The University Of North Carolina at Greensboro
Bryan School of Business and Economics
Department of Information Systems and Supply Chain Management

MBA 701-01: Quantitative Analysis for Decision Making (Fall 2023)
Location: Bryan 205   Time: Tuesday 6:30 – 9:20 pm

Instructor: Onyi Nwafor, PhD
Office: Room 438 Bryan Building
Phone: (336) 256-8587
E-Mail: o_nwafor@uncg.edu
Office Hours: Virtual office hours by appointment

COURSE DESCRIPTION

The availability of large amounts of data to today's business organizations and the opportunity it offers for making better decisions that can improve both financial and operational performance means that data analytics will continue to play an increasingly important role in today's world. This course introduces students to a variety of quantitative methods and tools to analyze data from various business domains so as to make better fact-based decisions. Specific topics covered in the course include descriptive statistics and data visualization, confidence interval estimation, hypothesis testing, regression analysis, decision analysis, optimization modeling, and simulation modeling.

COURSE OBJECTIVES

The course goals are to: (i) Demonstrate the wide range of situations in which quantitative analysis improves decision making and creates competitive advantages; (ii) Develop students' analytical thinking skills; (iii) Develop students' mastery of analysis using spreadsheet models. Upon completing the course, students should be able to:

- *Describe* a set of data using histograms, scatter diagrams and summary statistics.
- *Compute* statistics from sample data to support confidence interval estimation, hypothesis testing and regression analysis.
- *Infer* the statistical precision of insights derived from confidence interval estimation, hypothesis testing and regression analysis.
- *Construct* effective models of decision-making situations using principles of professional spreadsheet design.
- *Compute* optimal solutions to decision making models for the management of a wide range of situations in which quantitative analysis improves decision making.
- *Analyze* spreadsheet simulation models and decisions with uncertain outcomes by using multiple criteria for optimality and risk.

PRE-REQUISITE COURSES AND REQUIREMENTS

Pre-M.B.A. workshop in statistics and spreadsheet skills or a spreadsheet-based undergraduate course in probability and statistics. To meet this requirement, students must meet the passing grade for Excel Prep Course (Please refer to *Excel Prep Course* section of this syllabus for further information).

COURSE TEXTBOOK AND OTHER MATERIALS
1. MindTap® Business Statistics, Instant Access for S. Christian Albright & Wayne L. Winston, *Business Analytics: Data Analysis and Decision Making*; 7th Edition. 2017.
   - MindTap® is an online learning resource that includes e-text, videos of worked examples, flashcards and many other study resources.
     <u>MindTap® is required to complete graded problem sets and quiz assignments</u>. Students may purchase access to MindTap® directly from Cengage, or a printed access card from the UNCG Bookstore.
   - Cengage also offers various product options that include combinations of e-text, print, and digital platform. Students can learn more about these options by visiting:
     https://www.cengage.com/c/business-analytics-data-analysis-decision-making-7e-albright/9780357109953PF/

2. Laptop installed with MS Excel 2010 or later and the following add-ins: Solver, Analysis Toolpak, SolverTable, Palisade Decision Tools Suite (StatTools, @Risk, PrecisionTree, NeuralTools, TopRank, and Evolver). Please note that the examples provided in the text are based on Excel 2016.

   <u>**Special Note for Mac Users:**</u>
   - Some of the Excel features used in this course are not supported by Mac OS and by extension, Excel for Mac. As such, Mac users will need to use a Windows emulation program (e.g., Bootcamp, Parallels, Vmware Fusion, etc.), along with Windows, to participate in the course.
   - Mac users with computers running on the M2 chip are likely to face additional problems that prevent the Windows-based software that we will use in class from running on their computers. UNCG has a limited number of remote licenses to available to students whose computers do not support the software used in class. Such students should contact the instructor as soon as possible

COURSE STRUCTURE
This course meets for one semester of instruction. Class meetings will involve lecture, guided computer exercises, in-class lab assignments, and case discussions. The lecture slides will be posted on Canvas. Students that want to have hard copies of the slides during the class must print them out themselves and bring to class. Printouts will not be provided in class.

<u>Canvas:</u>
This course will use UNCG Canvas as a course management tool to post important information. This information includes course syllabus, tests, grades, videos, reading articles, announcements, and other instructional materials. To access Canvas, visit: http://canvas.uncg.edu.

Students must have an active UNCG email account to access Canvas. Canvas works best using the Mozilla Firefox browser or Google Chrome. It is the student's responsibility to check Canvas regularly for important announcements, such as class notes, emails, and grades among others.

<u>Discussion Forums</u>
I have created two discussion boards on Canvas:
- Ask your Instructor Discussion Board
- What's Going on in Class Discussion Board

Ask your Instructor Discussion Board
Please use this discussion board to ask any general questions you may have about the class, so I can respond to them in public. Chances are that if you have a question, someone else has the same one!

What's Going on in Class Discussion Board
The purpose of this discussion board is to facilitate collaboration among students enrolled in the class. Please use this discussion board to communicate with your classmates. I encourage everyone to subscribe to this discussion forum. That way, you can easily reach out to your classmates (or easily be reached by other students). Please note that I do not participate in the "*What's Going on in Class?*" discussion board. The best way to reach me is via the "*Ask Your Instructor*" discussion board.

Laptop Policy
This is a computer intensive class. Please bring your laptops to every class!

Excel Prep Course
This course relies on Microsoft Excel and some of its powerful add-ins to implement the data analysis techniques that will be covered in class. It is important for students to note that although Microsoft Excel will be used extensively throughout the course, the course is not designed to teach students how to use Excel. Rather, the course focuses on how to address business problems using various quantitative methods. Excel only serves as a tool to implement these data analysis methods. As such, students are expected to have working knowledge of Microsoft Excel prior to the start of the class. The Excel Prep course provided through the MBA office will help students assess their level of Excel proficiency. Students must achieve a score of 80% on each of the assigned proficiency quizzes in order to earn course credit for the Excel Prep Course. Students may attempt the Excel Prep Quizzes as many times as needed before the due date posted on Canvas.

MindTap
Problem-Sets and Quizzes will be administered via MindTap, the online software accompanying the text. **Students are therefore required to purchase access to MindTap**. To access or register for MindTap, please see the link provided on Canvas. A video guide is also provided on Canvas.

Quizzes
There will be a quiz at the end of every module/topic area to test participants' understanding of the concepts discussed in class. The objective of the quizzes is to reinforce key concepts discussed in class. The quizzes will be short and relatively simple. All quizzes will be administered via MindTap. Unless otherwise stated, quizzes will be due at 11:59 p.m. on the Sunday following the quiz assignment. At the end of the semester, the lowest score will be dropped from students' final grades.

Group-based Assignments
The course also includes group-based assignments. The assignments could take the form of problem sets and/or essay questions. The problem sets provide an opportunity to practice the quantitative methods covered in class, and typically include complex computation problems. The essay questions provide an opportunity to reflect on the managerial implications of the quantitative methods covered in class. Students are required to form their own groups by the second class. Unless otherwise stated, all group-based assignments will be due at 11:59 p.m. on the Sunday following the problem set assignment.

> Important:
> **Please note that the instructor does not grant extensions or provide opportunities for makeup quizzes/group-based assignments. Students will earn a score of zero for each assignment that they fail to submit by the due date.** In the event that a technical problem prevents a student from submitting an assignment by the due date, the instructor may grant the student an opportunity to

complete the assignment, **strictly on the condition that the student provides evidence of the technical problem (**e.g., a screenshot of the error message clearly showing the date and time the error occurred). It is the student's responsibility to ensure that he/she captures evidence of the technical error (including **date and time)** at the time that it occurs. Students are therefore advised to ensure that they have a reliable computer and internet access ready before attempting each assignment.

Exams

This course includes two exams- A mid-term exam and a final exam. The mid-term exam will be based on individual effort. The final exam will involve a case study assignment related to business decisions and quantitative modeling. Students will work in teams to attempt the case. The instructor will provide detailed instructions about both exams during the semester.

Grades

The point allocation and resulting letter grades for the course are detailed below:

Quizzes	15% of the overall grade
Group-based Assignments	20% of the overall grade
Mid-term Exam	25% of the overall grade
Final Exam (A Case Study)	25% of the overall grade
Excel Prep Course	10% of the overall grade
Participation and Professionalism	5% of the overall grade
Total	100%

The required performance for each letter grade is given below. Note, that final grades averages are not rounded off to the next higher integer. For example, a 92.99 is an A-, not an A.

A	93-100 %
A-	90-92.99 %
B+	87-89.99 %
B	83-86.99 %
B-	80-82.99 %
C+	77-79.99 %
C	70-76.99 %
F	Below 70 %

GENERAL

Office Hours

The Professor's office hours are set up to assist students with understanding of the material. Students are STRONGLY encouraged to see the Professor at the first sign of any problem or lack of understanding. Do not wait until it is too late! The instructor will respond to all questions posted on this forum within 24 hours. To avoid repeat questions, students are encouraged to review the discussion thread before posting questions.

Attendance Policy

Students are strongly encouraged to attend every class, especially given the quantitative and hands-on nature of the course.

Make-Up Exam Policy

Exams may not be missed for the convenience of the student. The exam dates are published in the course schedule and it is expected that students will schedule their other activities around these exam dates. If a major exam is to be missed due to an approved university absence, students must inform the Professor before the exam (if not possible, no later than 24 hours after the exam) and you must furnish the Professor with the original documentation (copies will not be accepted) why the absence should be excused. There will be no make-ups for missed exams without a university approved excuse.

If excuse is approved, students are allowed to take the exam on the date agreed by the Professor and the student. The make-up exam will cover the material of the missed exam and the new material that is covered prior to the make-up exam date. The format of the exam may be different from the exam given in class. An exam, whether regularly scheduled or make-up, that is missed without an approved excuse will be assigned a grade of ZERO.

UNCG Academic Integrity Policy.

By submitting an assignment, each student is acknowledging their understanding and commitment to the Academic Integrity Policy on all major work for the course. Refer to the following URL: https://osrr.uncg.edu/academic-integrity/

Accommodations/ADA Statement.

UNCG seeks to comply fully with the Americans with Disabilities Act (ADA). Students requesting accommodations based on a disability must connect with the Office of Accessibility Resources and Services (OARS) in 215 Elliott University Center, (336)334-5440, https://oars.uncg.edu//

Religious Obligations Statement

UNCG respects and acknowledges the diverse religious beliefs and practices of our students. If you have any religious obligations that may affect your attendance, assignments, or participation in this course, please let the Professor know at the earliest opportunity. We are committed to working with you to make reasonable accommodations that allow you to fulfill your religious obligations while also engaging in the course material and activities. For more information more information on UNCG's Religious Obligations policy, visit: https://catalog.uncg.edu/academic-regulations-policies/university-policies/

Attendance Policy for University Sponsored Events

The University recognizes the importance of certain extra-curricular and co-curricular activities (including travel days) that enhance student learning, personal development, and professional growth. Instructors will excuse absences of students for participation in University-sponsored events under the following conditions:

1. Students who expect to miss one or more class meetings due to participation in University-sponsored activities should:
   - Notify the instructor(s) at least five class days in advance;
   - Arrange to complete all missed work in advance of the absence whenever practicable as judged by the instructor(s). When missed work cannot be completed in advance, the instructor(s) should provide students with the opportunity to make up the work. Students should be aware, however, that not all kinds of work

can be made up. The instructor(s) have the discretion to deny make-up work if (i) alternative assignments place an unreasonable demand on the instructor, (ii) the original assignment is such that not completing it at the originally assigned time impedes student learning

- Present relevant documentation of participation in a relevant University-sponsored activity to the instructor(s) upon request.

Students who expect to miss more than three class periods of any single course of any kind in a term or more than two consecutive meetings of a laboratory course in order to participate in University-sponsored activities should inform the instructor at the beginning of the course. In the case that the faculty member cannot make reasonable accommodations for make-up work, the student may appropriately be advised to drop the course.

*****HAVE A GREAT SEMESTER!...******