# UNC CHARLOTTE

## Belk College of Business

## DSBA 6276 | Strategic Business Analytics | U01

**Instructor:** Dr. Sherry Shaoyin Du
**Email:** sdu7@uncc.edu (Please include ***DSBA6276*** in the email title/subject)
**Office:** Friday Building 253A
**Class Time:** Thursday 12:30 – 3:15 PM @ Center City 801
**Course Website:** Canvas (canvas.uncc.edu)
**Office Hours:** Thursday 11:00-12:00pm, 3:30-4:30pm @ Center City 715C (inside 713)
          Or by appointment

## Course Description:

This course introduces students to marketing application of business analytics, utilizing both critical thinking and statistical tools. It focuses on helping students to develop quantitative analytical skills valuable for a wide range of business fields, especially on consumer-related business problems. As with the new developments of information technology and advancements in analytical tools, the marketing profession is witnessing a shift away from intuitive decision making to data-analytics based decisions. Companies are increasingly competing on analytics and are in need for people with both managerial expertise and analytical skills.

This course is designed to help students with data analytics skills to expand their professional and academic abilities to develop insights into practical marketing problems in various decision contexts. It introduces students to a variety of marketing decision models and teaches them how to use these models in practice. Specifically, this course will introduce a variety of quantitative models to improve marketing decision making in areas such as market response, customer segmentation, customer targeting, brand positioning, as well as pricing and promotion decisions.

## Course Objectives and Approach:

This is a hands-on and application-orientated course embracing the principle of learning by doing. Each analytic model that we cover has software implementation, and a problem/case whose resolution can be enhanced through the use of data. Statistical tools covered in the class will range from simple data analysis and visualization, to

advanced methods such as non-linear regressions, choice model, and mining of 'unstructured' data. Our emphasis will be on applications and interpretation of the results for making business decisions. To master each major tool introduced in this course, students should go through a four-stage problem solving process: (1) analyzing the business problem, (2) selecting and estimating relevant models, (3) interpreting estimation results, and (4) making decision recommendations. To master this four-stage problem solving process, a major requirement is that students apply analytics techniques to their group project to solve typical marketing problems of their own choice. The semester-long project is intended to train students for the four-stage process of problem solving.

## Textbooks & References:

You are not required to buy any textbook. All the class materials will be provided through our Canvas course website. For those who want to go deeper in learning, the following books are recommended as reference books.

Hair, Joseph, F. Jr., William C. Black, Barry J. Babin, and Rolph E. Anderson (2010), *Multivariate Data Analysis*, 7th Edition, Prentice Hall.

Lilien, Gary L. and Arvind Rangaswamy (2004), *Marketing Engineering: Computer-Assisted Marketing Analysis and Planning*, Revised Second Edition, Trafford Publishing.

Venkatesan, Rajkumar, Paul Farris, and Ronald T. Wilcox (2015), *Cutting Edge Marketing Analytics: Real World Cases and Data Sets for Hands On Learning*, Pearson Education.

## Grading Policy & Scale:

| Components | Points |
|---|---|
| Individual Homework (4 assignments) | 20 |
| Group Project | 30 |
| Midterm Exam | 25 |
| Final Exam | 25 |
| Extra Credits: class participation | 0~5 |
| Total | 105 |

Your overall numerical grade will be rounded to the nearest integer and then converted to a letter grade according to the following table.

| Letter Grade | A | B | C | D | F |
|---|---|---|---|---|---|
| Range of Numerical Grade | 90+ | 80~89 | 70~79 | 60~69 | <60 |

### Homework Assignments (20%):

To facilitate an effective learning process, four individual homework assignments will be posted for this course. These homework assignments are intended for *individual work* only. You are encouraged to discuss general concepts, approaches, and techniques with others, but you must write up the solutions by yourself with full understanding of what you have written.

You are expected to use RStudio for the assignments. You can access RStudio on Apporto (https://charlotte.apporto.com/). To learn about the environment of Apporto, refer to https://spaces.charlotte.edu/display/FAQ/Apporto. You can also download R and RStudio from the following links and install it on your own computer:

https://www.r-project.org/
https://www.rstudio.com/

### Group Project (30%):

The group project is designed to enhance students' ability of applying marketing concepts and analytic techniques learned in class to problems under real life business scenario, and to accustom students to collaborative decision-making process in small groups. Therefore, it is important that the group is able to work as a cohesive team.

Each team will be composed of roughly 5 members. Your team wants to select an interesting project with practically important marketing/business problems. One team only needs to submit ONE copy of work to Canvas for grading. It is each team member's responsibility to ensure his/her name is on the file.

**Peer Evaluation Form**: On the last day of class, each individual will need to email me his/her own confidential Peer Evaluation Form to reflect each individual team member's contribution to the project. You should be honest and impartial in your evaluations.

### Exams (50%):

There will be two exams (midterm and final) in this course. Both exams will be open book, open notes, and open internet. Exams have to be your individual work and any form of collaboration is not allowed.

- Midterm exam will be given during regular class meeting time.
- Final exam will be administered according to the UNCC Final Examination Schedule.

You will complete each exam on Canvas. Only one attempt is allowed for each exam. Note that these exams are timed, and it is urged that you study the required materials carefully before the exam. Make-up exams will not be offered unless there is a documented serious illness or extreme personal circumstances.

*Late Submission:*
All written projects and assignments should be submitted electronically via canvas on the due date. 20% of the assigned grade will be deducted for the late assignments each day till reaching 0 point.

## Tentative Teaching Schedule:

This is a loose and tentative schedule and the instructor reserves the right to change it according to course development and student progress.

| Week | Date | Topic | Note |
|------|------|-------|------|
| 1 | 8/25/2022 | Course Overview and Introduction to Business Analytics | |
| 2 | 9/1/2022 | Summary Statistics (R Introduction) | |
| 3 | 9/8/2022 | Data Visualization | HW1 |
| 4 | 9/15/2022 | Group Project Assignment | |
| 5 | 9/22/2022 | Exploring Analytics: Market Segmentation and Clustering Analysis | HW2 |
| 6 | 9/29/2022 | Exploring Analytics: Association Rules and Text Mining | |
| 7 | 10/6/2022 | Midterm Exam | |
| 8 | 10/13/2022 | Market Response Model: Regression + Inference | |
| 9 | 10/20/2022 | Market Response Model: Nonlinearities + Transformations | HW3 |
| 10 | 10/27/2022 | Group Project Meetings | |
| 11 | 11/3/2022 | Time Series I: Forecast Accuracy + Moving Averages | |
| 12 | 11/10/2022 | Time Series II: Regression Analysis + Serial Correlation | HW4 |
| 13 | 11/17/2022 | Predictive Data Mining-Nearest Neighbors | |
| 14 | 11/24/2022 | No Class - Happy Thanksgiving! | |
| 15 | 12/1/2022 | Group Project Presentation | |
| 16 | 12/8/2022 | Self-study and additional office hours | |
| 17 | | Final Exam | |

## Course Policies:

**Syllabus Revision:**

The standards and requirements set forth in this syllabus may be modified at any time by the course instructor. Notice of such changes will be by Canvas announcement or email notice or by changes to this syllabus posted on the course website at https://canvas.charlotte.edu.

**Classroom Conduct:**

I will conduct this class in an atmosphere of mutual respect. I encourage your active participation in class discussions. Each of us may have strongly differing opinions on the various topics of class discussions. The conflict of ideas is encouraged and welcome. The orderly questioning of the ideas of others, including mine, is similarly welcome. However, I will exercise my responsibility to manage the discussions so that ideas and argument can proceed in an orderly fashion. You should expect that if your conduct during class discussions seriously disrupts the atmosphere of mutual respect I expect in this class, you will not be permitted to participate further.

**Withdrawals:**

Students are expected to complete all courses for which they are registered at the close of the add/drop period. If you are concerned about your ability to succeed in this course, it is important to make an appointment to speak with me as soon as possible. The University policy on withdrawal allows students only a limited number of opportunities available to withdraw from courses. It is important for you to understand the financial and academic consequences that may result from course withdrawal.

**Incompletes:**

The grade of I is assigned at the discretion of the instructor when a student who is otherwise passing has not, due to circumstances beyond his/her control, completed all the work in the course. The missing work must be completed by the deadline specified by the instructor, and no later than 12 months. If the I is not removed during the specified time, a grade of F, U, or N, as appropriate is automatically assigned. The grade of I cannot be removed by enrolling again in the same course, and students should not re-enroll in a course in which they have been assigned the grade of I. University policy addressing Incompletes.

**Feedback:**

It is my goal to make this an excellent course. If at any time you feel that the course is not meeting your expectations or you want to provide feedback on how the course is progressing, please contact me directly, and I will do my best to address your concerns.

**Academic Integrity:**

All students are required to read and abide by the Code of Student Academic Integrity. Violations of the Code of Student Academic Integrity, including plagiarism, will result in disciplinary action as provided in the Code. Students are expected to submit their own work, either as individuals or contributors to a group assignment. Definitions and examples of plagiarism and other violations are set forth in the Code. The Code is available from the Dean of Students Office or online at: http://legal.uncc.edu/policies/up-407 Faculty may ask students to produce identification at examinations and may

require students to demonstrate that graded assignments completed outside of class are their own work.

## Non-Discrimination:

All students and the instructor are expected to engage with each other respectfully. Unwelcome conduct directed toward another person based upon that person's actual or perceived race, actual or perceived gender, color, religion, age, national origin, ethnicity, disability, or veteran status, or for any other reason, may constitute a violation of University Policy 406, The Code of Student Responsibility. Any student suspected of engaging in such conduct will be referred to the Office of Student Conduct.

## Belk College Statement on Diversity:

The Belk College of Business strives to create an inclusive academic climate in which the dignity of all individuals is respected and maintained. Therefore, we celebrate diversity that includes, but is not limited to ability/disability, age, culture, ethnicity, gender, language, race, religion, sexual orientation, and socio-economic status.

## Title IX:

Title IX UNC Charlotte is committed to providing an environment free of all forms of discrimination and sexual harassment, including sexual assault, domestic violence, dating violence, and stalking. If you (or someone you know) has experienced or experiences any of these incidents, know that you are not alone. UNC Charlotte has staff members trained to support you in navigating campus life, accessing health and counseling services, providing academic and housing accommodations, helping with legal protective orders, and more. Please be aware that many UNC Charlotte employees, including all faculty members, are considered Responsible Employees who are required to relay any information or reports of sexual misconduct they receive to the Title IX Coordinator. This means that if you tell me about a situation involving sexual harassment, sexual assault, dating violence, domestic violence, or stalking, I must report the information to the Title IX Coordinator. Although I have to report the situation, you will still have options about how your case will be handled, including whether or not you wish to pursue a formal complaint. Our goal is to make sure you are aware of the range of options available to you and have access to the resources you need. If you wish to speak to someone confidentially, you can contact any of the following on-campus resources, who are not required to report the incident to the Title IX Coordinator: (1) University Counseling Center (counselingcenter.uncc.edu, 7-0311); (2) Student Health Center (studenthealth.uncc.edu, 7-7400); or (3) Center for Wellness Promotion (wellness.uncc.edu, 7-7407). Additional information about your options is also available at titleix.uncc.edu under the "Students" tab.

## Student Support:

**Disability Support Services:**

UNC Charlotte is committed to access to education. If you have a disability and need academic accommodations, please provide a letter of accommodation from Disability Services early in the semester. For more information on accommodations, contact the Office of Disability Services at 704-687-0040, visit their office in Fretwell 230, or email disability@uncc.edu.

The Office of Disability Services works with current undergraduate and graduate students along with prospective students to ensure equal access to UNC Charlotte's campus and educational programs.

All services are dependent upon verification of eligibility.  Once approved for services, students receive accommodations which are based upon the nature of an individual's disability and documented needs.  Students are strongly encouraged to register or check-in for their accommodations with a Disability Services counselor as soon as they have registered for classes.  Accommodations are not retro-active and will not begin until the student notifies his or her faculty by providing the Letter of Accommodation.


**Student Support Services:**

Be sure to take advantage of the wealth of resources and support available at UNC Charlotte. Some of the resources available to you include the University Writing Resource Center, University Counseling Center, and the J. Murrey Atkins Library.

- University Center for Academic Excellent (UCAE)  |  (704) 687 7837  |  uncc-ucae@uncc.edu
- University Writing Resources Center (WRC) | 704-687-1899 | wrchelp@uncc.edu
- Veteran Student Services |  704-687-5488   | veteranservice@uncc.edu
- University Counseling Center  | 704-687-0311
- Multicultural Resource Center | 704-687-7121 |  mrc@uncc.edu
- List of computer labs on campus
- Atkins Library Laptop Lending program