



Course Syllabus – Fall 2023

INFO 3236 - 090 - Business Analytics

- Instructor: Kanlun (Sampson) Wang | email at kwang17@uncc(charlotte).edu
- Class Hours: **Monday 5:30-8:15 pm**
- Location: **Friday Building – Room 339**
- Course Type: In-person
- Office Hours: **Monday 3:00-4:30 pm (by appointment only)**
Office Location: Friday Building – Room 341B

Description

This course provides various data mining and business intelligence methods, such as rule-based systems, decision trees, logistic regression, and clustering analysis. In addition, this course also covers the fundamentals of statistics, machine learning, and online analytical processing (OLAP), as well as various issues relating to modeling, storing, and sharing organizational data resources.

Objectives

Business analytics is a field that deals extensively with structured and unstructured data to build predictive models and visualizations to drive business decisions and actions. You will learn about various machine learning and business intelligence methods, with specific learning objectives:

- To understand the concepts of business intelligence, data analytics, and decision support.
- To learn the principles of data management in a “big data” environment, including the issues relating to storing and organizing organizational data resources using data warehousing.
- To deepen the understanding of the decision-making process in statistics and analytical techniques.
- To understand how to effectively use reporting and visual analytics tools to present results to a business audience.

Course Portal

Canvas will be the ONLY website and primary communication channel for all information about this course. Go to <http://canvas.uncc.edu> and log in with your Ninernet credentials, search for “202380-INFO-3236-090-12499” to access relevant course materials.

Textbook

There is no required textbook for this class. All reading materials will be posted or linked on the Canvas course site. These materials include handouts, notes, copies of power-point slides, practice problem sets, and web links to articles for class discussions. You can print the posted material and bring them to class. Please note that the instructor will not provide printed copies of any of the posted materials.

Reading Materials

You may want to refer to the following materials to gain additional knowledge for the course.

- **Data Science for Business: What You Need to Know about Data Mining and Data-Analytic Thinking** (O'Reilly Media, 1st ed., 2013)
- **Data Mining: Concepts and Techniques** (Morgan Kaufmann, 3rd ed., 2011)
- **An Introduction to Statistical Learning** (Springer, 2nd ed., 2021)
- **Google Colab**
 - <https://colab.research.google.com>

Hardware

You are expected to use a lab desktop only during the class. When you use your personal computer while you are not in the lab, your personal computer/laptop should be capable of installing and running the required software.

Software

This class will use the following tools, depending on the topics and analytical methods. You can download the software on your personal computer from software.uncc.edu. If you plan to use computers in the student labs on campus, both SAS programs are pre-installed in the Friday building student labs. Google Colab is a cloud-based programming environment, which does not require pre-installation. Instead, you can access a programming notebook in Google Colab using your UNCC subscribed email (@uncc/charlotte.edu). Apporto is a web-based virtual machine, which gives you a consistent entry point to various pre-installed applications and software.

- 1) **SAS Enterprise Guide**
- 2) **SAS Enterprise Miner**
- 3) **Google Colab** (a cloud-based application)
- 4) **Apporto** (a web-based UNCC virtual desktop)

Grading Policies

- Student performance in the course will be weighted as follows:

Category	Points	Count	Sub-total
Attendance	10	10	100
In-class Assignment	20	6	120
Quiz	5	6	30
Group Project	50	1	50
Exam	100	2	200
Total points			<u>500</u>

- The final letter grades will be based on the following scales.

Total Points	Letter Grade
450 – 500	A
400 – 449	B
350 – 399	C
300 – 349	D
< 300	F

Course Schedule

#	Date	Topic	Deliverable Due
1	Aug 21	<ul style="list-style-type: none"> • Introduction and Course Overview • Overview of Business Analytics 	-
2	Aug 28	<ul style="list-style-type: none"> • Data Structure and Data Management • Introduction to SAS Enterprise Guide • In-class Workshop 	<ul style="list-style-type: none"> • Quiz 1 • Assignment 1
-	Sep 4	Labor Day - No class	
3	Sep 11	<ul style="list-style-type: none"> • Fundamental Statistical Concepts 	<ul style="list-style-type: none"> • Quiz 2
4	Sep 18	<ul style="list-style-type: none"> • Decision Trees • Introduction to SAS Enterprise Miner • In-class Workshop • Midterm Review 	<ul style="list-style-type: none"> • Quiz 3 • Assignment 2
5	Sep 25	<u>Midterm Exam</u>	
6	Oct 2	<ul style="list-style-type: none"> • Logistic Regression • In-class Workshop 	<ul style="list-style-type: none"> • Quiz 4 • Assignment 3
7	Oct 9	<ul style="list-style-type: none"> • Clustering Analysis • In-class Workshop 	<ul style="list-style-type: none"> • Quiz 5 • Assignment 4
8	Oct 16	<ul style="list-style-type: none"> • Association Rule Mining • In-class Workshop 	<ul style="list-style-type: none"> • Quiz 6 • Assignment 5
-	Oct 23	Student Recess - No Classes	
9	Oct 30	<ul style="list-style-type: none"> • Group Project Proposal 	<ul style="list-style-type: none"> • Project Proposal
10	Nov 6	<ul style="list-style-type: none"> • Python Workshop I (Data Processing) 	<ul style="list-style-type: none"> • Assignment 6
11	Nov 13	<ul style="list-style-type: none"> • Python Workshop II (Data Analytics) 	<ul style="list-style-type: none"> • Extra Credit
12	Nov 20	<ul style="list-style-type: none"> • Group Project Workshop 	<ul style="list-style-type: none"> • Project Final Report
13	Nov 27	<ul style="list-style-type: none"> • Group Project Presentation 	-
14	Dec 4	Final Exam Review	
15	Dec 11	<u>Final Exam</u>	

Course Changes Disclaimer

The instructor reserves the right to make any necessary changes to the course content, schedule, and policies. Changes will be announced in class and will also be posted online on Canvas.

Examinations

There will be two exams for the course – one midterm exam and one final exam. Both exams are mandatory and will be taken in class. The exams include multiple-choice questions and short essay questions. The instructor will keep all exams after grading. However, exam reviews are available during office hours. Students requesting a review of their exams should do so within 7 calendar days of the posting of the exam grades. No grade reviews or adjustments will be done beyond this 7-calendar day period.

Exams are a form of intellectual property belonging to those who create them. Consequently, exams must remain in the instructor's possession or under the instructor's control at all times. This means that exams may not be taken out of the room or copied. Students are encouraged to review their exams during office hours. However, failure to return an exam after taking or reviewing it or removing an exam from the

instructor's presence at any time, or copying an exam will be considered theft of intellectual property. Such action will result in an exam grade of ZERO and may warrant further disciplinary action.

Make-up Exam Policy

Make-up exams will NOT be given except in cases of serious medical emergencies as evidenced by absence verification received from The Division of Student Affairs, Student Assistance, and/or Support Services. The instructor will review all requests and authorize, at his discretion, eligible students to take makeup exams. A student who misses an exam without prior approval, possibly due to an unexpected situation on the exam day, should contact the instructor within 12 hours of the exam start date/time and provide appropriate supporting documentation to be eligible for the makeup exam. It is the student's responsibility to be aware of and follow the make-up exam policies and no special accommodations will be made for any exceptions.

Grade Appeals Policy

If you believe that the grade you received on an assignment or an exam was in error, you can appeal to the instructor in writing within 7 calendar days after the grades are posted. The appeal should clearly state the reasons why you believe the grade to be the nature of the error.

Assignments/Quizzes

During the semester, the instructor will give quizzes or assignments to be completed in class. The points and weights for each assignment or quiz are declared in the syllabus. Your performances in these assignments or quizzes together will count towards your final grade. There is NO MAKE-UP for quizzes and assignments if you miss any, irrespective of the reason for a student missing the assignment. Instead, you will be allowed to drop ONE quiz or assignment with the lowest grade.

Late Submissions

A deadline is like a ticket for a cruise. If you arrive after the scheduled departure time, the ship will have sailed without you and your ticket will be worthless. Therefore, late submissions are strongly discouraged. After the due date, the late homework may be accepted, but **with a 50% penalty**. Once the grade and/or the solution is posted after the due date, whichever comes first, you will receive a zero for the late assignment.

Attendance

Regular attendance is necessary for doing well in this course. It has been observed that students who miss more than 3 classes are most likely to end up with a failing grade in this class. However, when you attend class, it is important to not arrive late or leave early as it is extremely disruptive. You are responsible for completing the work from all the class meetings. You are responsible for any material covered, announcements made, assignments distributed, and any other type of work you may miss during any absence from class. The exams may contain material discussed in the class but may not be in the posted PowerPoint notes or handouts. Attendance will be taken at random in class during the semester and will be counted toward your grade. Attendance will be an important factor in making borderline grade decisions.

Class Preparation and Participation

Meaningful participation in the class includes answering questions posed to the class by the instructor, adding insightful comments or information to the topics being discussed, sharing information relevant to the discussion topic, and asking thoughtful questions that raise the level of discussion for the benefit of the entire class. However, students should refrain from discussions or behavior that disrupts the general learning environment in the class. Such disruptive behavior will be treated seriously and will result in a loss of grade points.

Students are expected to study the posted materials (notes, videos, presentations, etc.) prior to each respective class session. Additionally, students must be prepared to intelligently have class discussions and answer questions related to the current topics.

Quality of Work

The expectation is that all your submitted work will be of professional quality both in terms of content and presentation.

- Spelling, grammar, punctuation, clarity of expression, and presentation will count in every piece of work you do for this course. If you have trouble with spelling, grammar, or punctuation, have someone proofread your package.
- Your grade will be based on what you say or write and how you present it. It becomes difficult to read for content if the mechanics are sloppy, and a superior job may not be recognized as such if presented in an error-laden package.
- Good ideas sloppily expressed will receive mediocre grades, as will flashy presentations that lack content.
- Students whose native language is not English must meet the same quality requirements as others.

All work submitted for evaluation (including group and individual work) must be neat and clearly marked indicating the question/case to which it relates. Work submitted online must have all files named appropriately so that the instructor can easily understand what the file represents. The instructor will not spend time going through all your files to find your submitted work. Even though this is not a language class, the instructor will deduct points for typos or grammatical errors in submitted work. Whether it is individual work or group work, it is a good idea to thoroughly review it before submitting it. Do not ask/expect the instructor to review your work before submission for opinions or feedback.

Instructor's Help

As you practice various sample problems in this class, you will invariably encounter programs that do not work. It is your responsibility to pay attention to discussions in class related to debugging. If you are not able to identify the errors, the instructor will be happy to go through your work with you and help you identify the problems. The instructor can provide any amount of help with the examples and practice problems. But the instructor cannot provide any help with your quizzes and exams if you face any problems. It is your responsibility to learn the correct use of the tools required for this class. It is strongly advised that you try to solve the examples and practice problems by yourself so that it is easy for you to complete your homework assignments and exams.

Group Project and Team Work

Students are required to create teams consisting of three members each in order to finalize and deliver their projects. You have the option to either establish your own group with classmates or request assistance from the instructor to be placed in a group if you're unable to find one. Group details will be accessible on Canvas around the fifth or sixth week of the semester. This is done so that any latecomers to the course and any early departures from the course can be accommodated.

For group activities, each team is responsible for organizing itself, dividing up the work, and deciding how relative contributions should be measured. It is your responsibility to promptly inform the instructor of any dysfunctional team dynamics and to solicit his help. All members of a group are expected to contribute to the project. If a group member does not contribute, the rest of the member(s) may, after a consensus agreement and the instructor's consent, ask him/her to leave the group. Peer reviews/feedback will be factored into the grade.

All team members must

- participate in all team activities,

- participate in class discussions,
- strive to maintain positive working relationships with their team members,
- complete all assignments,
- and freely express their ideas, thoughts, comments, and constructive criticisms to their team members, me, and the class.

It is the responsibility of the team to ensure that all team members understand all concepts related to the completed projects and presentations. The instructor may ask questions about any completed project to any team member and any incomplete or unsatisfactory answers will affect the team's grade. The instructor may announce additional measures to obtain feedback on group member contributions and institute appropriate grade penalties for lack of participation. However, this grade penalty will be limited to the coursework that is group-based.

Extra Credit

Extra credit opportunities will be fairly given to each student enrolled in the class. The actual course points assigned to each extra credit opportunity are based on task workload and completion quality.

Electronic Devices in Class

Students are permitted to use laptops or tablets during class for note-taking and other class-related work only, but this should be done without distracting other students and without distracting you from the topic of discussion. Cellular phones **MUST BE TURNED OFF/SILENCED AND STORED AWAY DURING THE CLASS** and students are strongly discouraged from checking their cell phone messages when the class is in progress. Use of instant messaging, email, or other communication technologies during class time is not allowed. Calculators and computers are not allowed during examinations and quizzes unless specifically announced by the instructor.

Class Cancellation

If the instructor is unable to attend class or the University is closed unexpectedly, assume the course material will be moved forward to the next meeting.

Academic Honesty/Integrity

As a program that helps to create business and government leaders, the College of Business has an obligation to ensure academic integrity is of the highest standards. Standards of academic integrity will be enforced in this course. University regulations will be strictly enforced in all cases of academic irregularities, cheating or plagiarism, or any variations thereof. Students assume full responsibility for the content and integrity of the academic work they submit. The guiding principle of academic integrity shall be that a student's submitted work, examinations, reports, and projects must be his/her own work.

All UNCC students have the responsibility to be familiar with and observe the requirements of The **UNCC Code of Student Academic Integrity** (see the Catalog and also <https://academicintegrity.uncc.edu/>). This code forbids cheating, fabrication or falsification of information, multiple submissions of academic work, plagiarism of written materials and software projects, abuse of academic materials (such as library books on reserve), and complicity in academic dishonesty (helping others to violate the code). Additional examples of violation of the Code include:

- Representing the work of others as your own.
- Using or obtaining unauthorized assistance in any academic work.
- Giving unauthorized assistance to other students.
- Modifying, without instructor approval, an examination, paper, record, or report for the purpose of obtaining additional credit.
- Misrepresenting the content of submitted work.

Students are expected to report cases of academic dishonesty they become aware of to the course instructor who is responsible for dealing with them. For this course, it is permissible to assist classmates in general discussions about homework. General advice and interaction are encouraged. Each person, however, must develop his or her own solutions to the assigned work. Students may not "work together" on graded assignments. Such collaboration constitutes cheating unless it is a group assignment. A student may not use or copy (by any means) another's work (or portions of it) and represent it as his/her own. If you need help on an assignment, contact your instructor or the TA, not other classmates.

Any further specific requirements or permission regarding academic integrity in this course will be stated by the instructor and are also binding on the students in this course. Students who violate the code can be punished to the extent of being permanently expelled from UNCC and having this fact recorded on their official transcripts. The normal penalty is zero credit on the work involving dishonesty and, potentially, a further substantial reduction of the course grade to a lower or failing grade.

If you are unclear about whether a particular situation may constitute an honor code violation, you should meet the instructor to discuss the situation. Feel free to discuss the definition of cheating and/or plagiarism with me if you are unclear on these terms or have questions about the acceptability of a particular type of action. The instructor 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.

Disability Accommodations

Students in this course seeking accommodations for disabilities must first consult with the Office of Disability Services and follow the instructions of that office for obtaining accommodations. If you have a disability that qualifies you for academic accommodations, please provide a letter of accommodation from the Office of Disability Services. For more information regarding accommodations, please contact the Office of Disability Services at 704.687.4355 or stop by their office at 230 Fretwell.

Non-discrimination

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 the diversity that includes but is not limited to ability/disability, age, culture, ethnicity, gender, language, race, religion, sexual orientation, and socio-economic status.

Religious Accommodation

The instructor will observe UNCC Policy Religious Accommodation for Students on matters requiring religious accommodation. Please note that the procedure prescribed by this policy requires a notice to the instructor prior to the census date of the semester (typically, the tenth day of the instruction).

Withdrawal from Class

The administration of this institution has set deadlines for withdrawal from any college-level courses. These dates and times are published in that semester's course catalog. Administration procedures must be followed. It is the student's responsibility to handle withdrawal requirements from any class. In other words, the instructor cannot drop or withdraw any student. You must do the proper paperwork to ensure that you will not receive a final grade of "F" in a course if you choose not to attend the class once you are enrolled.

Incomplete Grade

As per university policy, incomplete grades will be granted 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 or during the next semester (fall or spring) in residence, but no later than 12 months after the term in which the "I" grade was assigned, whichever comes first. If the "I" grade 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.

COVID-19 information

Please visit the following link and make sure to follow the current COVID-19 requirements on the UNCC campus. <https://ninernationcares.charlotte.edu/covid-19-information>

Copyright Ownership in Course Materials

The lectures and course materials, including presentations, tests, exams, outlines, and similar materials, are protected by copyright. The instructor is the exclusive owner of the copyright in those materials created by the instructor. You are encouraged to take notes and make copies of course materials for your own educational use. However, you may not, nor may you knowingly allow others to reproduce or distribute lecture notes and course materials publicly without the express written consent of the instructor. This includes providing materials to commercial course material suppliers such as Course Hero and other similar services.

Students who publicly distribute or display or help others publicly distribute or display copies or modified copies of an instructor's course materials may be in violation of University Policy 406, The Code of Student Responsibility. Similarly, you own the copyright in your original papers and exam essays. If the instructor is interested in posting your answers or papers on the course website, the instructor will obtain your written permission.