

## **DSC5101    ANALYTICS IN MANAGERIAL ECONOMICS**

AY2015-2016 Semester 1

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### **Summary**

We analyze price formation and economic performance in imperfectly competitive markets by using optimization, statistical and stochastic methods. Strategic interactions between the participants in these markets are emphasized and a theoretical framework is laid out.

Theoretical models are analyzed with industry examples and datasets.

### **Topics**

- Monopoly and Market Power
- Oligopolistic Markets
- Empirical analysis
- Optimization and stochastic modeling
- Technological Change, R&D
- Network industries

### **Course Material**

- Lecture notes
- Lynne Pepall, Dan Richards and George Norman: Contemporary Industrial Organization: A Quantitative Approach, 2011, Wiley

### **Projects**

There are 3 group projects. Each group has 3 - 5 students. There is also one in-class individual project.

### Prerequisites

No prerequisites for the Master of Science in Business Analytics students.

### Assessments

<b>Component</b>	<b>Weight</b>
In-class project	40%
Group projects	40%
Homework	20%
Exceptional participation gives up to 5% to the final grading.	
<b>Total</b>	<b>100%</b>

### Tentative Schedule

Lectures 1-4:

- Introduction: Costs
- Monopoly and Market Power, simulation of price uncertainty
- Oligopolistic Markets: Introduction to game theory, Bertrand, Cournot, differentiation, simulation of equilibrium

Lectures 5-10:

- Monopoly revisited: Price optimization, price discrimination, complementary good pricing, durable good pricing, bundling
- Oligopoly: Price optimization and discrimination
- More Oligopoly: Strategic commitments, monopolistic competition
- Mergers – horizontal and vertical
- Dynamic competition and cartels,
- Entry, accommodation and exit, stochastic modeling of entry and exit decisions

Lectures 11-13:

- Technological Change, R&D
- Network industries