

Course: Introduction to Decision Sciences (BUS 220)
Term: Fall 2021
Days and Times: Monday and Wednesday 10:30 am - 11:50 am
Classroom: TBA
Instructor: Chung-seung Lee
Email: chungseung.lee@stonybrook.edu
Office: B606
Office Hours: Monday and Wednesday 1:20 pm - 3:20 pm or by appointment.

This syllabus is subject to change. Updates, if any, will be posted on Blackboard.

Course Description:

Familiarizes students with a variety of quantitative methods applicable in managing both the service and manufacturing sectors. Basic concepts of quantitative modeling are applied and tested in various examples supporting decision making in business settings. Topics include: optimization via linear, integer, and goal programming; simulation; decision and break-even analysis; and forecasting (formerly Management Science).

Prerequisites: BUS Maj/Min, MTD, ECO, ISE, or CME major; BUS 110, 111, 112 or 115; BUS 215; MAT 122 or higher.

Required Textbook & Materials:

- *An Introduction to Management Science: Quantitative Approaches to Decision Making, 15th Edition*, By Anderson, Sweeney, Williams, Camm, Cochran, Fry, and Ohlmann; Cengage Learning, 2018.
- Microsoft[®] Excel with Solver add-in.

Learning Objectives: Upon completion of the course, students will be able to

- recognize situations in which management science models can be helpful to decision-makers;
- select an appropriate deterministic or stochastic model for different management situations;
- select an appropriate single-criterion or multi-criteria model for different management situations;
- formulate and solve (using Microsoft[®]Excel) a wide variety of standard optimization models;
- formulate and solve (using Microsoft[®]Excel) simulation models.

Grading Information:

Exam 1	20%
Exam 2	20%
Exam 3	20%
Assignments	30%
Class attendance and participation	10%

- Exams (60% of the final grade): There will be three non-cumulative exams. The exams are closed-book and closed-note. If necessary, a formula sheet will be provided by the instructor. You may bring a non-communicating calculator and a ruler or straight edge to the exams. There will be **no makeup exams** except under **extreme conditions**. I will not give make-up exams without (1) an advanced notice that you will miss the exam, and (2) a written documentation explaining the reason for your absence. I will judge the adequacy of the reason and the appropriateness of a make-up exam. **Missed exams will be assigned a grade of zero. Cell phones and smart devices must be**

turned off during an exam, any device found to be turned on may result in a grade of zero for the exam.

- **Assignments (30% of the final grade):** There will be four assignments. **You can work by yourself or in a group of up to 3 people. Late submission will NOT be accepted.** The lowest score will be dropped.
- **Class attendance and participation:** You are expected to attend every class and actively participate in discussions during class.
- **Grading System:** Your letter grade will be assigned based on the following scale:

Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	F
Cutoff percentage	90	85	80	75	70	65	60	55	50	45	<45

Academic Integrity: Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Faculty is required to report any suspected instances of academic dishonesty to the Academic Judiciary. Faculty in the Health Sciences Center (School of Health Technology Management, Nursing, Social Welfare, Dental Medicine) and School of Medicine are required to follow their school-specific procedures. For more comprehensive information on academic integrity, including categories of academic dishonesty please refer to the academic judiciary website at http://www.stonybrook.edu/commcms/academic_integrity/index.html.

The College of Business Statement Regarding Academic Dishonesty: The College of Business regards any act of academic dishonesty as a major violation punishable by severe penalties, including dismissal from the University. University policy requires that instructors and GAs report all suspected cases of academic dishonesty to the appropriate Academic Judiciary Committee, which is empowered to take a strong action against violators, including expulsion from the University. Please note that there is a link to the Academic Judiciary web site on the Blackboard home page. Under no circumstances will the College of Business permit cheating of any kind. Many activities constitute academic dishonesty. The following list is not inclusive, only suggestive:

- Cheating on exams or assignments by the use of books, electronic devices, notes, or other aids when these are not permitted, or by copying from another student.
- Collusion: two or more students helping one another on an exam or assignment when it is not permitted.
- Ringers: taking an exam for someone else, or permitting someone else to take one's exam. Submitting the same paper in more than one course without permission of the instructors.
- Plagiarizing: copying someone else's writing or paraphrasing it too closely, even if it constitutes only some of your written assignment.
- Submitting the same paper in more than one course without approval of the instructors.
- Falsifying documents or records related to credit, grades, status (e.g., adds and drops, P/NC grading), or other academic matters.
- Altering an exam or paper after it has been graded in order to request a grade change.
- Stealing, concealing, destroying, or inappropriately modifying classroom or other instructional material, such as posted exams, library materials, laboratory supplies, or computer programs.
- Preventing relevant material from being subjected to academic evaluation.

Critical Incident Management: Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of Student Conduct and Community Standards any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn. Faculty in the HSC Schools and

the School of Medicine are required to follow their school-specific procedures. Further information about most academic matters can be found in the Undergraduate Bulletin, the Undergraduate Class Schedule, and the Faculty-Employee Handbook.

Student Accessibility Support Center Statement: If you have a physical, psychological, medical, or learning disability that may impact your course work, please contact the Student Accessibility Support Center, 128 ECC Building, (631) 632-6748, or via e-mail at: sasc@stonybrook.edu. They will determine with you what accommodations are necessary and appropriate. All information and documentation is confidential.

Course Schedule:

Week	Date	Topic	Reading	Assignment (Due at the end of day)
1	8/30	Introduction to Decision Sciences	Ch 1	
	9/1	Linear Programming: Formulation	Ch 2	
2	9/6	Linear Programming: Graphical Solution Method	Ch 2	
	9/8	Linear Programming: Excel Solver	Ch 2	
3	9/13	Linear Programming: Sensitivity Analysis	Ch 3	
	9/15	Linear Programming Applications 1	Ch 4	
4	9/20	Chuseok (Korean Thanksgiving)		
	9/22			
5	9/27	Linear Programming Applications 2	Ch 4	
	9/29	Distribution and Network Models	Ch 6	
6	10/4	Substitute of Korea National Foundation Day		Assignment 1 due 10/6
	10/6	Distribution and Network Models	Ch 6	
	10/8 (Correction day)	Review and Q&A Session		
7	10/11	Substitute of Hangul Day		
	10/13	Exam 1		
8	10/18	Integer Linear Programming	Ch 7	
	10/20	Integer Linear Programming	Ch 7	
9	10/25	Integer Linear Programming	Ch 7	Assignment 2 due 10/29
	10/27	Non-linear Optimization Models	Ch 8	
10	11/1	Non-linear Optimization Models	Ch 8	
	11/3	Forecasting/Time Series Analysis	Ch 15	
11	11/8	Forecasting/Time Series Analysis	Ch 15	Assignment 3 due 11/12
	11/10	Forecasting/Time Series Analysis	Ch 15	
12	11/15	Review and Q&A Session		
	11/17	Exam 2		
13	11/22	Decision Analysis	Ch 13	
	11/24	Decision Analysis	Ch 13	
14	11/29	Decision Analysis	Ch 13	
	12/1	Decision Analysis	Ch 13	
15	12/6	Simulation	Ch 12	Assignment 4 due 12/8
	12/8	Simulation	Ch 12	
	12/9 (Correction day)	Review and Q&A Session		
16	12/15	Exam 3		

The above schedule will be closely followed but is subject to change at the discretion of the instructor.