

MBAD/DSBA 6122: Decision Modeling and Analysis
Spring 2021, Section U90

Instructor: Dr. Jing Zhou

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Class time: Mondays 5:30pm–8:15 pm

Office hours: Mondays 2pm–3:30pm and Tuesdays 12:30pm–2pm; or by appointment at other times (all office hours are conducted online, as explained later in the syllabus)

Absenteeism during Covid-19: For absences related to COVID-19, please adhere to the following:

- **Complete your [Niner Health Check](#)** each morning.
- **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. Representatives from Emergency Management and/or the Student Health Center will follow up with you as necessary, and your instructors will be notified.
- **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, and your instructors will be notified.

To return to class after being absent due to a COVID-19 diagnosis or due to a period of self-quarantine, 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.

If you are absent from class as a result of a COVID-19 diagnosis or quarantine, please notify your instructor immediately and seek instructions to help you continue to make progress in the course. The specific instructions for this situation will be provided on a case-by-case basis. The final decision for approval of all absences and missed work is determined by the instructor.

Laptop requirement: All upper-level (including graduate level) business students are required to have their own personal laptop computer. The policy and the minimum system requirements are found at the link <https://belkcollege.uncc.edu/laptop-policy>. Students in the DSBA program are required to follow the laptop policy [here](#).

Student Support: The details of student support resources available are provided at following links.

Academic support: <https://ninernationcares.uncc.edu/students/academic-support>.

Health support: <https://ninernationcares.uncc.edu/health-support-services>

IT support: <https://help.uncc.edu/>

Use of Canvas: Canvas will be the website for course information and primary communication channel for this class. You may access UNCC Canvas from My UNC Charlotte (<https://my.uncc.edu/>) or direct type **canvas.uncc.edu/**. It's each student's responsibility to check Canvas regularly and report anything that does not match your own record (e.g., missing or wrong grade) within SEVEN calendar days since the date the information was posted.

Textbook: *Spreadsheet Modeling and Decision Analysis: A Practical Introduction to Business Analytics*, 8th edition, by Cliff T. Ragsdale, Cengage Learning, 2017. ISBN: 978-1305947412. (7th Ed. will also work).

CENGAGE UNLIMITED eTEXTBOOKS (\$69.99/semester) gives students access to unlimited number of eBooks. <https://www.cengage.com/unlimited/>

Hardware and Software note:

- An Excel add-in--Analytic Solver Platform for Education (ASPE) is required for this class. Students are required to purchase a 140-day (1 year) license copy of ASPE from Frontline systems for \$25 (\$62.5). Please follow the installation instructions in **Analytic Solver_v2019_Student_Installation_Guide_with_Codes.pdf**, which will be posted on Canvas.
- You can install a desktop version of ASPE which requires Windows OS and Excel 365/2016/2013/2010. If you have a Mac and want to install the desktop version, then you need a dual-boot or virtual machine setup (such as VirtualBox or Parallels or VMWare Fusion) on your Mac. You may find out how to create a Windows Virtual Machine on MacOS [here](#).
 - **If you use new MacBook Air or MacBook Pro models with the M1 chip instead of an intel processor, then the VM setup on the above link will not work for your computer. You will need to use <http://apporto.uncc.edu>.**
- You can also use the cloud-based version of ASPE which does not require download or setup program and can be used in Windows, Mac, or Excel Online. However, an Office 365 Subscription is required.
- Students with active NinerNET credentials are eligible for the Microsoft Office 365 program. You may find more information on how to access Microsoft Office 365 [here](#).
- Once you purchase the ASPE license, you will be able to use both the desktop and cloud-based versions.

Office hours: Office hours and one-on-one meetings will be held online via zoom. The information about office hours zoom links can be found in “**Syllabus**” section on Canvas. After you enter the virtual office, your instructor will allow you in in the order of the students who have entered. If you like to set up an appointment outside of the scheduled office hours, email your instructor giving your availability and the instructor will setup a zoom link for you to join at the agreed meeting time.

Course Description:

This course is designed to provide students, primarily in the fields of business and economics, with a sound conceptual understanding of the role management science plays in the decision

making process. This is an important course in developing decision models and their application to management problems. The emphasis is on models that are widely used in all industries and functional areas, including operations, supply chain management, finance, accounting, and marketing. The rapid and phenomenal advances in computing have propelled the use of decision models in recent years. Today's inexpensive and fast computing capabilities coupled with friendly and intuitive user interfaces, such as spreadsheets, have been complemented by the availability of large volumes of previously unavailable data, such as the automatic capture of point-of-sale information, and easy access to large databases (e.g., Enterprise Resource Planning (ERP) and Customer Relationship Management (CRM) systems.) Personal computers, laptops, tablets, and even smart phones with user friendly interfaces have become effective "delivery vehicles" for powerful decision models that were once the exclusive province of experts. Information has come to be recognized as a critical resource, and models play an increasingly critical role in deploying this resource, in organizing and structuring information so that it can be used more productively. Specific topics covered in this course include fundamental techniques such as linear, integer, goal and multi objective programming, queuing theory and applications, decision support via Monte Carlo simulation, decision making under uncertainty and risk, decision trees, and multi-criteria decision making.

Typical class format will include discussion on background theory, by initially simpler and smaller business problems, followed by group exercises that are more realistic and larger in size and scope. The emphasis will be on both formulating an appropriate model for a given business problem and developing an Excel based solution approach by utilizing built-in and add-in software tools like Analytic Solver Platform and Data Analysis.

Prerequisites: MBAD 5141 or equivalent. A keen interest in problem solving (logic, math, and statistics) and a desire to practice higher level analytics and applied information technology skills.

Catalog Description: An analytical approach to the management process. Generalized models for decision making with major emphasis on application of the scientific method to management problems.

Grading and Exam Format: Three exams (100 points each) with total 300 points.

A = 270 and above	B = 240 to less than 270
C = 210 to less than 240	U = Less than 210

- Exam 1 and Exam 2 have both in-class individual part and take-home group part. Exam 3 only has take-home group parts.
- No make-up exams will be given unless students obtain prior permission from the instructor and provide official documents. An unexcused absence from an exam will result in a grade of zero for that exam.
- Take-home part(s) of each exam can be done in groups up to three persons.
- Group (team) members will evaluate each other via a confidential peer evaluation form. As needed based on the evaluations group members grades can be adjusted where only the member(s) with top scores earn the full grade.

- Take-home parts of some exams may be released over multiple weeks. Canvas updates and emails will clearly show the due dates.
- Please carefully follow the instructions on the exams.
- There will be NO EXTRA CREDIT work offered for any student during the semester. Please do not depend on any extra credit opportunities to improve your grade later in the semester.

Individual and Group Work: You are encouraged to study in groups, solve the suggested problems together (virtually), and simply help each other learn the material. **During the exams for both group and individual parts you should not get help from any outside source or person. For the group parts you should not offer help to anyone outside your group. When permitted, solve the group part in your group, otherwise work alone.**

Withdrawal from Class:

The administration of this institution has set deadlines for withdrawal of 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, I cannot drop or withdraw any student. You must do the proper paperwork to ensure that you will not receive a final grade of "U" in a course if you choose not to attend the class once you are enrolled. **The last day to withdraw from a course (grade subject to Withdrawal Policy) is March 25, 2021.**

Incomplete Grade Policy:

Receiving a grade of incomplete ("I") is not based solely on a student's failure to complete work or as a means of raising his/her grade by doing additional work after the grade report time. 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 and the final grade reported within one calendar year from the date on which the "I" grade was recorded. The instructor assigning the "I" grade may specify a shorter time than one year for completion of the work and the assignment of a final grade. If the "I" is not removed during the specified time, a grade of "F", "U", or "N", as appropriate is automatically assigned. Time extensions for the completion of an "I" beyond one year cannot be approved except by special request to the Graduate School under extraordinary circumstances. 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".

Academic honesty/integrity:

Students have the responsibility to know and observe the requirements of The UNC Charlotte Code of Student Academic Integrity. This code forbids cheating, fabrication or falsification of information, multiple submission of academic work, plagiarism, abuse of academic materials, and complicity in academic dishonesty. Any special requirements or permission regarding academic integrity in this course will be stated by the instructor, and are binding on the students. Academic evaluations in this course include a judgment that the student's work is free from academic dishonesty of any type, and grades in this course therefore should be and will be

adversely affected by academic dishonesty. Students who violate the code can be expelled from UNC Charlotte. The normal penalty for a first offense is zero credit on the work involving dishonesty and further substantial reduction of the course grade. In almost all cases the course grade is reduced to F. Copies of the code can be obtained from the Dean of Students Office. Standards of academic integrity will be enforced in this course. Students are expected to report cases of academic dishonesty to the course instructor. For more detail and clarification on these items and on academic integrity, please review the UNCC Code of Student Academic Integrity (<http://legal.uncc.edu/policies/up-407>). 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.

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.

Disability Services Statement:

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 or visit their office at Fretwell 230.

Tentative Course Outline/Schedule:

Date	Topic	Chapter
1/25	Syllabus, Introduction to Modeling	Ch1-2
2/1	Introduction to Optimization and Linear Programming	Ch3
2/8	Spring Break (No Class)	
2/15	Introduction to Optimization and Linear Programming Sensitivity Analysis	Ch3 Ch4
2/22	Sensitivity Analysis Network Modeling	Ch4 Ch5
3/1	Network Modeling	Ch5
3/8	Exam 1	
3/15	Integer Linear Programming	Ch6
3/22	Integer Linear Programming Goal Programming and Multiple Objective Optimization	Ch6 Ch7
3/29	Goal Programming and Multiple Objective Optimization Nonlinear Programming and Evolutionary Optimization	Ch7 Ch8
4/5	Exam 2	

4/12	Decision Support Using Monte Carlo Simulation Approach	Ch12
4/19	Decision Support Using Monte Carlo Simulation Approach	Ch12
4/26	Decision Support Using Monte Carlo Simulation Approach	Ch12
5/3	Decision Analysis	Ch14
5/10	Exam 3	

The course schedule is tentative. If there are any changes, I will inform you in class and/or through announcements.