

# OPIM 6202 SEMINAR IN OPERATIONS MANAGEMENT

## Fall 2016 Storrs

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**Course Description:** This Seminar will introduce students to a few Operations Management research topics. We will focus on strategic issues and service operations management problems. We will not touch on tactical and operational issues such as production scheduling, inventory management, etc. To help the students get a better understanding of the techniques used, we will discuss Monte Carlo simulations, some optimization, Dynamic Programming and Markov Decision Processes in several lecture format classes. The object of the course is to help the students understand current research in Operations Management, and to enable the students to do independent research in OM and areas on the interface of OM and MIS.

### Cases and Text:

*Martin Puterman, Markov Decision Processes - Discrete Stochastic Dynamic Programming, Wiley, 2005.*

[On Amazon, 1<sup>st</sup> edition, which should also be fine.](#)

**Course Structure:** The first half of the course will be predominantly lecture oriented, and the second half will be seminar format wherein students discuss assigned papers. Each class meeting in the second half will also include a discussion on progress on the term project chosen by the students.

### Grading:

Individual Homework:	40%
Breakout and Paper Presentations:	20%
Term Paper:	20%
Take Home Exam:	20%

**Individual homework:** Submit both homework assigned. Homework should be turned in by the beginning of class. When you submit an Excel sheet, please name the file

HWNN\_firstname\_lastname.xlsx.

**Caution:** This is individual work. If two identical submissions are found, both students will get a grade of zero.

**Team breakout exercises and presentations:** Each team will work collectively on breakout exercises and present findings to the class. Typically no write-up will be required. When you submit an Excel sheet, please name the file BreakoutNN\_TeamYY.xlsx.

### Teams for breakout exercises:

**Team 1:** Suresh and Hongfei; **Team 2:** Mohsen and Guneet; **Team 3:** Teng and Arda;

**Term Paper:** You will work individually on the projects. The tentative topic should be selected by the sixth class meeting. Do a preliminary literature search and firm up your ideas soon thereafter. From that class onwards, be prepared to discuss progress in modeling, preliminary computer runs, etc. We will allot 15-20 minutes for project discussion in each class meeting.

**Research Papers:** In each class we will discuss 1 or 2 papers. Everyone is to read the papers and contribute to the discussions. We will have one student present a paper and to encourage participation, have another student lead a discussion of the paper. We will do these by rotation. We will allot 45 minutes for paper presentation and 30 minutes for discussion.

The presenter should address the following:

- Background of the paper (read up related papers if necessary).
- What the paper is setting out to address.
- The model.
- Structural results, if any.
- The solution procedure, algorithm, heuristic.
- The performance of the solution procedure.
- Your critique of the paper. Is the problem significant? Was the model right? Can something else have been done? Is the solution methodology appropriate? Are the results explained well? Does it make a difference to the state of knowledge? Have the managerial implications been discussed?

The discussant should address the following:

- Your critique of the paper.
- Related work done by others that refer to this paper (use Google Scholar).
- Possible future extensions.

The presenter or discussant doesn't need to turn in anything to me at the end of the presentation.

**Academic Dishonesty Statement:** The School of Business faculty strongly believe that academic integrity is a corner stone in the educational process. All students should familiarize themselves with the rules and regulations found in <http://provost.uconn.edu/syllabi-references>

**Caution:** Violations could result in dismissal from the Ph.D. program.

## SCHEDULE OF CLASSES

Date	Topics	Reading	HW Due	Presenter	Discussant
9/1/2016	Introduction, Intro to Simulation	Handout			
	Breakout Exercise and presentation				
9/8/2016	Simulating standard distributions	Handout	HW1		
	Breakout Exercise and presentation				
9/15/2016	Business optimization modeling	Handout	HW2		
	Breakout Exercise and presentation				
9/22/2016	Integer programming and direct mail optimization	Handout	HW3		
	Breakout Exercise and presentation				
9/29/2016	Fixed charge and other problems	Handout	HW4		
	Breakout Exercise and presentation				
	Tripathi et al. "Optimal Lot Sizing Policies for Sequential Online Auctions," <i>IEEE Transactions on Knowledge and Data Engineering</i> , 21, 4, 2009, pp. 554-567.			Suresh	Mohsen
10/6/2016	Goal programming and Conjoint analysis	Handout	HW5		
	Breakout Exercise and presentation				
	Tripathi and Nair. "Narrowcasting of Wireless Advertising in Malls," <i>European Journal of Operational Research</i> , 182, 2007, pp. 1023-1038.			Teng	Guneet
	Term Paper topic selection				

10/13/2016	Markov analysis and Dynamic programming	Handout	HW6		
	Breakout Exercise and presentation				
	Karuga, et al. "AdPalette: An Algorithm for Customizing Online Advertisements on the Fly," <i>Decision Support Systems</i> , 32, 2, 2001, pp. 85-106.			Hongfei	Arda
10/20/2016	VBA Coding and Stochastic DP	Handout	HW7		
	Breakout Exercise and presentation				
	Basu and Nair. "Analyzing Operational Risk-Reward Trade-offs for Start-ups," <i>European Journal of Operational Research</i> , 247, 2, 2015, pp. 596-609.			Mohsen	Teng
10/27/2016	Risk Reward Tradeoff and Revenue Management	Handout	HW8		
	Breakout Exercise and presentation				
	Nair, et al., "Optimal Management of Sweeps to Reduce Sterile Reserves in Banks." Working paper, Merrill Lynch.			Guneet	Hongfei
11/3/2016	Intro to MDPs, Model Formulation	Ch 1&2	HW9: 2.5		
	Y.Jin et al. "Optimizing the Acquisition Planning Process for Credit Card Portfolios"			Arda	Suresh
11/10/2016	Examples of MDPs	Ch 3	HW10: 3.16		
	Bitran, G.R., and S.V. Mondschein, "Mailing Decisions in the Catalog Sales Industry," <i>Management Science</i> , 42, 9, 1996, pp. 1364-1381.			Guneet	Mohsen
11/17/2016	Finite Horizon MDPs	Ch 4, 5	HW11: 3.17, 4.21		
	Lee T.C, M. Hersh, A Model for Dynamic Airline Seat Inventory Control with Multiple Seat Bookings <i>Transportation Science</i> , 1993.			Teng	Arda
12/1/2016	Infinite Horizon MDPs , Discounted MDPs	Ch 5,6	HW12: 4.28, 4.3		
	Hopp W.J., S.K. Nair, "A Model for Equipment Replacement due to Technological Obsolescence," <i>European Journal of Operational Research</i> , 63, 1992, pp. 207 221.			Suresh	Hongfei
12/8/2016	Discounted MDPs	Ch 6	HW13: 6.48 Value Iteration		
	Sidotti, et al. "A Multiobjective Path-Planning Algorithm With Time Windows for Asset Routing in a Dynamic Weather-Impacted Environment." <i>IEEE Transaction on Systems, Man and Cybernetics: Sytems</i> , Vol. PP, 99, 2016.			Arda	Guneet
	<b>Term Paper Presentations, Take Home Exam (due 12/15)</b>				