COURSE TITLE	**Operations Research: Optimization**
INSTRUCTOR	**Woonam Hwang** Office: Room 2108, Building E2-2 E-mail: woonam.hwang@kaist.ac.kr Website: https://ise.kaist.ac.kr/faculty/view/id/164
OFFICE HOURS	Thursdays 10am–12pm (Instructor). Please e-mail the instructor a day before if you plan to come. Other times are also available by appointment.
TEXTBOOKS	There is no required textbook. Below are some useful resources. • *Operations Research: Applications and Algorithms* by Wayne L. Winston. • *Applied Mathematical Programming* by Stephen P. Bradley, Arnoldo C. Hax and Thomas L. Magnanti. • *Model Building in Mathematical Programming* by H. Paul Williams. • *Introduction to Linear Optimization* by Dimitris Bertsimas and John N. Tsitsiklis • *Linear Programming* by Robert J. Vanderbei
TEACHING ASSISTANT	TBD
COURSE DESCRIPTION	This course introduces core optimization models and methods for data-driven decision making. Students learn how to formulate real-world problems as linear, integer, and network optimization models, and how to solve these models and interpret solutions. Applications are drawn from areas such as production planning, transportation and logistics, scheduling, and resource allocation.
TENTATIVE OUTLINE	** This outline is subject to change throughout the course.* 1. Fundamentals of optimization models 2. Building linear programming models 3. Linear programming technical details 4. Linear programming duality 5. Row and column generation for large-scale models 6. Network flow models 7. Integer programming models 8. Production and inventory planning 9. Sequencing and scheduling 10. Optimization models under uncertainty 11. Two-stage optimization models 12. Multistage optimization models

GRADING

The grading breakdown is as follows.

Component	**Percentage**
Attendance	10%
Quizzes and homework	20%
Midterm exam	30%
Final exam	40%
Total	**100%**

POLICIES

- **Attendance:** Attendance is mandatory. There will be random attendance checks in class.
- **No late submissions:** Assignments submitted late will NOT be accepted.

QUIZZES AND HOMEWORK

Quizzes and homework assignments will be given throughout the course to reinforce key concepts. Quizzes may be held in class without prior notice and will cover recent material. Homework assignments, if any, must be typeset in LaTeX and submitted electronically.