Economic optimization in dynamic and stochastic decision problems

PhD Course, Autumn 2005

Version 2005-05-26

Contents:

Economic dynamic and stochastic decision problems.
Deterministic dynamic optimization in discrete time with discrete state space.
Deterministic dynamic optimization in discrete time with continuous state space.
Deterministic dynamic optimization in continuous time.
Optimal solutions to deterministic dynamic decision problems.
Stochastic dynamic optimization in discrete time.
Stochastic dynamic optimization in continuous time.
Optimal solutions to stochastic dynamic decision problems.
Applications to decision problems in forest company management in forest production, forest logistics and forest industry mills. (It does not matter if the course participant mainly is interested in the forest sector or some other sector. The decision problems are very similar in most sectors and the solution methods are the same.)

Credits: 5.
Language: English.
Period: September 1, 2005 - November 4, 2005 (≈50% of "full study speed"). (This period is denoted "1a + 1b" in the Swedish university schedule system.)
Schedule: ***(On the next page.)*** One two-hour lecture per week during ten weeks (20 hrs.). Between the lectures, the course participants study the literature and solve problems.
The course is intended for:
PhD students in management, economics, business administration, forest management, engineering and all other sciences where dynamic and stochastic optimization problems are relevant and important.
Prerequisites: The participants should have some knowledge of calculus, linear and nonlinear optimization before the course starts.
Examination: Written exam.

Literature:

Relevant parts of:
- Sethi, S. P., Thompson, G.L., Optimal Control Theory, Applications to Management Science and Economics, Kluwer Academic Publishers, 2 ed., 2000
- Winston, W.L., Operations Research, Applications and Algorithms, Duxbury Press, International Thomson Publishing, ISBN 0-534-20971-8, 2004
- (More applications will be included.)

Course organizer:

Peter Lohmander, professor of forest management and economic optimization,
SLU, Faculty of Forest Sciences, Dept. of Forest Economics, S-901 83 Umea, Sweden.

Application and/or Questions:

Please contact the course organizer using: plohmander@hotmail.com
Send an e-mail message of the following type:
Title: "Economic optimization in dynamic and stochastic decision problems 2005". Write your: Name, Address, E-mail, Phone, Home page.
Please make sure that you get a confirmation.

Schedule:

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PhD Course, Autumn 2005

Peter Lohmander, Dept. of Forest Economics, SLU, 901 83 Umeå, Sweden

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Lecture Room: Dept of Forest Economics, SLU, Umeå (if no other specific information is given).

Day:	**Time:**	**Contents:**	**Lecture by:**
Sep 1, Thursday	09.15-11.00	Introduction: Economic dynamic and stochastic decision problems and different optimization methods.	Peter Lohmander
Sep 6, Tuesday	09.15-11.00	Deterministic dynamic optimization in discrete time with discrete state space and typical applications.	Peter Lohmander
Sep 14, Wednesday	09.15-11.00	Deterministic dynamic optimization in discrete time with continuous state space and typical applications.	Peter Lohmander
Sep 20, Tuesday	09.15-11.00	Deterministic dynamic optimization in continuous time with typical applications.	Peter Lohmander
Sep 27, Tuesday	09.15-11.00	Stochastic dynamic optimization in discrete time with typical applications.	Peter Lohmander
Oct 4, Tuesday	09.15-11.00	Stochastic dynamic optimization in discrete time with typical applications.	Peter Lohmander
Oct 11, Tuesday	09.15-11.00	Stochastic dynamic optimization in continuous time with typical applications.	Peter Lohmander
Oct 18, Tuesday	09.15-11.00	Stochastic dynamic optimization in continuous time with typical applications.	Peter Lohmander
Oct 25, Tuesday	09.15-11.00	Optimization of dynamic and stochastic decision problems in forest company management in forest production, forest logistics and forest industry mills.	Peter Lohmander
Nov 1, Tuesday	09.15-11.00	Optimization of dynamic and stochastic decision problems in forest company management in forest production, forest logistics and forest industry mills.	Peter Lohmander
Nov 4, Friday	09.15-15.00	Written exam	

(More information is found on the first page)