

MBA 714: Business Analytics

Spring 2024

Instructor: Dr. Hamid R. Nemati

Office: 425 Bryan Building

Voice Mail: 334-4993

Office Hours: By Appointment

E-Mail: nemati@uncg.edu

COURSE DESCRIPTION:

Study of the techniques and methods of business analytics, including gathering, processing and analyzing large volumes of data to generate insights that inform business decisions.

STUDENT LEARNING OUTCOMES (SLOs):

Upon completion of this course, students should be able to demonstrate a broad knowledge and clear understanding of critical concepts, practices, and issues in developing and using Business Analytics (BA) models and methods to solve business problems.

Specific course outcomes are:

1. Demonstrate an understanding of the principles of Business Analytics.
2. Explain and assess how organizations use business analytics to effectively address problems.
3. Identify, design and assess different business analytical models and methodologies for addressing problems.
4. Explore, develop, and apply descriptive and predictive analytical models to solve problems.
5. Generate data informed solutions to problems through the use of analytics software.
6. Describe and demonstrate how to prepare, formulate, collect, and transform data for use in business analytics.
7. Evaluate and assess the efficacy of business analytics solutions for organizations.

ABOUT THE COURSE:

This course is **Web based** and delivered **on-line in an asynchronous mode**. The course blends online asynchronous lecture presentations, videos, and discussions to achieve its learning objectives. Periodically, we will have live streamed lectures using Microsoft Teams to discuss concepts, projects, or answer questions. These live stream lectures will typically occur on Wednesdays starting at 5:30 PM est. I will send you announcements prior to these lectures. You can join these live streamed lectures via Microsoft Teams link available on Canvas. These lectures will be recorded and can be viewed at your convenience. Although attendance is not required, I strongly urge you to attend these lectures. Whether you attend these classes synchronously or view them later, you are responsible for topics discussed in them.

COURSE REQUIREMENTS:

You will have 3 projects dealing with various aspects of Business Analytics and a final exam for this. I will discuss the specifics later during the semester. The projects should preferably be done in teams of NOT MORE THAN 4 people. You will be responsible for forming your own teams. I will

assist you with team construction if you are unable to create your own team. If you prefer to do your projects individually, please notify me.

SOFTWARE REQUIREMENTS:

We will use three software for this course. They are:

- This course makes extensive use of Microsoft PowerBI (<https://www.microsoft.com/en-us/power-platform/products/power-bi>) for Data Visualization, SAS[®] Enterprise Miner[™] (https://www.sas.com/en_us/software/enterprise-miner.html) for Predictive Analytics and ChatGPT (<https://OpenAI.com>). These software programs constitute perhaps the most powerful tools for Business Analytics and Artificial Intelligence in the market today. PowerBI and SAS Enterprise Miner are available to you and can be accessed from UNCG's mycloud (mycloud.uncg.edu). Instructions as how to access them via UNCG's mycloud can be found by searching for mycloud at (<https://uncg.service-now.com/support/>)
- ChatGPT (<https://OpenAI.com>): You may already be familiar with or even use ChatGPT. In case you are not, I suggest that you please visit their website and create an account. You may also consider signing up for ChatGPT 4+ which is subscription based and costs around \$20 monthly. ChatGPT 4 allows for additional capabilities and a set of API's. We will use ChatGPT extensively in this course to develop applications. So, it is important for you to learn as much about it as possible. The good news is that there are numerous tutorials and learning materials available online for you to explore.

TEXTBOOKS AND SOFTWARE LEARNING MATERIALS:

All course related and teaching materials, readings, and other learning resources needed for this course are available electronically on Canvas. It is your responsibility to read the assigned readings and meet all the deadlines. Please sign into Canvas often and come back frequently, as I upload updated content throughout the semester.

1. *Applied Analytics Using SAS[®] Enterprise Miner[™] Course Notes* was developed by Peter Christie, Jim Georges, Jeff Thompson, and Chip Wells. Additional contributions were made by Robert Blanchard, Tom Bohannon, Mike Hardin, Dan Kelly, Jay Laramore, Bob Lucas, André de Waal, and Sue Walsh. ISBN 978-1-63526-196-7. Editing and production support was provided by the Curriculum Development and Support Department. Copyright © 2017 SAS Institute Inc. Cary, NC, USA. This textbook is available free via Canvas. I will refer to this text as AA.
2. *Advanced Predictive Modeling Using SAS[®] Enterprise Miner[™] Course Notes* was developed by Jim Georges and Christina Andersson and revised by Jeffrey Thompson and Chip Wells. Additional contributions were made by Mike Patetta, Catherine Truxillo, Anette Almer, Stefan Ahrens, Tamara Fischer, Mihai Paunescu, Torsten Scholz, and Reinhard Struby. Editing and production support was provided by the Curriculum Development and Support Department. Copyright © 2017 SAS Institute Inc. Cary, NC, USA. This textbook is available free via Canvas. I will refer to this text as AP.
3. Power BI on Microsoft Learn: Completion of the following modules are highly recommended. Upon completion of each of these modules, you will receive a certificate of completion. You can submit your certificates for extra credit. Please note that having these certificates on your CV is highly desirable by business analytics recruiters.
 - A. Get started with Power BI: <https://learn.microsoft.com/en-us/training/paths/get-started-power-bi/> (2 hrs and 35 mins to complete)
 - B. Get and transform data with Power BI: <https://learn.microsoft.com/en->

- [us/training/paths/get-transform-data-power-bi/](https://learn.microsoft.com/en-us/training/paths/get-transform-data-power-bi/) (3 hrs and 26 mins to complete)
- C. Model data with Power BI: <https://learn.microsoft.com/en-us/training/paths/model-data-power-bi/> (3 hrs and 10 mins to complete)
- D. Build Power BI visuals and reports: <https://learn.microsoft.com/en-us/training/paths/build-power-bi-visuals-reports/> (3 hrs and 31 mins).

FINAL EXAM

An on-line final exam is required for the course and will be administered during the last week of spring term. The exam will test your knowledge of Business Analytics topics discussed during the course. Details of the exam will be forthcoming during the course. Final exam should be completed on your own. No teamwork is allowed on this exam.

CLASS PARTICIPATION VIA DISCUSSION POSTS:

You are required to regularly participate in on-line discussion forums. I will post controversial or provocative questions about various aspects of Business Analytics to the discussion board and ask you to comment on them. Also, you must provide feedback on at least two of your peers' comments. Your posts will be graded and counted toward your final grade. Please

EVALUATION AND GRADING:

Your final grade will depend on the quality of your submission for course deliverables and is based on the following grading scheme.

Contribution to class discussion board	150
Projects	650
Final Exam	<u>200</u>
Total	1000

Letter Grades and Points

931-1000 = A, 900-930 = A-, 860-899 = B+, 830-859 = B, 800-829 = B-, 760-799 = C+, 730-759 = C, 700-729 = C-, 690 and below = F

Course Outline

Please note that this schedule is tentative, and changes may be required during the semester.

Week	Topic
Weeks of 1 and 2	Introduction to the Course Introduction to Business Analytics Introduction to Descriptive Analytics and Predictive Analytics Get Started with Power BI
Week 3	Data, Data, Data Everywhere Accessing and Preparing Data Dimensional vs Relational Data Power BI Lab
Week 4	Descriptive Analytics Modeling Power BI Lab
Week 5	Predictive Analytics Modeling Power BI Lab
Weeks 6 and 7	Predictive Analytics Modeling using Supervised Learning Techniques: Decision Trees Regressions, Neural Networks, SVM, Random Forest and Other Modeling Techniques Get Started EM Lab
Week 8 and 9	Unsupervised Learning Techniques: Cluster Analysis and Market Basket Analysis Predictive Analytics Model Assessment EM Lab
Week 10	Large Language Models Advanced Topic in EM Lab
Week 11	ChatGPT Advanced Topic in EM Lab
Week 12	Business Analytics Organizational and Managerial Issues ChatGPT Lab
Weeks 13	Business Analytics Privacy and Ethical Issues ChatGPT Lab
Weeks 14 +	Prepare for your final exam Final Exam