

IEMS 382 - Production Planning and Scheduling

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Office hours: Thursdays 1:30 – 3:00 (or by appointment).

Grading: Exam 1 (30%), Exam 2 (40%), Homework (20%), Class Participation (10%).

Exam Dates:

EXAM 1: Date will be announced later

EXAM 2: Will be on final exam week.

The exams are closed book, but you may bring only one sheet of paper; on two sides of the paper you can make any notes or write formulas that you need.

Texts:

- Steven Nahmias, *Production and Operations Analysis*. Sixth edition, Irwin/McGraw-Hill 2009.
- *The Goal*, Third edition, by Goldratt and Cox. North River Press, 2004.
- Lecture Notes posted on Blackboard.

Course Description

This class is a basic introduction to production planning and inventory control. The purpose of the class is to introduce students to the major tradeoffs involved in designing an effective production and inventory system. The course includes:

- Introduction to production planning and scheduling
- Forecasting using time series (Forecasting stationary demand, demand with trend, and seasonal demand)
- Aggregate production planning (Common strategies and Linear Programming (LP) approach)
- Deterministic inventory models (EOQ, Discount models, EPQ, Models with constraints on budget and space)
- Stochastic inventory models (Newsboy problem, Continuous review models, (R,Q) policy, Periodic review systems, (s,S) policy)
- Push and Pull production Systems (MRP, JIT, CONWIP, Kanban, Bucket Brigades, etc.)
- Effects of Variability in production systems

- Risk pooling strategies
- Scheduling tasks and workforce in manufacturing and service operations systems

The emphasis of this course is on the development of the analytical operations-research based models to address each of these issues. We will emphasize model formulation, development and analysis through the use of simple models (where students will be expected to formulate a problem and derive a solution) as well as more practical situations through the use of case studies and video tapes.