Spring 2016

**DSBA6100-U01 and U90 - Big Data Analytics for Competitive Advantage**  
(Cross listed as MBAD7090, ITCS 6100, HCIP 6103)  
As created and co-taught by Dr. Jared Hansen and Dr. Wlodek Zadrozny, ©2015-2025

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Spring 2016 office hours: T 1:15 to 2:00pm @ CCB by appointment + W 2:45 to 3:15 & 5:00 to 5:30pm @ CCB on calendar dates that I’m teaching there by appointment, unless indicated otherwise on Moodle. Other times at main campus and/or CCB by appointment.

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**Class Sessions (see calendar at end of syllabi for more details):**  
DSBA 6100-U01: W 12:00pm to 2:45pm, Room 601 Center City Building (CCB)  
DSBA 6100-U90: W 5:30pm to 8:15pm, Room 801 Center City Building (CCB)

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**Course Description:** This course provides an introduction to the use of big data analytics as a strategic resource in creating competitive advantage for businesses. A focus is placed on integrating the knowledge of analytics tools with an understanding of how companies could leverage data analytics to gain strategic advantage. An emphasis is placed on developing the ability to think critically about complex problems/questions in real world data science and business analytics (DSBA) challenges.  

**Course Objectives**  
1. Understand the role of big data analytics in organizational strategy and how organizations can leverage useful data/information to gain competitive advantage and acquire insights.  
2. Gain an introductory knowledge of the data science and business analytics tools that are useful in extracting intelligence and value from data.  
3. Apply big data analytics tools to reveal business opportunities and threats.

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1 The focus of the class is not on mastering Hadoop computer code or deriving formulas. Rather, the focus is on knowing which combinations of data and metadata, algorithms, tools, and software should be used to address different types of major business problems and how to think critically about designing data strategies for complex problems/questions.
4. Using actual business cases/examples, develop data-driven strategies that enhance stakeholder relationships, open new market opportunities, and/or better position the organization for competitive advantage during industry transition.

**Instructional Method:** This course will take a case & project approach, complemented by lectures, seminar style discussion and outside speakers. Students will be introduced to several topics and tools with emphasis through cases and projects on how to use them to generate firm value. Students should bring laptops with them to class for hands-on exercises.

**Credit Hours:** This is a 3 credit hour course. Thus, the course has been designed to require about 10 hours/week (about 3 hours outside of class for every 1 credit hour) between readings, quizzes, and exercise/project work. If a student has limited backgrounds in certain topical areas, they might need to spend additional time to keep up with other students in the course.

**Required Readings:** Required readings (business cases and topical articles) will be posted or hyperlinked on the class Moodle page. There is no required textbook that students must purchase.

**Supplemental (Not Required Purchases) Readings:** Posted on Moodle.

**Grading:**
The final grade will be determined on the following weights:

- Homework Exercises and Cases: 100 points (10%)
- Participation Activities: 50 points (5%)
- Exam 1: 200 points (20%)
- Exam 2: 200 points (20%)
- Group Project—Part 1: 200 points (20%)
- Group Project—Part 2: 200 points (20%)
- Group Project—Part 3: 50 points (5%)

**Total: 1000 points**

Final letter grades will be based on the following totals:

- 900 and above: A (Superior Performance)
- 750-899.99: B (Good Performance)
- 600-749.99: C (Average Performance)
- Below 600: U (Unsatisfactory)
**Attendance:** Students are expected to attend all class meetings and to arrive before the class starts. Class topics are integrated, with each week building on prior weeks. Failure to attend or to arrive early/on-time can adversely affect both individual performance, ability to contribute to the group project and class discussion, and earned letter grade. Notifying the instructor of a potential schedule conflict doesn’t change the consequences. *If a student misses 3 weeks of class or more, they will automatically receive an unsatisfactory U grade in the course regardless of earned points to date on other activities.* Related, if a student arrives late to class on more than one occasion, then beginning on the second tardy the associated exercise for that session will receive half credit each time there is a tardy; after the 3rd tardy additional tardiness will be treated as an absence. There will be a sign-in attendance roster in the class before it begins. Anyone who marks it after the class begins, for any reason, will be considered tardy. Last, if a student misses a class due to work or other reasons, it is their responsibility to get notes from peers; instructors do not hold extra repeat class sessions.

**Participation Activities:** The beginning of class often will include either (1) short quiz on readings, (2) discussion/presentation of assigned business cases, (3) or an in-class activity if there are no readings. Once grading has started or work has been collected, late arrivals cannot make them up. If one arrives during a quiz, they can immediately start on it, but no time extension will be made. Likewise, at times there will be online review quizzes after class sessions (similar to the start of class quizzes). They will be in Moodle (or another online location indicated in-class by the instructors).

**Homework Exercises and Cases:** There will normally be weekly cases and exercises that help participants practice read/discussed topics. Some cases and exercises will individual based while others will be team based. The team assignments will occur during the first week of class and will be listed in an Excel file posted to Moodle. Most cases/exercises will be posted on the class web page. Sometimes the web page may refer students to the class Moodle page or it may be emailed to the students. Exercises and cases will be posted or announced at least one week in advance of when they are due.

**Group Projects:** The group projects and expectations are detailed in a separate document posted online and discussed during the first week of class.

**Extra Credit Opportunities** Descriptions of extra credit opportunities will be described in class and/or posted to the online class resources/Moodle.

**Civility** The University strives to create an inclusive academic climate in which the dignity of all individuals is respected and maintained. We celebrate diversity that is beneficial to both employers and society at large. Students are strongly encouraged to actively appropriately share their views in class discussions. The instructors reserve the right to end discussion at any point, whether because it is not appropriate, to keep the class progressing on topic time-wise, or for any other reason.
**Academic Integrity/Honesty** Students have the responsibility to know and observe the requirements of [The UNC Charlotte Code of Student Academic Integrity](http://legal.uncc.edu/policies/up-407). This code forbids cheating, fabrication or falsification of information, multiple submissions of academic work, plagiarism (which includes viewing others work without instructor permission), abuse of academic materials, and complicity in academic dishonesty. *This forbidding includes sharing/copying work between individuals or teams without permission of instructors.* This applies to quizzes, exercises, cases, exams, group projects, and other assignments. Any special requirements or permission regarding academic integrity in this course will be stated by the instructor, and are binding on the students. Students who violate the code can be expelled from UNC Charlotte. The normal penalty for a first offense is zero credit on the work involving dishonesty and further substantial reduction of the course grade. In almost all cases the course grade is reduced to failing. Students are expected to report cases of academic dishonesty to the course instructor.

**Inclement Weather:** University Policy Statement #13 states the University is open unless the Chancellor announces that the University is closed. The inclement weather hotline number to call is 704-786-2877. *In the event of inclement weather, check your email before coming to class.* The instructors will use their best judgment as to whether class should be held and will notify you by email and posting to moodle forum if class is going to be cancelled. If class is cancelled videos and/or exercises will usually be uploaded to moodle for students to view instead.

**Other Information**

- Students are responsible for **all** announcements made in class and on the class online resources. Students should check the online class resources **throughout** the semester. The instructors will send emails with important information to the class listing in the Banner system. It is the **students’** responsibility to make sure their email addresses are accurate.

- The instructors will discuss grades in person (and not via telephone or e-mail) and only with the student (not with parents, spouses, etc.); student e-mails other than related to scheduling appointments may not be answered by the instructors. Office hours for each week will be posted online each week.

- Emails to instructors regarding the class need to include **both** instructors on emails (and the responding instructor will reply all) or they should see either of the instructors in person in their office by appointment. Subject lines must begin with “DSBA6100” and then the topic. Please address the instructors by their names and not “dear sir”

- The instructors may **modify the class schedule and syllabus** during the course of the semester depending upon the progress of the class.
<table>
<thead>
<tr>
<th>Instructor</th>
<th>Date</th>
<th>Tentative Topic</th>
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<tbody>
<tr>
<td>Dr. Z+J</td>
<td>13-Jan</td>
<td>Software, Syllabus, Class Overview, Group Project Review, Team formations</td>
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<tr>
<td>Dr. Z</td>
<td>20-Jan</td>
<td>Introduction to big data &amp; text mining using Alchemy</td>
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<tr>
<td>Dr. J</td>
<td>27-Jan</td>
<td>Big Data Cleaning, Richness, Transformations, and Classifications</td>
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<tr>
<td>Dr. Z</td>
<td>3-Feb-16</td>
<td>Alchemy API</td>
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<td>Dr. Z</td>
<td>10-Feb</td>
<td>Basic IR, Page Rank, Luke, Extracting Data from Text, Hadoop</td>
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<td>Dr. Z</td>
<td>17-Feb</td>
<td>Text search and classification + big iron for big data Hadoop</td>
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<tr>
<td>Dr. Z</td>
<td>24-Feb</td>
<td>Clustering, Bayes Theorem &amp; Naïve Bayes Classification, Innovation in Cloud Computing</td>
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<tr>
<td>Dr. Z</td>
<td>2-Mar</td>
<td>Big data and machine learning</td>
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<td>-NA-</td>
<td>9-Mar</td>
<td>Spring Break - no classes</td>
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<tr>
<td>Dr. Z</td>
<td>16-Mar</td>
<td><strong>Part 1 Project presentations + Part 1 Exam</strong></td>
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<tr>
<td>Dr. J</td>
<td>23-Mar</td>
<td>Firm Strategies, Competitive Advantage, and Big Data</td>
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<td>Dr. J</td>
<td>30-Mar</td>
<td>Big Data Considerations for Frequentist Statistical Analysis of Business Opportunities and Threats</td>
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<td>Dr. J</td>
<td>6-Apr</td>
<td>Big Data Predictive Modeling of Business Opportunities and Threats</td>
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<td>Dr. J</td>
<td>13-Apr</td>
<td>Visualization of Big Data to Gain Strategic Business Insights</td>
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<td>Dr. J</td>
<td>20-Apr</td>
<td>Presenting Business Narratives with Data to Drive Firm Change</td>
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<td>Dr. J</td>
<td>27-Apr</td>
<td><strong>Part 2 Project presentations + Part 2 Exam</strong></td>
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<td>-NA-</td>
<td>4-May</td>
<td>Reading Day - no classes</td>
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<tr>
<td>Dr. J+Z</td>
<td>11-May</td>
<td><strong>Revised Project Part 1+ 2 presentations</strong></td>
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*Notes: Dr. Z = Dr. Wlodek Zadrozny, Dr. J = Dr. Jared Hansen*