: BANA 7015  Semester: Spring

Course Description: This course teaches the use of healthcare data to make decisions and transform healthcare delivery and the health of individuals and populations. The course concentrates on big and small data, and structured and unstructured data. Tools, applications and approaches for health data analytics are taught. This course covers topics such as statistical approaches; data, web and text mining; data visualization, simulation, modeling and forecasting. Key regulatory health and healthcare reporting requirements are taught.

Prerequisites: HI 7001 and HI 7010

Course Credits: 3

Textbook(s), Readings and Assignments:
Required:

Additional Resources:
Any additional resources are specified in the module but will not need to be purchased.

Course Objectives:
Upon successful completion of this course, the learner will be able to:
- Apply mining, modeling and analytics techniques to health and healthcare data
- Demonstrate the use of at least one business intelligence or health data analytics tool, application or approach
- Utilize critical thinking to describe in detail how with business intelligence processes and tools health and healthcare data can be used to improve healthcare quality, efficiency, effectiveness, population health and meet reporting requirements
- Articulate the value of big volumes of data to health and healthcare, and future trends
- Describe data analytics, business intelligence, and data governing practices and opportunities in health and healthcare
- Describe how to develop a business intelligence program and team
- Describe health data visualization principles and techniques for supporting decision making

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 http://www.uc.edu/ucit/learningtechnologies/mobilelearn.html.
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.

Assignment Instructions:

Description of Major Assignments

- **Student Profile:** (20 pts.)
  - Students are to write brief up to 1 page, double-spaced narrative describing their background and experience. The profiles should include any experience working with analytics and analytic tools. Students should provide information about their current careers and/or career interests as well as any relevant personal information that they would like to share. The style of the profile should be professionally written and free of grammar mistakes. Profiles will be graded on their timely completion and compliance to the above criteria. Student profiles will be posted in Module 1 under the link labeled: Student Profile Assignment 1. They will be available to all course participants and you are encouraged to view them as a way to become familiar with others enrolled in the course.

- **Quizzes:** (3 @ 30 pts. each)
  - Quizzes will be completed after every other module and will include material covered during the current and prior module. They are multiple choice and short answer quizzes with 10 questions that are timed with a 1 hour time limit. Each quiz will open on Thursday at 5:00 PM and close on Sunday at 11:59 PM.

- **Discussion Boards:** (3 @30 pts. each)
  - In Modules 2, 4, and 6 students will respond to a discussion question using research and analytic insight to support their answers. Each discussion board will require at least 2 responses by each participant with each initial response due by Thursday at 11:59 PM and each second response due by Sunday at 11:59 PM. The rubric below will be used to evaluate each of the student’s responses..

- **Assignments:** (6 @ 100 pts. each)
  - Each module will have a homework assignment related to the content of the module. The assignment will require execution of the analytic concepts included in the module and be graded as identified within each assignment. Homework should be completed independently. Results can be submitted via excel and/or word documents but must have all answers clearly marked and labeled in an easy to find format. If the instructor is unable to easily find the answer, it will be considered missing/wrong.

- **Final Project:** (1 @ 500 pts.)
  - At the conclusion of the course, the student will be expected to submit a final project that includes an in-depth analysis from a provided dataset that reflects elements of each learning module. The analysis should be presented as a report that includes a stated objective and the relevant graphics and analytic results. The final project should reflect learnings on how to translate data into information that will be beneficial in the healthcare environment.
Grading Policy

Your course grades will be based on your performance on the following:

**Point Allocation:**

- Student Profile: 20 Points
- Quizzes (3): 90 Points
- Discussion Boards (3): 90 Points
- Assignments (6): 600 Points
- Final Project: 500 Points

**Total Points Available: 1300 Points**

Grading Scale

1222 or more = A
1170 - 1221 = A-
1131 - 1169 = B+
1092 - 1130 = B
1040 - 1091 = B-
1001 - 1039 = C+
962 - 1000 = C
910 - 961 = C-
780 - 909 = D
0 – 779 = F

More detailed information about the graduate grading policy is available at [http://www.uc.edu/registrar/faculty_resources/grading_scales.html#grad](http://www.uc.edu/registrar/faculty_resources/grading_scales.html#grad).

Grade Center: All grades will be maintained in Blackboard’s online Grade Center. Students are responsible to track their progress by referring to the online grade book. Email me with any questions about your grades. Assignments will be graded within 7 days of the submission deadline if submitted on time.

Course Policies

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.

Participation Policies: Students are expected to actively participate in class and in the Blackboard learning environment and to complete all assignments in a timely manner. Infrequent and inconsistent participation and work completion will negatively influence the benefits that may be obtained from the course as well as lead to a lower grade.
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/sas/disability

Lateness Policy: For this course I will strictly adhere to the following policy: You have a one-hour grace period to submit the assignment files. Anything submitted after that will not be graded. There are no exceptions to this policy unless it is a bona fide medical emergency! If you have a family or medical emergency, contact me ASAP; documented proof will need to be provided. As a student engaged in graduate level study it is your responsibility to review the syllabus, know the deadlines, and plan accordingly. Have a backup plan for potential Internet connection or other technology failures and do not leave assignments or exams to the last minute.

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

Academic Integrity Policy:

The University Rules, including the Student Code of Conduct, and other policies of the department, college, and university related to academic integrity will be enforced. Any violation of these regulations, including acts of plagiarism, cheating, or falsifying field work will be dealt with according to the severity of the misconduct. Dishonesty in any form may result in a failing grade in a course and/or suspension or dismissal from a program (e.g., graduate or undergraduate).

Prior to beginning Module 1, please complete the tutorial on “Using Information Sources Ethically and Legally” at: http://guides.libraries.uc.edu/content.php?pid=292819&sid=2403958

Also, complete the tutorial on “Academic Integrity” at: http://www.yorku.ca/tutorial/academic_integrity/index.html


Be sure to read the guide below on Academic Integrity. None of the Faculty in the MSHI program tolerate plagiarism nor any other form of academic misconduct.

STUDENT GUIDE TO ACADEMIC INTEGRITY

A. Practical Examples of Plagiarism

  o Turning in someone else's work as your own.
  o Changing the words of an original source is not sufficient to prevent plagiarism. If you have retained the essential idea of an original source, and have not cited it, then no matter how drastically you may have altered its context or presentation, you have still plagiarized.
  o Copying words or ideas from someone else without giving credit.
BANA 7015 Advanced Health Care Data Analytics, Business Intelligence and Reporting

- Failing to put a quotation in quotation marks.
- Giving incorrect information about the source of a quotation.
- Changing words but copying the sentence structure of a source without giving credit.
- Copying so many words or ideas from a source that it makes up the majority of your work, whether you give credit or not.

Text was borrowed with permission from www.plagiarism.org.

B. Unauthorized Collaboration

In the American educational system, the concept of original work is a fundamental tenet of scholarship. In recent years, more educators have also recognized the value of having students work on some assignments in groups. Students, however, may be engaging in scholastic dishonesty if they fail to distinguish between collaboration that is authorized for a particular assignment and collaboration that is done for the sake of expediency. Some students rationalize their involvement in unauthorized collaboration on the basis that it "helps them learn better" and is not cheating because they are contributing to the final product. Indeed, many educators believe that group assignments enhance some forms of learning. However, the purpose of a particular assignment and the acceptable method of completing it are to be determined by the instructor, not the student.

Unauthorized collaboration with another person on an assignment offered for academic credit is a common form of scholastic dishonesty. Such assignments may include, but are not limited to, lab reports, computer programming assignments, papers, homework, or tests (take-home or in-class). This violation also includes allowing another person to view your work drafted or completed without the necessary authorization. Unauthorized collaboration can even occur within the context of group projects when the degree or type of collaboration exceeds the parameters of what has been expressly authorized.

Unless working together on an assignment has been specifically approved, it is not allowed. The extent of collaboration permitted may vary widely from one class to the next or even from one project to the next within the same class. Do not assume that working together is allowed. Always ask your instructor what his or her expectations are in this regard. While the course requirements in some classes at the University may consist primarily of group assignments, the norm in most classes is that each student is expected to do his or her own work individually. You should assume that you are to perform all assignments independently unless you have specific permission to work together on an assignment.

Borrowed from the University of Texas
www.utexas.edu/depts/dos/sjs/academicintegrity2.html

C. Plagiarism

Plagiarism is an extremely serious violation of academic integrity. The Student Code of Conduct defines plagiarism as:

1. Submitting another’s published or unpublished work, in whole, in part, or in paraphrase, as one’s own without fully and properly crediting the author with footnotes, citations, or bibliographical reference.
2. Submitting as one's own, original work, material obtained from an individual or agency without reference to the person or agency as the source of material.

3. Submitting as one's own, original work, material that has been produced through unacknowledged collaboration with others without release in writing from collaborators.

Plagiarism can occur in myriad of forms and media. Although most commonly associated with writing, all types of scholarly work, including computer code, music, scientific data and analysis, and electronic publications can be plagiarized. The aim of this section is to help students and faculty deal with the complex and important issue of plagiarism on campus.

A Question of Intent?

Plagiarism, strictly speaking, is not a question of intent. Any use of the content or style of another's intellectual product without proper attribution constitutes plagiarism. However, students plagiarize for a variety of reasons, and awareness of these reasons is essential for understanding the problem of plagiarism.

Some students choose to plagiarize. Whether claiming to be overworked, compensating for their own perceived academic or language deficiencies, or simply hoping to gain an academic advantage, those who choose to claim credit for another's work are guilty of plagiarism. Those who intentionally plagiarize "borrow" either from published sources, such as books, journal articles, or electronic information, or from unpublished sources, such as a friend's paper or a commercial writing service. Whatever the source, such conduct is a direct and serious violation of accepted standards of academic integrity.

Others, however, stumble into plagiarism. Negligent plagiarism can result from ineffective proofreading, sloppy notetaking, or, most commonly, simple ignorance about the nature of plagiarism itself. Such inadvertent plagiarism, while not an excuse for what is still a serious breach of academic standards, is a more complex area of academic conduct than straightforward copying. Addressing the issue of negligent plagiarism requires a careful examination of both the definition of plagiarism and the appropriate techniques for scholarly attribution.

What is Plagiarism?

Nearly everyone understands that copying passages verbatim from another writer's work and representing them as one's own work constitute plagiarism. Yet plagiarism involves much more. Plagiarism includes any use of another's work and submitting that work as one's own. This means not only copying passages of writing or direct quotations but also paraphrasing or using structure or ideas without citation. Learning how to paraphrase and when and how to cite can be difficult, yet it is an essential step in maintaining academic integrity.

Paraphrasing

Like a direct quotation, a paraphrase is the use of another's ideas to enhance one's own work. For this reason, a paraphrase, just like a quotation, must be cited. In a paraphrase, however, the author rewrites in his or her own words the ideas taken from the source. Therefore, a paraphrase is not set within quotation marks. So, while the ideas may be borrowed, the borrower's writing must be entirely original; merely changing a few words or rearranging words or sentences is not
paraphrasing. Even if properly cited, a paraphrase that is too similar to the writing of the original is plagiarized.

Good writers often signal paraphrases through clauses such as "Werner Sollors, in Beyond Ethnicity, argues that..." Such constructions avoid excessive reliance on quotations, which can clog writing, and demonstrate that the writer has thoroughly digested the source author's argument. A full citation, of course, is still required. When done properly, a paraphrase is usually much more concise than the original and always has a different sentence structure and word choice. Yet no matter how different from the original, a paraphrase must always be cited, because its content is not original to the author of the paraphrase.

**Examples**

The following are examples, with explanations, of the wrong and right ways to paraphrase.

**The Wrong Way to Paraphrase #1**

*Original Passage*: "Just before 1914 most religious leaders genuinely opposed war and few saw reasons to partake in a remote struggle in Europe. For decades a spirit of progressive optimism had moved many of the more powerful leaders, who saw no point in settling human differences with anything so destructive as war. Yet when it came, they closed ranks and generated an ideology to support it. The majority suspected innocents for presumed lack of patriotism and punished dissenters. For a brief moment they also found that the specter and cause of war united them as no spiritual impulse of their own ever could."


*Paraphrase*: Although initially skeptical, many religious leaders soon embraced America's involvement in the First World War, and even discovered that it (and the xenophobia surrounding it) bolstered their sense of solidarity more effectively than purely religious motivations had.

*Explanation*: This paraphrase, while an accurate summary of the above passage, is nevertheless plagiarized, because it contains no citation of the passage from which its main ideas are obviously derived.

**The Wrong Way to Paraphrase #2**

*Original Passage*: "To the young American architects who made the pilgrimage, the most dazzling figure of all was Walter Gropius, founder of the Bauhaus School. Gropius opened the Bauhaus in Weimar, the German capital, in 1919. It was more than a school; it was a commune, a spiritual movement, a radical approach to art in all its forms, a philosophical center comparable to the Garden of Epicurus."


*Paraphrase*: As Tom Wolfe notes, to young American architects who went to Germany, the most dazzling figure was Walter Gropius, founder of the Bauhaus School. Gropius opened
the Bauhaus in the German capital of Weimar in 1919. It was, however, more than a school, it was a commune, a spiritual movement, a philosophical center like the Garden of Epicurus.


**Explanation:** While the author of this intended paraphrase mentions the source and gives a full citation in a footnote, this excerpt is nevertheless plagiarized, because it is in fact not a paraphrase at all but a nearly verbatim reproduction of the source. It is too similar to the original. Rather than concisely summarizing the ideas, it uses the phrasing and structure of the original.

**The Right Way to Paraphrase**

- **Original Passage:** "The Republican Convention of 1860, which adopted planks calling for a tariff, internal improvements, a Pacific railroad and a homestead law, is sometimes seen as a symbol of Whig triumph within the party. A closer look, however, indicates that the Whig's triumph within the party was of a very tentative nature."


- **Paraphrase:** Contrary to many historians, Eric Foner argues that the Republican platform of 1860 should not be understood as an indication of Whig dominance of the party. 1


- **Explanation:** This paraphrase is properly cited and represents an accurate and concise summary of the source.

Borrowed from the University of Texas: [www.utexas.edu/depts/dos/sjs/academicintegrity2.html](http://www.utexas.edu/depts/dos/sjs/academicintegrity2.html)

**D. Notetaking and Proofreading**

**Notetaking and Proofreading**

Good paraphrasing skills allow a writer to make use of source material in a fluid and honest way. However, proper notetaking and careful proofreading, which come before and after the writing, can be just as important for producing high-quality and accurately-attributed scholarship. When taking notes, do not copy directly from a source into your notes unless you intend to quote that source directly. Rather, read carefully, take time to think, and then write down, in your own words, the main ideas of what you have read. Of course, be sure to note the source for proper citation. These notes will then become the basis of your summary. Skipping the notetaking step and paraphrasing directly from a source into a draft of your work not only limits your ability to think through the ideas for yourself but also increases the likelihood that you will commit negligent plagiarism. Use notetaking as an opportunity to develop and organize your own ideas.

Proofreading, like notetaking, is a vital step in the writing process, one that students too often skip. Proofreading offers the opportunity to check your work for errors of spelling and punctuation as well as overall fluidity of style and coherence of argument. It is also the time to
verify all references and citations. Do not, however, wait until proofreading to include citations. Citations should be included in the first draft. It is simply too easy to omit a reference accidentally and then forget the source of a fact, quotation, or paraphrase.

Whose idea is it, anyway?

One of the most complicated aspects of source citation is learning how to distinguish "borrowed ideas," which must be cited, from "common knowledge," which does not need to be cited. A simple guideline is that well-known or easily accessible facts, such as the winner of the 1908 World Series, or commonplace observations, such as Einstein's prominence in modern physics, need not be cited. Unique ideas, controversial or especially important facts, and novel insights all must be cited (although other items may need to be cited which meet none of these criteria). This is a judgment that often depends on the writer and his or her academic community. What the audience of an academic journal considers common knowledge may not be seen the same way in a freshman composition course.

To be safe, be attentive to where you encountered a particular idea. Just as with paraphrasing, good notetaking is invaluable for tracking the origin of ideas. And of course, the best advice remains: when in doubt, cite. Consult your instructor if you need help clarifying this issue.

Example

· Original Passage: "With voice vote elections, and with participation limited to the more stable elements of the population, rich men won elections. Rochester's fifty wealthiest taxpayers, along with their relatives and business associates, accounted for 61 percent of the trustees elected between 1817 and 1825."


· Paraphrase: The wealthy dominated Rochester politics in the 1810s and 1820s. In fact, of the trustees elected from 1817-1825, fully 61 percent came from the fifty richest men and their families and friends.


· Explanation: This passage must be cited, because the author has used specific information not readily available elsewhere.

Borrowed from the University of Texas: www.utexas.edu/depts/dos/sjs/academicintegrity2.html

E. Helpful Links

· University of Cincinnati Libraries
  http://www.libraries.uc.edu/help/students/plagiarism.html

· University of Cincinnati Libraries
  http://www.libraries.uc.edu/help/faculty/plagiarism.html
Electronic Communication / Email Policy: Students are required to use a University of Cincinnati email address for all program activity. The primary reasons for the new policy relate to issues of confidentiality, security and the receipt of information from the University of Cincinnati and the Educational Leadership Program.

The University of Cincinnati is now sending many official notices, announcements and important information to students via email. For example, student bills are now sent by email and are no longer mailed through the U.S. Postal Service. To ensure this type of confidential information is sent to the correct individual, items are only sent to student UC email accounts. A UC email address is clearly identified with the student’s name and only a student can register for her/his own email account. Therefore, there is a high level of confidence by the University the student will receive the email.

I can be reached via email and will try respond to all emails within 24 hours. If something is urgent, you can call me at the numbers listed.
# Course Schedule

## Dates

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<th>Readings</th>
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| **Module 1**  
Understanding Analytics & Data  
Feb. 27 – Mar. 5 | Chapter 1  
Chapter 2 | Lecture 1.1 – Role of Analytics and Data  
Lecture 1.2 – Healthcare Terminology  
Lecture 1.3 – Tools, Metrics, Methods Intro  
Lecture 1.4 – Basic Data Statistics | Quiz 1 due by 11:59 pm on March 5  
Assignment 1 due by 11:59 pm on March 5 |
| **Module 2**  
Analytics – What Happened?  
Mar. 6 – Mar. 12 | Chapter 4.1-4.3  
Chapter 11.1 – 11.3  
Read Performance Management and Measurement article  
Operational Definitions and Measurement article (optional) | Lecture 2.1 – Basic data and analytic structures  
Lecture 2.2 – Types of Analytics  
Lecture 2.3 – Developing measures | Assignment 2 due by 11:59 pm on March 12  
Discussion board 1 – first response due by 11:59 pm on March 9 and second response due by 11:59 pm on March 12 |
| **Spring Break**  
Mar. 13 – Mar. 19 | | | |
| **Module 3**  
Analytics – Why did it happen?  
Mar. 20 – Mar. 26 | Chapter 12 | Lecture 3.1 – Data visualization  
Lecture 3.2 – Reporting  
Lecture 3.3 – Reporting and Analysis in Excel  
Lecture 3.4 – Correlation | Assignment 3 due by 11:59 pm on March 26  
Quiz 2 due by 11:59 pm on March 26 |
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<th>Statistics in Analytics</th>
<th>Introduction to Statistical Process Control Handout – Chapter 5.1 – 5.3</th>
<th>Lecture 4.1 – Statistics in Analytics</th>
<th>Assignment 4 due by 11:59 pm on April 2</th>
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<td>Lecture 4.3 – Control Charts</td>
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<td>Chapter 5.1 – Regression Analysis</td>
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<td>Lecture 5.3 – Logistic Regression</td>
<td>Lecture 5.4 – Optimization modeling</td>
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<td>Module 5</td>
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<td>Optimization Modeling with Spreadsheets (Optional)</td>
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<td>Chapter 10.1 – 10.3</td>
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<td>Lecture 6.2 – Simulation Modeling Elements</td>
<td>Lecture 6.3 – Simulation Model Creation and Analysis</td>
<td>Discussion board 2 – first response due by 11:59 pm on April 13 and second response due by 11:59 pm on April 16</td>
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<td>Lecture 6.4 – Prediction, Prescription and the Future</td>
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<tr>
<td>Final Project</td>
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<td>Final Project due by 11:59 pm on April 22</td>
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Module 1
Understanding Analytics and Data
02/27 – 03/05

Learning Outcomes
Upon successful completion of this module, you will be able to:
- Understand complexity of healthcare data
- Role of analytics in transforming data into information
- Understand healthcare data codes for reporting and data extraction
- Apply basic statistics to healthcare data

Module Checklist
Your tasks for this module are:
- Review Course Manual
- View Module 1 Lectures & Other Media
- Complete Module 1 Course Readings
- Post Student Profile to the Discussion Board (Initial Post due by: Thursday, March 2nd at 11:59pm EST, Response to Peers due by: Sunday, March 5th at 11:59pm EST)
- Submit Assignment 1 (Due by: Sunday, March 5th at 11:59pm EST)
- Explore UCIT Virtual Labs
- Complete Quiz 1 (Opens: Thursday, March 2nd at 5:00pm EST, Closes: Sunday, March 5th at 11:59pm EST)

Readings
Use your textbook(s) to complete the following readings:
- Chapter 1
- Chapter 2
In addition to your textbook readings, read the following associated articles:
- Netiquette Guidelines for Online Learners

Media
1. Lecture 1 – Role of Analytics & Data
2. Lecture 2 – Healthcare Terminology
3. Lecture 3 – Tools, Metrics, Methods Intro
4. Lecture 4 – Basic Data Statistics

Assessment
Discussion Board Topics: In an effort for you and your fellow classmates to get to know one another, please provide a Student Profile post to the Discussion Board. The directions for this assignment are as follows:

Step 1: Compose Your Student Profile
Students are to write brief narrative describing their background and experience. The profiles should include any experience working with analytics and analytic tools. Students should provide information about their current careers and/or career interests as well as any relevant personal information that they would like to share. The style of the profile should be professionally written and free of grammar mistakes. Profiles will be graded on their timely completion and compliance to the above criteria. Student profiles will be posted to the link above titled, "Student Profile: Click Here to Submit". Once you have submitted your profile, it will be available to all course participants and you are encouraged to view them as a way to become familiar with others enrolled in the course.

Step 2: Submit your Student Profile to the Discussion Board. (Initial Post due by Thursday at 11:59pm in Module 1)

- Student profiles will be posted to the link above titled, 'Student Profile {Click Here to Post}'
- You can also click on the 'Discussion' tab in Blackboard and then select the 'Student Profile {Click Here to Post}' discussion thread.
- Then click the 'Create Message' button below.
- In the 'Subject' box, simply enter your first and last name (for example 'Jane Doe').
- In the text box below the subject box, post your Student Profile then click submit.

Upload a Photo

- If possible, be sure to include a head-shot or some kind of appropriate, representative photo of yourself (like a basic Facebook profile photo).

There are two methods to include a photo with your introduction including:

Easy Method

- You may simply attach a photo by clicking on the 'Add Attachment' button below the text box, then click the 'My Computer' icon (not 'my files') and then search your computer for the location of the file.

Better [but more involved] Method

- To post a photo inside of the textbox with your introduction, you will need to click the 'Enable HTML Creator' button to the upper right side of the text box. The HTML Creator will allow you to post a photo within your submission, and also to format the text as you choose. The HTML Creator requires that your computer has Java, so for those without Java, this feature will likely not work.
- After activating the HTML Creator, you will see a square button with an arrow on the upper left and a tiny depiction of a mountain and sun in the background. If you move your cursor over the button, it should indicate 'Insert Image.' Click the 'insert image' button. Select 'File Browse or Upload' and then click the 'Browse' button. Select the 'My COMPUTER' button on the left (the 'my files' option will not work for this task). Then simply browse to the location on your computer where the image is stored, click on the image, then click 'open' or 'ok.' Once you see the image file name in the 'browse' box, click 'ok' and your photo will be inserted into your profile box. Depending on the size of the photo file, you may need to reduce or enlarge the photo by dragging the square box in one of the corners of the photo insert box. On last photo tip: To position the photo at the top of your post, either start the photo insertion process with the cursor at the top of the text box, or once the photo has been inserted into the text box, you may also cut and paste the photo into the upper corner of the text box. After everything appears as you want it, click 'Post' to add your personal introduction message onto the discussion board.

Step 3: Greet and Interact with Classmates (Due by Sunday at 11:59pm in Module 1)
You are encouraged to post comments to the profiles of two other classmates. If you share a similar background, interest or career goal with a classmate, let them know by posting a follow-up comment. Again, the goal of this activity is to create a greater sense of community among students in the class, and so please consider posting supportive follow-up comments.

### Discussion Board Rubric

<table>
<thead>
<tr>
<th></th>
<th>5</th>
<th>3</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Completeness &amp; Writing Skills</strong></td>
<td>Response directly answers each part of the assigned question. Skillful control of language and mechanics. Sentence structure is strong and effective in communicating Information.</td>
<td>Response somewhat answers each part of the assigned question. Generally acceptable vocabulary, relates to topic. Few spelling/Grammatical errors that do not affect meaning.</td>
<td>Response vaguely answers each part of the assigned question. Limited or inappropriate use of vocabulary related to topic. Many errors in spelling and grammar.</td>
</tr>
<tr>
<td><strong>Content</strong></td>
<td>Response clearly shows student has read and understood the lesson content by correctly defining the key terms, summarizing concepts, and providing accurate application.</td>
<td>Response shows student has read the content and is beginning to understand the essential elements by defining a few key terms, summarizing concepts, and providing accurate application.</td>
<td>Response shows that the student shows very little evidence that they have read the content and that they are able to effectively apply the essential elements by defining the key terms, summarizing concepts, and providing accurate application.</td>
</tr>
<tr>
<td><strong>Analysis</strong></td>
<td>A clearly stated and supported analysis is provided with regard to the larger concepts of the lesson.</td>
<td>An analysis is provided with regard to the larger concepts of the lesson; however, support is needed to provide clarification of concepts.</td>
<td>An analysis is not provided with regard to the larger concepts of the lesson.</td>
</tr>
</tbody>
</table>

### Assignment:

**Assignment 1: Due by Sunday at 11:59pm EST in Module 1**

Throughout each module, you will be assigned a homework assignment related to the content of the module. The assignment will require execution of the analytic concepts included in the module and be graded as identified within each assignment. Homework should be completed independently. Results can be submitted via excel and/or word documents but must have all answers clearly marked and labeled in an easy to find format. If the instructor is unable to easily find the answer, it will be considered missing/wrong.

To complete Assignment 1, follow the steps below:

1. Download Assignment Description
2. Download the following Assignment 1 Data that will be used to answer the questions in assignment 1
3. Complete the assignment using an excel and/or word document
4. Submit completed assignment to the link above titled, "Assignment 1 {Click Here to Submit}" no later than Sunday at 11:59pm EST in Module 1

**Quiz/Test:**

**Module 1 Quiz**

Opens: Thursday at 5:00pm EST in Module 1  
Closes: Sunday at 11:59pm EST in Module 1

The *Module 1 Quiz* will be available through a link beginning on Thursday at 5:00pm EST. The quiz consists of 10 questions and you will have 1 hour to complete the quiz once the quiz has been activated. On Sunday at 11:59pm EST, all quizzes must be submitted as no late assessments will be accepted.

**Missed and/or late examinations, quizzes, and graded exercises:**

For this course I will strictly adhere to the following policy: You have a one-hour grace period to submit the assignment files. Anything submitted after that will not be graded. There are no exceptions to this policy unless it is a bona fide medical emergency! If you have a family or medical emergency, contact me ASAP; documented proof will need to be provided. As a student engaged in graduate level study it is your responsibility to review the syllabus, know the deadlines, and plan accordingly. Have a backup plan for potential Internet connection or other technology failures and do not leave assignments or exams to the last minute.
Module 2
Analytics – What Happened?
03/06 – 03/12

Learning Outcomes

Upon successful completion of this module, you will be able to:
- Define basic data structures and relationship.
- Identify different types of analytics and how they are used.
- Explain factors associated with selecting the right analytic model.
- Develop and use appropriate measures.

Module Checklist

Your tasks for this module are:
1. Complete Module 2 Course Readings
2. View Module 2 Lectures & Other Media
3. Complete Discussion Board 1 (Initial Post due by: Thursday, March 9th at 11:59pm EST, Response to Peers due by: Sunday, March 12th at 11:59pm EST)
4. Submit Assignment 2 (Due by: Sunday, March 12th at 11:59pm EST)

Readings

Use your textbook(s) to complete the following readings:
- Chapter 4.1 - 4.3
- Chapter 11.1 - 11.3

In addition to your textbook readings, read the following associated articles:
- Performance Management and Measurement article
- Optional: Operational Definitions and Measurement article

Media

1. Lecture 1 – Basic Data and Analytic Structures
2. Lecture 2 – Types of Analytics
3. Lecture 3 – Developing Measures

Assessment

Discussion Board Topics:

Module 2, Discussion Board 1

By Thursday at 11:59pm EST in Module 2, use Assignment #2 and Clinic D data to post an initial response to the following:

For this assignment, you are being asked to provide a recommendation to the Department Director overseeing Clinic D. The Department Director has been charged with making some improvement in his outpatient clinic productivity during the next 6 months or his job could be in jeopardy. He has come to you for analytic support because he is not sure where to start. So many
measures on his scorecard are in red and he knows that they are all inter-related but is not sure where to start. To help him make an improvement plan, you need to explore the overall productivity scorecard for Clinic D and the data available in the assignment. Please comment on the following questions in the discussion board:

1. What is the first area that you would suggest that they focus on for improvement and why?
2. What other data, measures, or analytic approaches might be helpful for this analysis?

By Sunday at 11:59pm EST in Module 2, respond to two of your peers that had different suggestions than you and compare and contrast your recommendations. Be sure that your responses include research and analytic insight to support your answer. The Discussion Board Rubric outlined in Module 1 (page 16) will be used to grade this assignment.

**Assignment:**

**Assignment 2: Due by Sunday at 11:59pm EST in Module 2**

Throughout each module, you will be assigned a homework assignment related to the content of the module. The assignment will require execution of the analytic concepts included in the module and be graded as identified within each assignment. Homework should be completed independently. Results can be submitted via excel and/or word documents but must have all answers clearly marked and labeled in an easy to find format. If the instructor is unable to easily find the answer, it will be considered missing/wrong.

To complete Assignment 2, follow the steps below:
1. Download Assignment Description
2. Download the following Assignment 2 Data that will be used to answer the questions in Assignment 2
3. Complete the assignment using an excel and/or word document
4. Submit completed assignment to the link above titled, "Assignment 2 {Click Here to Submit}" no later than Sunday at 11:59pm EST in Module 2
Module 3
Analytics – Why Did it Happen?
03/20 – 02/26

Learning Outcomes

Upon successful completion of this module, you will be able to:

- Identify types and appropriate use of visualization tools
- Select the appropriate type of reporting to aid in analysis of data
- Utilize Excel to drill into data gain insights and understanding
- Explain the role and importance of correlation in healthcare data

Module Checklist

Your tasks for this module are:
1. Complete Module 3 Course Readings
2. View Module 3 Lectures & Other Media
3. Submit Assignment #3 (Due by Sunday, March 26th at 11:59pm EST)
4. Complete Quiz 2 (Opens: Thursday, March 23rd at 5:00pm EST, Closes: Sunday, March 26th at 11:59pm EST)

Readings

Use your textbook(s) to complete the following readings:

- Chapter 12

Media

1. Lecture 1 – Data Visualization
2. Lecture 2 – Reporting
3. Lecture 3 – Reporting and Analysis in Excel
4. Lecture 4 – Correlation

Assessment

Assignment: Due by Sunday at 11:59pm EST in Module 3

Throughout each module, you will be assigned a homework assignment related to the content of the module. The assignment will require execution of the analytic concepts included in the module and be graded as identified within each assignment. Homework should be completed independently. Results can be submitted via Excel and/or word documents but must have all answers clearly marked and labeled in an easy to find format. If the instructor is unable to easily find the answer, it will be considered missing/wrong.

To complete Assignment 3, follow the steps below:

1. Download Assignment Description
2. Complete the assignment using an Excel and/or word document
3. Submit completed assignment to the link above titled, "Assignment 3 [Click Here to Submit]" no later than Sunday at 11:59pm EST in Module 3
Quiz:

Module 3, Quiz 2
Opens: Thursday at 5:00pm EST in Module 3
Closes: Sunday at 11:59pm EST in Module 3

The Module 3 Quiz will be available through a link below beginning on Thursday at 5:00pm EST. The quiz consists of 10 questions and you will have 1 hour to complete the quiz once the quiz has been activated. On Sunday at 11:59pm EST, all quizzes must be submitted as no late assessments will be accepted.
Module 4
Statistics in Analytics
03/27 – 04/02

Learning Outcomes

Upon successful completion of this module, you will be able to:
- Define Statistical Process Control.
- Create run charts and control charts.
- Explain the influence of probability distributions in healthcare.
- Perform basic statistical tests in Excel or other software tools.

Module Checklist

Your tasks for this module are:
1. Complete Module 4 Course Readings
2. View Module 4 Lectures & Other Media
3. Complete Discussion Board 2 (Initial Post due by: Thursday, March 30th at 11:59pm EST, Response to Peers due by: Sunday, April 2nd at 11:59pm EST)
4. Submit Assignment 4 (Due by: Sunday, April 2nd at 11:59pm EST)

Readings

Read the following associated article:
- Chapter 5.1 - 5.3 from the following handout:
  - Introduction to Statistical Quality Control handout

Media

1. Lecture 1 – Statistics in Analytics
2. Lecture 2 – Run Charts
3. Lecture 3 – Control Charts

Assessment

Discussion Board Topics:

When we run tests of significance, we are looking for meaningful changes. By Thursday at 11:59pm EST in Module 4, post an initial response to the following:

1. Discuss what you think is meant by statistical significance vs managerial (practical) significance. Include thoughts or examples around how might this be relevant to analytic results and models that are created.
2. Can you think of any examples that might occur in healthcare or in your current work environment where we might find something that is statistically significant but not managerially (practically) significant?

By Sunday at 11:59pm EST in Module 4, respond to two of your peers regarding how analytically we can address the potential issue that was identified.
Be sure that your responses include research and analytic insight to support your answer. The discussion board rubric will be used to assess each post.

Assignments:

Assignment 4: Due by Sunday at 11:59pm EST in Module 4

Throughout each module, you will be assigned a homework assignment related to the content of the module. The assignment will require execution of the analytic concepts included in the module and be graded as identified within each assignment. Homework should be completed independently. Results can be submitted via excel and/or word documents but must have all answers clearly marked and labeled in an easy to find format. If the instructor is unable to easily find the answer, it will be considered missing/wrong.

To complete Assignment 4, follow the steps below:
1. Download Assignment Description
2. Download the following Assignment 4 Data that will be used to answer the questions in Assignment 4
3. Complete the assignment using an excel and/or word document
4. Submit completed assignment to the link above titled, "Assignment 4 {Click Here to Submit}" no later than Sunday at 11:59pm EST in Module 4
Module 5
What is Likely to Happen?
04/03 – 04/09

Learning Outcomes

Upon successful completion of this module, you will be able to:
- Create viable prediction models
- Develop appropriate linear, multiple, and logistic regression models
- Assess the statistical strength of predictive models
- Define deterministic optimization
- Develop an optimal solution using Linear Programming

Module Checklist

Your tasks for this module are:
1. Complete Module 5 Course Readings
2. View Module 5 Lectures & Other Media
3. Submit Assignment 5 (Due by Sunday, April 9th at 11:59pm EST)
4. Complete Quiz 3 (Opens: Thursday, April 6th at 5:00pm EST, Closes: Sunday, April 9th at 11:59pm EST)

Readings

Use your textbook(s) to complete the following readings:
- Chapter 10.1-10.3

Read the following associated information in your text:
- Optional: Optimization Modeling with Spreadsheets

Media

1. Lecture 1 – Regression Analysis
2. Lecture 2 – Multiple Regression
3. Lecture 3 – Logistic Regression
4. Lecture 4 – Optimization Modeling

Assessment

Assignments:

Assignment 5: Due by Sunday at 11:59pm EST in Module 5

Throughout each module, you will be assigned a homework assignment related to the content of the module. The assignment will require execution of the analytic concepts included in the module and be graded as identified within each assignment. Homework should be completed independently. Results can be submitted via excel and/or word documents but must have all answers clearly marked and labeled in an easy to find format. If the instructor is unable to easily find the answer, it will be considered missing/wrong.

To complete Assignment 5, follow the steps below:
1. Download Assignment Description
2. Download the following Assignment 5 Data that will be used to answer the questions in Assignment 5
3. Complete the assignment using an excel and/or word document
4. Submit completed assignment to the link above titled, "Assignment 5 (Click Here to Submit)" no later than Sunday at 11:59pm EST in Module 5

**Quiz:**

**Module 5 Quiz 3**

Opens: **Thursday at 5:00pm EST in Module 5**
Closes: **Sunday at 11:59pm EST in Module 5**

The Module 5 Quiz 3 will be available through a link below beginning on Thursday at 5:00pm EST. The quiz consists of 10 questions and you will have 1 hour to complete the quiz once the quiz has been activated. On Sunday at 11:59pm EST, all quizzes must be submitted as no late assessments will be accepted.
Module 6
Analytics – How to Influence What Happens
04/10 – 4/16

Learning Outcomes

Upon successful completion of this module, you will be able to:

- Explain simulation modeling and its role in healthcare.
- Illustrate elements of discrete-event simulation.
- Develop and modify a discrete event simulation model.
- Assess the output of a discrete-event simulation model.
- Project the future direction in healthcare analytics.

Module Checklist

Your tasks for this module are:

1. Complete Module 6 Course Readings
2. View Module 6 Lectures & Other Media
3. Complete Discussion Board 3 (Initial Post due by: Thursday, April 13th at 11:59pm EST, Response to Peers due by: Sunday, April 16th at 11:59pm EST)
4. Submit Assignment 6 (Due by: Sunday, April 16th at 11:59pm EST)

Readings

Required Readings from the Textbook:
- Chapter 16.1-16.3

Read the following associated articles:
- Arena Basics handout (use for reference)

Media

1. Lecture 1 – Intro to Simulation Modeling
2. Lecture 2 – Simulation Modeling Elements
3. Lecture 3 – Simulation Model Creation and Analysis
4. Lecture 4 – Prediction, Prescription and the Future

Assessment

Discussion Board:

Module 6, Discussion Board 3

By Thursday at 11:59pm EST in Module 6, post an initial response to the following:

1. Explain what is meant by the “flaw of averages” and how it might influence our analytic approach.
2. Provide a specific example of where this flaw adversely affected your organization.

By Sunday at 11:59pm EST in Module 6, respond to one of the examples that were provided by your classmates. Be sure to include ideas and opportunities where the tools and theory that we learned could offer improvement.
Also, make sure that your responses include research and analytic insight to support your answer. The discussion board rubric will be used to assess each post.

Assignments:

Assignment 6: Due by Sunday at 11:59pm EST in Module 6

Throughout each module, you will be assigned a homework assignment related to the content of the module. The assignment will require execution of the analytic concepts included in the module and be graded as identified within each assignment. Homework should be completed independently. Results can be submitted via excel and/or word documents but must have all answers clearly marked and labeled in an easy to find format. If the instructor is unable to easily find the answer, it will be considered missing/wrong.

To complete Assignment 6, follow the steps below:

1. Download Assignment Description
2. Download the following Arena Simulation Model Assignment 6 Model that will be used to answer the questions in Assignment 6
3. Complete the assignment using an excel and/or word document
4. Submit completed assignment to the link above titled, "Assignment 6 {Click Here to Submit}” no later than Sunday at 11:59pm EST in Module 6
5. Be sure to use UCIT Virtual Labs to access Arena
Learning Outcomes

Upon successful completion of this module, you will be able to:
- Identify analytics problems from data.
- Define measures, reports, and visualizations in support of an analytic project.
- Demonstrate an ability to perform statistical tests and execute predictive models.
- Demonstrate an ability to draw a conclusion and make recommendation based on analytic results.
- Describe data analytics, business intelligence, and data governing practices and opportunities in health and healthcare.
- Describe how to develop a business intelligence program and team.

Module Checklist

Your tasks for this module are:
1. Complete Final Project Course Readings
2. View Final Project Lectures & Other Media
3. Submit Final Case Study Project (Due by Saturday, April 22nd at 11:59pm)
4. Complete End of Course Evaluation (Due by Saturday, April 22nd at 11:59pm)

Readings

Media

1. Lecture 1 - Developing a Business Intelligence Program and Team
2. Lecture 2 – Analytics, BI, and Data Governing Practices and Applications

Assessment

Final Project:

Final Case Study Project: Due by Sunday at 11:59pm in Module 7.

Students will be expected to submit a final project that includes an in-depth analysis from a provided dataset that reflects elements of each learning module. The analysis should be presented as a report that includes a stated objective and the relevant graphics and analytic results. The final project should reflect learnings on how to translate data into information that will be beneficial in the healthcare environment.

Using the link on Blackboard, Submit your completed Case Study Project no later than Sunday at 11:59pm in Module 7.

End of Course Evaluation:
In an effort to provide ongoing improvement to BANA 7015, please complete the end of course evaluation by clicking on the link above. You will be asked to use your UC login credentials to access the evaluation. Please note, your participation is anonymous and completely confidential.

Thank you in advance for your feedback!

Dr. White