

Operational research (IVth Year of study, VIIIth Semester)

Credit value (ECTS) 3

Course category
imposed

Course holder:
Lecturer PhD Radu-Adrian MORARU

Discipline objectives (course and practicum)

The main purpose of the discipline is the acquisition by students of the main knowledge and techniques in the field of operational research; knowledge of the problems specific to operational research within agricultural units; familiarization with the main methods and techniques of agricultural research; presentation the role of operational research at organization level; evaluation of research results on economic effects; presentation of methods for modeling agricultural processes.

Contents (syllabus)

Course (chapters/subchapters)
Operational research and related disciplines
The role of modeling in operational research
Linear programming
The simple algorithm
Elements of graph theory: general notions; ways of representing a graph; basic concepts in graph theory; finding roads in an oriented graph
Hamiltonian roads and circuits: optimal roads in a graph; optimal path finding algorithms; critical path method (CPM)

Practicum
Optimization of crop structure by the method of linear programming
Optimization of crop rotation using the simplex algorithm
Optimization of soil works by the method of linear programming
Optimization of transport itineraries by the Vögel method
Optimization of transport routes by the Kötzig method

References:

1. Alecu I., Merce E., Pană D., Sămbotin L., Ciurea I., Bold I., Dobrescu N., 2001- *Managementul exploatațiilor agricole*. Editura Ceres, București.
2. Brezuleanu S, 2004 – *Management agricol teorie și practică*. Editura Performantica Iași
3. Baci, A., Pascu, A., Puscas, E. *Aplicatii ale Cercetarii Operationale* Editura Militara, Bucuresti 1988
4. Ionescu, H., Dinescu, C., Savulescu, B. *Probleme ale Cercetării Operaționale* Editura Didactică și Pedagogică, Bucuresti 1972,

5. **Nica V., Mustata Floare, Ciobanu Gh., Maracine V.** *Cercetări operaționale*. Ed. MATRIX ROM, București, 1998
6. **Țigănescu E., Mitru D.** *Bazele cercetării operaționale*. Ed. ASE, Bucuresti, 2001

Evaluation

Evaluation form	Evaluation Methods	Percentage of the final grade
Exam	written evaluation	60%
Appreciation of the activity during the semester	Oral assessment during the semester, verification tests	40%

Contact

Lecturer PhD Radu-Adrian MORARU

Faculty of Agriculture - USAMV Iași

Aleea Mihail Sadoveanu nr. 3, Iași, 700490, Romania

phone: 0040 232 407517

E-mail: ramoraru@yahoo.com, ramoraru@uaiasi.ro