

Pre-Semester Version. Subject to Change

Schedule:

Monday, 1/5, 1/12, 1/26, 2/2, 2/9, 2/16, 2/23. 6-10 PM

Saturday, 1/31. 9 AM - 1 PM

Saturday, 2/21. 9 AM - 5 PM

Instructor:

Dr. Hao-Wei Chen,

Email: hao-wei.chen@sjsu.edu

Office Hours:

By appointment.

Course Description:

This course surveys normative theories of decision making, with a particular emphasis on structuring of hard decision problems arising in a variety of engineering, business, and public policy contexts. Topics discussed include decision trees, expected utility theory, screening prospects by dominance, assessment of subjective probability, multiple attribute utility, analytic hierarchy process, value of information, multistage decision problems, benchmarking with data envelopment analysis, and basics of game theory.

Pre-requisites:

Business Statistics and graduate standing

Course Page:

Canvas <https://sjsu.instructure.com/>

Course Goals & Learning Objectives:

The primary objectives of this course are:

- To develop an understanding of the role of Decision Analysis in business operations;
- To develop an understanding of the analytical tools and conceptual frameworks used to identify and analyze key business processes, and to develop solutions for them;

- To develop an awareness of the professional opportunities in the field of decision analysis; A working knowledge of decision analysis is indispensable for general managers, management consultants, and entrepreneurs.

Through case-study analysis, class lectures and discussions, group projects, and analytical problem-solving exercises, the students will learn about decision analysis tools and the context in which they are used.

Recommended Textbook:

Making Hard Decisions with Decision Tools, 3rd Edition, Clemen & Reilly, Cengage Learning, ISBN-13: 978-0-538-79757-3. Students who are interested in Rental/eBooks can go to <http://www.coursesmart.com> or <http://www.cengagebrain.com> for more information.

Recommended Readings:

1. Spetzler, C.S. and Stael von Holstein, C.A.S. (1975) "Probability Encoding in Decision Analysis," *Management Science*, 22, 340-358
2. Tversky, A. and Kahneman, D. (1974) "Judgment Under Uncertainty: Heuristics and Biases," *Science*, 185, 1124-1131

Electronic copies for the above articles are available through SJSU library.

Course Grading:

You are required to follow exam rules. Any student who fail to abide by exam rules will receive an F score for the course. Final course grades will be determined using the following weights:

Individual Assignments	20%
Midterm Exam	20%
Final Exam	20%
Project Presentations (02/15/2014)	20%
In-Class Activities and Participation	20%
Total	100%

Course Format and Expectations:

– Assignments and In-Class Activities:

The textbook contains many mini cases, which provide fertile discussion exercises. We will discuss some of these cases in each class. You are expected and strongly encouraged to attend all classes, do all assigned homework and come prepared to each class. Being prepared means reading assigned portions of the text and reading and analyzing the cases so you can make positive contributions to in-class discussions.

Assignments will be given as the lecture progresses. Students will have one week to complete the tasks. Assignments must be typed on letter-size paper. They must be turned-in (hardcopies) at the beginning of the class by the assigned deadline. Late assignments within 24 hours will be penalized by 50%. Late assignments more than 24 hours late will receive a numerical score of zero and will not be graded.

– **Exams:**

There will be two exams, a mid-term and a comprehensive final. The mid-term exam is scheduled for **Monday, Feb 2nd, 2014** and the final exam will be on **Monday, Feb 23th, 2014**. Both exams will have an open-notes and open-book format. The exams will be based primarily on material covered in class and will consist of short-answer questions and quantitative problems. In general, I do not give make-up exams and would ask you to schedule any trips around the exam date.

Opportunities to make up for missed examinations and assignments will be provided only to students with the following legitimate excuses: verified illness, jury duty, family emergency, and participation in University sponsored events. In each case, student must provide a letter from his/her doctor or event supervisor (e.g., university team coach) for each occurrence. Make-up midterm examinations will not be given. Instead, students with a legitimate excuse for missing a midterm exam will have their final exam weighted more by the appropriate amount. Please note that a make up final exam will not be easier than the regular exam and in all likelihood be more challenging.

– **Project:**

Each group (2-3 people) will present a final project describing an application of Decision Analysis on Saturday, February 21. Each presentation will be about 20 minutes followed by 5 minutes of question and answer period. Evaluation criteria for the presentation will be provided.

1. Find a complex decision analysis problem. For example, house hunting, choosing schools, career choice, new product R&D, etc.
2. Why is the decision important and why is it difficult?
3. What are the decision criteria, and why?
4. How do you analyze the problem?
5. What is your conclusion/recommendation?

– **Participation:**

In-class contribution is a significant part of the grade, and an important part of our shared pedagogical experience. Your active participation helps me to evaluate your overall performance as a student (as well as making the class more interactive and engaging for all of us). The quality of your participation is more important than the quantity.

I want to stress that positive contributions are not necessarily right answers. I encourage you to experiment and take risks. Wrong answers can also be instructive and debate is often a good way to learn. Although I may not agree with your

point of view or you may not agree with mine, we can all learn from the expression of such ideas. Your agreement or lack of it will not affect your grade in the class. We will all benefit if the class discussion are sincere and informative. Positive contributions are those that advance the discussion by presenting new ideas or insights, or building on others comments, or presenting a counterpoint to others comments in a respectful way. Contributions that are not positive are those that simply repeat points already made or deride others contributions in a discourteous way.

– **80% Rule:**

Students are not required to provide an explanation for missed classes. However, please keep in mind that I maintain a firm 80% policy regarding attendance/participation. That is, a student who fails to attend at least 80% of the class sessions does not qualify as having completed the course and will not receive a passing grade. If your schedule does not allow you to participate in more than 80% of the course, I would suggest that you take the class when your schedule becomes feasible.

- Carrying on Conversation in Class: Carrying on conversation with your neighbors, even if the class material is discussed, should not be disturbing your classmates. Rest assure, we will have time for group discussion.

School Policies:

- **Academic Integrity:** Students are reminded to abide by the University policies governing student conduct, particularly as it pertains to classroom conduct and scholastics dishonesty. Additional information is available on the web at <http://www.sjsu.edu/senate/S07-2.pdf>. Faculty members are required to report all infractions to the office of Student Conduct and Ethical Development. The website for Student Conduct and Ethical Development is available at http://www.sa.sjsu.edu/judicial_affairs/index.html. Instances of academic dishonesty will not be tolerated.
- **Campus Policy in Compliance with the American Disabilities Act:** If you need course adaptations or accommodations because of a disability, or if you need to make special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Presidential Directive 97-03 requires that students with disabilities requesting accommodations must register with the DRC (Disability Resource Center) to establish a record of their disability.

Lucas College and Graduate School of Business Policies:

- **Cell Phones:** Students will turn their cell phones off or put them on vibrate mode while in class. They will not answer their phones in class. Students whose phones disrupt the course and do not stop when requested by the instructor will be referred to the Judicial Affairs Officer of the University.
- **Computer Use:** In the classroom, students may use computers only for class-related activities such as taking notes and following the steps for spreadsheet modeling. Stu-

dents who use their computers for other activities or who abuse the equipment in any way will be asked to leave the class and will lose participation points for the day, and, at a maximum, will be referred to the Judicial Affairs Officer of the University for disrupting the course. Such referral can lead to suspension from the University. Students are urged to report to their instructors computer use that they regard as inappropriate.

Tentative Schedule: Pre-semester version. Subject to change.

- 1/5
 - Course Overview
 - Modeling Decisions
- 1/12
 - Decision Analysis Process
 - Influence Diagram
 - Decision Tree
 - Decision Criteria
- 1/26
 - Structuring Objectives
 - Modeling preferences
- 1/31
 - Modeling Preferences (continued)
- 2/2
 - Midterm exam
- 2/9
 - Probability Encoding
 - Judgement under Uncertainty: Biases and Heuristics
- 2/16
 - Value of Information
 - Simulation (if we have time)
- 2/21
 - Project Presentation
- 2/23
 - Final Exam