

# TOPIC 0 INTRODUCTION

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# Syllabus

- Let's go over the syllabus together
- Office hours

	Monday		Tuesday		Wednesday		Thursday		Friday	
	1st Session	2nd Session	1st Session	2nd Session	1st Session	2nd Session	1st Session	2nd Session	1st Session	2nd Sess.
8:00 AM									Career Management 8:00am - 5:00pm	
8:30 AM	Optimization I - 05235 Mitchell MW - GSB 3.130, 8:30AM - 9:30AM				Optimization I - 05235 Mitchell MW - GSB 3.130, 8:30AM - 9:30AM					
9:00 AM	Financial Management - 02555 Kamm/Lendecky GSB 3.130 MW - 9:30AM - 11:00AM		Supply Chain Analytics Gutierrez/Bagchiu GSB 3.130 TTH - 9:30AM - 11:00AM		Financial Management - 02555 Kamm/Lendecky GSB 3.130 MW - 9:30AM - 11:00AM		Supply Chain Analytics Gutierrez/Bagchiu GSB 3.130 TTH - 9:30AM - 11:00AM			
9:30 AM										
10:00 AM										
10:30 AM										
11:00 AM			Analytics for Unstructured Data - 04975 Barua GSB 3.138 TTH - 11:00AM - 1:00PM				Analytics for Unstructured Data - 04975 Barua GSB 3.138 TTH - 11:00AM - 1:00PM			
11:30 AM										
12:00 PM										
12:30 PM										
1:00 PM	Optimization I - 05240 Mitchell MW - GSB 3.130, 1:00PM - 2:00PM				Optimization I - 05240 Mitchell MW - GSB 3.130, 1:00PM - 2:00PM					
1:30 PM	Advanced Machine Learning - 04955 Ghosh GSB 3.130 MW - 2:00PM - 3:30PM		Financial Management - 02560 Kamm/Laux GSB 3.130 TTH - 2:00PM - 3:30PM		Advanced Machine Learning - 04955 Ghosh GSB 3.130 MW - 2:00PM - 3:30PM		Financial Management - 02560 Kamm/Laux GSB 3.130 TTH - 2:00PM - 3:30PM			
2:00 PM	Advanced Machine Learning - 04960 Ghosh GSB 3.130 MW - 3:30PM - 5:00PM		Adv. Corp. Fin./Investments - ??? Sury/Titman/Alti/Cohn/Sciara GSB 3.130 TTH - 3:30PM - 5:00PM	Marketing Analysis I-04965 Sonnier - GSB 3.138 TTH - 3:30PM - 5:00PM	Advanced Machine Learning - 04960 Ghosh GSB 3.130 MW - 3:30PM - 5:00PM		Adv. Corp. Fin./Investments - ??? Sury/Titman/Alti/Cohn/Sciara GSB 3.130 TTH - 3:30PM - 5:00PM	Adv. Corp. Fin./Investments - ??? Sury/Titman/Alti/Cohn/Sciara GSB 3.130 TTH - 3:30PM - 5:00PM		
2:30 PM										
3:00 PM										
3:30 PM										
4:00 PM										
4:30 PM										
5:00 PM	Information Management - 04940 Joshi GSB 3.130 MW - 5:00PM - 6:30PM			Privacy Preserving Analytics D.Rodriguez 5:00PM-1:00PM	Information Management - 04940 Joshi GSB 3.130 MW - 5:00PM - 6:30PM			Privacy Preserving Analytics D.Rodriguez 5:00PM-1:00PM		
5:30 PM										
6:00 PM										
6:30 PM	Information Management - 04945 Joshi GSB 3.130 MW - 6:30PM - 8:00PM				Information Management - 04945 Joshi GSB 3.130 MW - 6:30PM - 8:00PM					
7:00 PM										
7:30 PM										
8:00 PM										
	* Adv. Corp. Fin./Investments is for FA track students only									

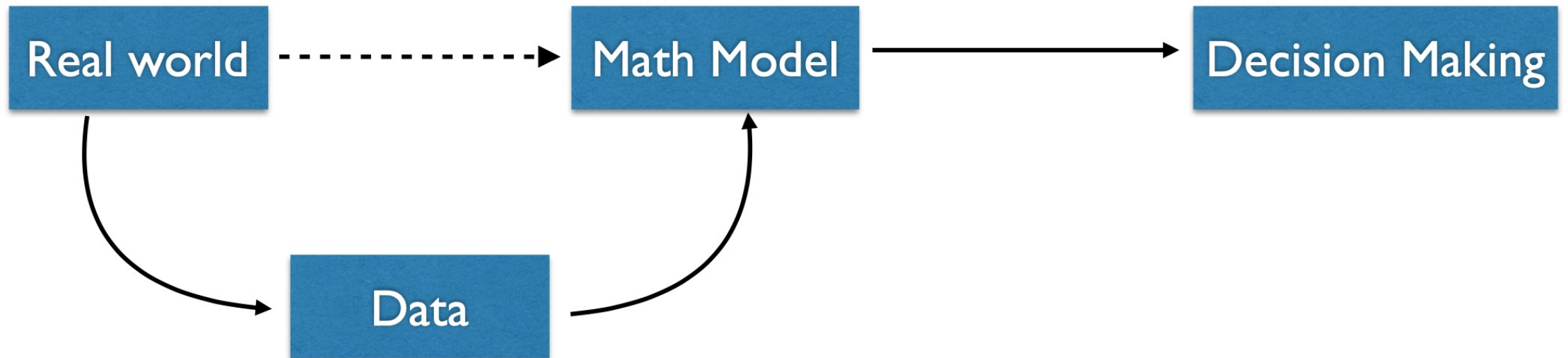
# Teaching

- From “How” to “Why”
- My objective
  - To HELP you learn the material in such a way that the concepts and intuition stay with you forever
- My constraints
  - Fairness
  - University imposed constraints

# Course Description

- Applying advanced quantitative methods to help make better business **decisions**.
- Specifically: Linear, Integer, and Non-linear programming
- Applications will include
  - marketing, finance, revenue management, etc.
- The concepts and methods you learn in this class are useful in several areas. Hence the tools you will learn will be useful regardless of your specific interests.

# Real World → Decision Making



# Optimization is Everywhere

- Personal Choices
  - saving for retirement
  - how to spend money renovating a house
- Decision making in a firm
  - optimal mix of products for customers
  - minimizing production or inventory costs
  - maximizing value of marketing
  - pricing and scheduling crew for airlines
- Statistics/Machine Learning
  - Fitting a model
- Other examples
  - shortest path on online maps
  - artificially intelligent games
  - traffic lights

# Outline of Semester

- Linear Algebra (MAYBE)
- Linear Programming
- Integer Programming
- Non-Linear Programming and Neural Nets
- You can find classes at UT that spend an entire semester on each of these topics
  - This will mostly be a survey course on modeling techniques, then we'll rely of software to solve the problems for us

# Next Semester

- Next semester we're going to build towards reinforcement learning
  - Simulation
  - Stochastic programming and bandit problems
  - Dynamic programming
  - Reinforcement learning