Introduction to Management Science

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Introduction to Management Science

- Introduction to this course
  - Operations Research (also called Management Science) is a field that deals with scientific methods for making rational and systematic decisions under limited resources and complex environments.
  - Students will learn
    - ✓ How to represent real-world management and industrial problems using mathematical models.
    - ✓ Major techniques including linear programming, network models, integer programming, dynamic programming, and game theory.
    - ✓ How these techniques are applied in various domains such as industry to enhance efficiency, reduce costs, and support strategic decision-making.
    - ✓ The management science mindset: transforming problems into mathematical models and deriving solutions from those models.

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- Assessment
  - Overall grading criteria
    - ✓ Exams (70%): Mid-term (35%) and Final (35%)
    - ✓ Group presentation (15%)
    - ✓ Assignments (15%)
  - Exams
    - ✓ Midterm exam will be 8^{th} week / Final exam will be 15^{th} week
    - ✓ The exact coverage of mid-term exam will be announced later depending on the progress.
  - Assignments
    - ✓ 4 assignments (problem-solving)

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- Assessment
  - Group presentation
    - ✓ The presentation will be 14th week (directly before the final exam).
    - ✓ Each team reviews a paper on the applications of Operations Research techniques and presents their contents.
    - ✓ A list of papers will be provided; each team submits preference order. Then, I will assign papers accordingly.

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- Schedule

Week	Date	Contents	Notes
1	9/4	Introduction to Modeling	Canceled
2	9/11	Linear Programming	
3	9/18	Linear Programming	
4	9/25	Sensitivity Analysis	
5	10/2	Transportation Model	
6	10/9	Transportation Model	Canceled
7	10/16	Network Model	
8	10/23	Mid-term exam	
9	10/30	Network Model	
10	11/6	Integer Programming	
11	11/13	Integer Programming	
12	11/20	Dynamic Programming	
13	11/27	Game Theory	
14	12/4	Group Presentation	
15	12/11	Final exam	

Thank you