

Syllabus
INFO 3236 - 090 (Fall 2022) - Business Analytics

- Instructor: Jaewan Lim
- Email: jlim13@uncc.edu
- Class Hours: Mon 5:30-8:15 pm
- Venue: Friday 339
- Course type: F2F
- Office Hours: Mon 3:00-5:00 pm by appointment at Friday Building 393

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 announcement in class or Canvas.

Description

This class will provide the conceptual foundations of business analytics and an overview of several analytics techniques and software tools. In addition, this course also covers fundamentals of statistics, machine learning, online analytical processing (OLAP), artificial neural network, various issues relating to modeling, storing, and sharing the organizational data resources, and how to perform data analytics using SAS Enterprise Guide, SAS Enterprise Miner Workstation, Google BigQuery, and Amazon SageMaker.

Objective

Business analytics is a field which 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, such as rule-based systems, decision trees, logistic regression, association rule mining, and clustering. The specific learning objectives are as follows:

- To develop an understanding of business intelligence, analytics and decision support, as well as the principles of data management for analytics
- To understand basic concepts in statistics and be able to perform descriptive statistics (e.g., mean, standard deviation, variance, probabilities, odds, odds ratio, normal distribution, hypotheses testing)
- To use up-to-date tools and data analytics techniques for data management, building predictive models, and data clustering

Class website

Canvas will be the website and primary communication channel for all information about this course. Go to <http://canvas.uncc.edu> and login with your Ninernet credentials.

Textbook

There are no required textbooks to purchase for this class. All required and recommendable readings will be posted as documents or web links on Canvas. Please note that the instructor will not provide printed copies of any of the posted materials.

Reading material

You may want to refer to the following materials 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)
- The Signal and the Noise: Why So Many Predictions Fail--but Some Don't (Penguin Books; 2015)

Hardware

You are expected to use the lab desktop only during the class hours. 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 to your personal computer from software.uncc.edu. If you plan to use computers in student labs on the campus, both programs are installed in the Friday building student labs.

- 1) SAS Enterprise Guide (installed in the lab computer and your Apporto)
- 2) SAS Enterprise Miner Workstation (installed in the lab computer and your Apporto)
- 3) Google BigQuery (cloud, will be guided in the lab)
- 4) Amazon SageMaker (cloud, will be guided in the lab)

Q) How do I install 'SAS Enterprise Guide' & 'SAS Enterprise Miner Workstation' on my personal computer?

A) The SAS software installation can take several hours to install, depending on your system. Students are encouraged to access SAS through Apporto. For more info, please visit <https://spaces.charlotte.edu/pages/viewpage.action?pageId=6661463>

Q) What is Apporto and how do I access Apporto?

A) Apporto provides students access to virtual applications. It is not on your local computer and can be accessed anytime from any device. To use Apporto, go to <https://charlotte.apporto.com/> and find Virtual Desktop.

Grading

	Point/Each	Count	Sub-total
Attendance	-	-	30
Class participation	-	-	30
In-class activity (IA)	10	6	60
Homework assignment (HA)	10	4	40
Quiz	20	2	40
Exam	50	2	100
Total point	-	-	300

The final letter grades will be based on the following scale.

Total point	Letter grade
300 – 270	A
269 – 240	B
239 – 210	C
209 – 180	D
< 180	F

Tentative schedule

#	Date	Topic	Deliverable Due
1	8/22	<ul style="list-style-type: none"> Course overview & Intro to business analytics 	
2	8/29	<ul style="list-style-type: none"> Analytics methodology Fundamental statistical concepts 	IA (1)
-	9/5	Labor Day - no class	
3	9/12	<ul style="list-style-type: none"> Fundamental statistical concepts Data Management using an analytical tool 	IA (2)
4	9/19	<ul style="list-style-type: none"> Decision Trees 	HA (1)
5	9/26	<ul style="list-style-type: none"> Decision Trees with using an analytical tool 	Quiz (1)
6	10/3	<ul style="list-style-type: none"> Logistic Regression 	HA (2)
7	10/10	<ul style="list-style-type: none"> Logistic Regression using an analytical tool 	IA (3)
8	10/17	Mid exam	
9	10/24	<ul style="list-style-type: none"> Cluster Analysis 	HA (3)
10	10/31	<ul style="list-style-type: none"> Cluster Analysis using an analytical tool 	IA (4)
11	11/7	<ul style="list-style-type: none"> Data warehouse and Association Rule Mining 	HA (4)
12	11/14	<ul style="list-style-type: none"> Intro to AI Artificial Neural Networks 	IA (5)
13	11/21	<ul style="list-style-type: none"> Artificial Neural Networks 	Quiz (2)
14	11/28	<ul style="list-style-type: none"> Mobile health systems Recommender systems 	IA (6)
15	12/5	Final exam	
16	12/12	Optional final exam	

The instructor reserves the right to change the course contents and schedules without notice. The up-to-date course schedule is available on Canvas. Important announcements, specific policies regarding exams, etc. are also available on Canvas. It is the student's responsibility to be aware of any changes in the course schedule, course contents, and course policies by visiting Canvas regularly.

The Canvas Gradebook is the gradebook of record

You will be working on assignments several platforms, but the grade will be posted to Canvas. The Canvas gradebook contains the weighting to match the syllabus.

Exams

The exams will be administered in class, with closed book and closed internet, without any mobile devices. You are NOT allowed to bring any material for reference. Exam reviews will be available during office hours or by appointment for one week after exam grades are posted. No grade reviews or grade changes will be done beyond this period.

Three equally weighted exams will be given in this course: two during the semester plus an optional comprehensive exam. However, only two of the exams will be counted towards the grade. Students may take all three exams and drop the one with the lowest grade.

Extra Credit

NO extra credit in this course

Makeup Exams

Make-up exams will NOT be given except in cases of serious medical emergencies as evidenced absence verification received from The Division of Student Affairs, Student Assistance and 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 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. There will be no make-up for the comprehensive final.

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 professor in writing within four (4) 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. Overdue appeals will not be considered.

Exams, assignments, and homework are a form of intellectual property belonging to those who create them (your professors). Consequently, keeping a copy of an exam or sharing it with others will be considered a violation of the Academic Integrity Code. Such action will result in an exam grade of zero and may warrant further disciplinary action.

Assignments / Quiz

Each student must develop his/her own solutions to all the assignments in this course. Students must not use or copy (by any means) another's work (or portions of it) and represent it as his/her own. Such collaboration constitutes cheating and/or plagiarism.

Late submissions are strongly discouraged because class activities and new assignments build on previous assignments. 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

Students are expected to attend every class and remain in class for the duration of the session when it is safe to do so in accordance with university guidance regarding COVID-19. Failure to attend class or arriving late may impact your ability to achieve course objectives which could affect your course grade.

An absence, excused or unexcused, does not relieve a student of any course requirement. Regular class attendance is a student's obligation, as is a responsibility for all the work of class meetings, including tests and written tasks. Any unexcused absence or excessive tardiness may result in a loss of participation points.

Class Behavior

Inappropriate behavior in class distracts from the ability of others to profit from their in-class experience. Such inappropriate behavior includes arriving late, leaving early, talking, surfing the net during the class, and so on. Rude and inappropriate behavior will not be tolerated. Since it is my responsibility to provide an environment that is conducive to learning for everyone in the class, I will deduct points from the grade of any student who chooses to repeatedly distract others. In particularly egregious cases, I will have the student permanently removed from the class.

Under no circumstances will students be permitted to spend their class time working on assignments for other classes, checking e-mail, surfing the Web, or printing out homework. Attempts to engage in such behavior will be reflected in lower grades and may lead to removal from the course.

COVID-19 information

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

Required face covering in classrooms and labs

It is the current policy of UNC Charlotte that as a condition of on-campus enrollment, all students are required to engage in safe behaviors to avoid the spread of COVID-19 in the 49er community. Such behaviors specifically include the requirement that all students properly wear CDC-compliant face coverings in all indoor spaces on campus, including classrooms and labs, regardless of vaccination status. Failure to comply with this policy in the classroom or lab may result in dismissal from the current class session. If the student refuses to leave the classroom or lab after being dismissed, the student may be referred to

the Office of Student Conduct and Academic Integrity for charges under the Code of Student Responsibility.

COVID-19 absenteeism

Students are expected to attend every class and remain in class for the duration of the session when it is safe to do so in accordance with university guidance regarding COVID-19. Failure to attend class or arriving late may impact your ability to achieve course objectives which could affect your course grade. An absence, excused or unexcused, does not relieve a student of any course requirement. Regular class attendance is a student's obligation, as is a responsibility for all the work of class meetings, including tests and written tasks. Any unexcused absence or excessive tardiness may result in a loss of participation points.

Students are encouraged to work directly with their instructors regarding their absence(s). For absences related to COVID-19, please adhere to the following:

- **Complete your Niner Health Check.**
- **Do not come to class if you are sick.** Please protect your health and the health of others by staying home. Contact your healthcare provider if you believe you are ill.
- **If you are sick:** If you test positive or are evaluated by a healthcare provider for symptoms of COVID-19, indicate so on your Niner Health Check to alert the University. Submit a copy of your Niner Health Check notification email to your instructors. Upon learning that you have tested positive or have been diagnosed for symptoms of COVID-19, either from your reporting or from Student Health Center testing or diagnosis, representatives from Emergency Management and/or the Student Health Center will follow up with you, and your instructors will be notified of the need for accommodations, as necessary.
- **If you have been exposed** to COVID-19 positive individuals and/or have been notified to self-quarantine due to exposure, indicate so on your Niner Health Check to alert the University. Representatives from Emergency Management and/or the Student Health Center will follow up with you as necessary. Submit a copy of your Niner Health Check notification email to your instructors. If you need any additional support verifying your absence after you have communicated with your professors, contact Student Assistance and Support Services.

To return to class after being absent due to a period of **self-quarantine**, students should submit a copy of their Niner Health Check clearance email to their instructor(s). To return to class after being absent due to a COVID-19 **diagnosis**, students should submit an online request form to Student Assistance and Support Services (SASS). Supporting documentation can be attached directly to the request form and should be from a student's health care provider or the Student Health Center, clearly indicating the dates of absences and the date the student is able to return to class. Instructors will be notified of such absences.

The final decision for approval of all absences and missed work is determined by the instructor.

Academic 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 to 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 submission 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 the 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, 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 me 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 to 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 in 230 Fretwell.

*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.

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 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 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 copyright in your original papers and exam essays. If the instructor is interested in posting your answers or papers on the course web site, the instructor will obtain your written permission.

Other Information

- Students are responsible for all announcements made in class or announced via email. The instructors may send some information via Canvas announcements. It is the students' responsibility to keep up-to-date on the class-related information and to check their @unc.edu email regularly.
- The instructors will discuss grades only in person (and not via telephone or e-mail) and only with the student (not with parents, spouses, etc). The instructors may not answer student e-mails other than related to scheduling appointments. Office hours are posted in the syllabus on page 1.
- The instructors may modify the class schedule and syllabus during the semester depending upon the progress of the class.
- Students are not allowed to record any classroom hours, zoom meetings, and office hours. Strict action will be taken against students who record classroom sessions.
- Details are subject to change without notice.