



Syllabus

SELECTED ASPECTS OF THE ECONOMICS OF NATURAL RES - 71183

Last update 12-09-2017

HU Credits: 3

Responsible Department: environmental economics & management

Academic year: 0

Semester: 2nd Semester

Teaching Languages: Hebrew

Campus: Rehovot

Course/Module Coordinator: Yacov Tsur

Coordinator Email: Yacov.Tsur@mail.huji.ac.il

Coordinator Office Hours: Tuesday 11-12

Teaching Staff:
Prof Yacov Tsur

Course/Module description:

The course provides knowledge in management of renewable natural resources and unrenrenewable resources. We use Dynamic models in problems of exploitation of natural resources over time. We will discuss the problems of market failures, considerations of social interest vr private interest intergenerational allocation of natural resources.

Course/Module aims:

To provide knowledge and tools needed in the management of renewable and nonrenewable natural resources

Learning outcomes - On successful completion of this module, students should be able to:

Use dynamic optimization methods (Optimal Control and Dynamic Programming) in order to characterize optimal exploitation policies of renewable and nonrenewable natural resources.

Attendance requirements(%):

100

Teaching arrangement and method of instruction: Frontal lecture

Course/Module Content:

- 1 Dynamic optimization*
- 2 Nonrenewable resources (oil, coal, gas, minerals)*
- 3 Renewable resources (water, fisheries, forests, atmosphere)*
- 4 Uncertainty in natural resource management*
- 5 Natural resources and climate change*
- 6 Natural resources and economic growth*
- 7 Natural resources and agriculture*

Required Reading:

Hotelling, H. 1931. The Economics of Exhaustible Resources, Journal of Political Economy, 39, 137-175.

Solow, Robert M. 1974. The Economics of Resources or the Resources of Economics, The American Economic Review, 64(2 Papers and Proceedings) 1-14.

Clark, C.W., 1976. Mathematical Bioeconomics: The Optimal Management of Renewable Resources, John Wiley, New York.

Dasgupta, P.S., and G.M. Heal. 1979. Economic Theory and Exhaustible Resources, Cambridge University Press, Cambridge, UK.

Kamien, M.L. and N.L. Schwartz. 1991. *Dynamic Optimization: The Calculus of Variation and Optimal Control in Economics and Management* (2nd edition), North-Holland, New York.

Heal, G. M. 1993. *The optimal use of exhaustible resources*. In A. V. Kneese and J.L. Sweeney (eds.) *Handbook of Natural Resource and Energy Economics*, vol. III

Krautkraemer, J. A. 1998. *Nonrenewable resource scarcity*, *Journal of Economic Literature*, 36(4): 2065-2107.

Tsur, Y. and A. Zemel, 2014, *Dynamic and stochastic analysis of environmental and natural resources*, in M.M. Fischer and P. Nijkamp (eds.) *Handbook of Regional Science*, Springer, Berlin.

Additional Reading Material:

Available at the course site.

Course/Module evaluation:

End of year written/oral examination 80 %

Presentation 0 %

Participation in Tutorials 0 %

Project work 0 %

Assignments 20 %

Reports 0 %

Research project 0 %

Quizzes 0 %

Other 0 %

Additional information:

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