MBA 714: Business Analytics

Spring 2025

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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. Develop proficiency in Power BI for data visualization and dashboards.
8. Design predictive and unsupervised learning models using Orange.
9. Develop proficiency in using generative AI (GenAI) tools.
10. Evaluate and assess the efficacy of business analytics solutions for organizations.
11. Evaluate the managerial, organizational and ethical implications of deploying business analytics.

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 case projects dealing with various aspects of Business Analytics and a final exam for this class. I will discuss the specifics later during the semester. The case 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 types of software for this course. These software programs constitute perhaps the most powerful set of tools for Business Analytics, AI and GenAI in the market today.

They are:

- Microsoft PowerBI (https://www.microsoft.com/en-us/power-platform/products/power-bi) for Data Analytics mostly Descriptive Analytics and Visualization,
- *OrangDataMining (https://orangedatamining.com/)* for descriptive, and predictive business analytics modeling. Orang is a Visual Programming tool that requires no coding and allows you to create powerful BA applications.
- Generative AI (GenAI) is a transformative technology used in business analytics for generating content, automating processes, and enhancing decision-making. Although there several GenAI software available to you, my recommendation is to use one of the following:
  - ChatGPT (https://OpenAI.com),
  - Google Gemini (https://gemini.google.com/),
  - Microsoft Autopilot (https://copilot.microsoft.com/).

PowerBI is available to you as a UNCG student. You can also access it 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/. To learn PowerBI, completion of the following modules is 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/ (1hr and 30 mins to complete)
B. Get and transform data with Power BI: https://learn.microsoft.com/en-us/training/paths/get-transform-data-power-bi (3 hrs and 47 mins to complete)
C. Model data with Power BI: https://learn.microsoft.com/en-us/training/paths/model-data-power-bi/ (7 hrs and 56 mins to complete)
D. Build Power BI visuals and reports: https://learn.microsoft.com/en-us/training/paths/build-power-bi-visuals-reports/ (7 hrs and 4 mins to complete).

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.

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 or case studies 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.

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 and short case studies	250
Case Projects	550
Final Exam	200
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 Orange Lab
Week 8 and 9	Unsupervised Learning Techniques: Cluster Analysis and Market Basket Analysis Predictive Analytics Model Assessment Orange Lab
Week 10	Large Language Models and Generative AI Advanced Topic in Orange Lab
Week 11	Large Language Models and Generative AI GenAI Lab
Week 12	Business Analytics' Organizational and Managerial Issues GenAI Lab
Weeks 13	Business Analytics' Privacy and Ethical Issues GenAI Lab
Weeks 14 +	Prepare for your final exam **Final Exam**