Optimization for Business

ETF2480 & ETF5248
Semester 2, 2024

Dr. Jessica Leung

Prescribing an action plan for business

Prescribing an action plan for business

- optimising *interconnected* decisions...
- that are subject to *constraints*...
- using a *scalable* approach!

Optimisation for Business

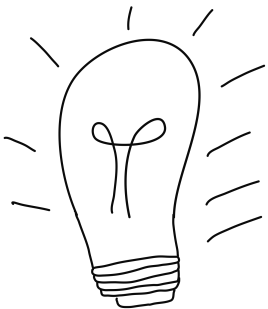
Represent your complex business problems as mathematical models, which you can adjust to accurately reflect your company's present-day reality. Use those models to help you tackle your real-world business problems and make the best possible decisions.

1. What business problem are you facing? What do you get to decide?
2. Formulate a mathematical optimisation problem that models your decision problem.
3. Solve the optimisation problem and make the decision.

Interesting read:

1. **How a Mathematical Optimization model can help your business deal with disruption** (Forbes 2020): Link to article

Textbook and Software



You don't need to buy textbook$.

There are no required textbooks in this unit. However, there are a few auxiliary or reference texts that will be cited when we cover the relevant content.

We teach in R and also support Python.

We'll be using R as a tool to solve optimisation problems in this course. We are also very happy to **support Python users.** Both R and Python coding syntax will be provided. We will go through the syntax in class when we introduce a new programming concept.

The Roadmap: What is this unit about?

Topics to cover

- LP Basics and Examples (Week 1-4)
- Duality and Sensitivity (Week 5-7)
- Network Flow Problems (Week 7-8)
- (Mixed) Integer Programming (Week 9-10)
- Advanced LP reformulation (Week 11)
- Review (Week 12)

Any Questions?

Contact me via jessica.leung@monash.edu
Enrol in Optimization for Business. See you soon in class!