

END 604E Group Decision Making under Multiple Criteria Syllabus – Spring 2022-2023

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Please make an appointment via email to have a meeting in my room or on Zoom.

Course webpage: <http://ninova.itu.edu.tr/Ders/4574>

Classroom: Faculty of Management, F133, Maçka Campus

Course Description

This course introduces the students to various methods of enhancing creativity and group decision making (GDM) under multiple criteria. We analyze the various phases and stages of GDM, and integrate the theory and practice through articles based on the real-life application of the GDM methods.

Course Objectives

(1) To analyze the differences of individual versus GDM techniques, (2) To teach when to use a GDM approach, (3) To teach different GDM techniques under multiple criteria, (4) To see their basic drawbacks, similarities and differences between the GDM techniques.

References

Most of the references related to the course are journal papers. Please see the list of selected papers in a file at Ninova. One important paper;

- Kabak, Ö., & Ervural, B. (2017). Multiple attribute group decision making: A generic conceptual framework and a classification scheme. Knowledge-Based Systems, 123, 13-30.

The reference books are;

- Hwang, C.L. and Lin, M.J. (1987), «Group Decision Making under Multiple Criteria», Lecture Notes in Economics and Mathematical Systems, Springer-Verlag, Berlin
- Tzeng, G.H., Huang, J.J. (2011), «Multiple Attribute Decision Making», CRC Press, Taylor & Francis Group, NW
- Lu, J., Zhang, G., Ruan, D., Wu, F. (2007) «Multi-Objective Group Decision Making», Imperial College Press

Schedule (tentative)

Week	Date	Topic
1	23-02-23	Introduction to Group Decision Making (GDM)
2	02-03-23	Voting and Social Choice Theory
3	09-03-23	Social Choice Theory
4	16-03-23	Process-Oriented Approaches
5	23-03-23	<i>Presentations of the 1st group of papers</i>
6	30-03-23	Multiple Attribute Decision Making
7	06-04-23	GDM with Explicit Multi Attribute Evaluation
8	13-04-23	Fuzzy Methods for GDM
9	20-04-23	<i>Presentations of the 2nd group of papers</i>
10	27-04-23	MIDTERM EXAM
11	04-05-23	Cumulative Belief Degrees Approach for GDM
12	11-05-23	Consensus Measures & Large Scale GDM
13	18-05-23	New trends in GDM
14	25-05-23	<i>Presentations of the 3rd group of papers</i>

Prerequisite

You have to be familiar with the following topics (or volunteer to learn on your own)

- Multiple attribute decision making
- Fuzzy set theory
- Mathematical programming

Group Presentations

Students will be responsible for presenting the following topics based on distributed papers. Please make a group of 2-3 students before next week's course. I will assign each group to one of the following topics:

- Implicit Multiattribute Evaluation and Process-Oriented Approaches (March 23)
- Explicit Multiattribute Evaluation – Classical Methods (April 20)
- Explicit Multiattribute Evaluation – New Trends (May 25)

The group presentations will be in classroom.

Assignments

Homework assignments will be given to get prepared for the classes and to practice the given theory (6-7 assignments). Each assignment will be announced one or two weeks before the submission deadline on Ninova. The assignment will be uploaded to Ninova.

Class Participation and Attendance

Students are expected and encouraged to participate the class through questions, statements, and comments. It is the quality of these contributions that is more important than the quantity. Attendance is mandatory and will be checked for each class.

Students having less than 70% attendance will be given VF as a final grade.

Exams

There will be a midterm exam on April 27 and a final exam at the end of the semester. The exams will be in class, take-home style or both. The details of how the exams will be made are going to be announced before the exam dates.

Grading

The letter grades will be given based on the weighted average of class activities:

Group presentation (20%)

Assignments (20%)

Midterm exam (20%)

Final exam (40%)

Participation (+ up to 10 extra points)

The group presentation score and the assignment score of a student should at least 50 each to participate in the Final Exam. Otherwise, the letter grade will be VF.

Cheating and plagiarism

Do not. Studying together to understand the material is fine, but the work you hand in is to be your own. You have to refer the references you used and paraphrase the sentences you refer. No cheating will be tolerated: A letter grade of VF will be given!

Class Sessions

The courses will be in room F133 at Faculty of Management, Maçka Campus. The first session starts at 09:30 on Thursday every week. Please be on time to participate in sessions.