

# 4IT495 SIMULACE SOCIETÁLNÍCH JEVŮ

Course code	4IT495
Course title in language of instruction	Simulace societálních jevů
Course title in Czech	Simulace systémů
Course title in English	Simulation of Systems
Mode of completion and number of credits	Exam ECTS (6 credits), Exam (4 credits) One ECTS credit corresponds to 26 hours of workload for an average student.
Type of course	Daily attendance: 2/2 (hours of lectures per week / hours of seminars per week)
Language of instruction	Czech
Level of course and year of study	master: 5; master continuing: 2
Semester	Sklad FIS – FIS
Name of lecturer	prof. Ing. Václav Řepa, CSc. (supervisor)
Prerequisites	none

## Aims of the course

The objective of the course is to provide overall view of social systems modeling methods and issues regarding their application using information technology. Students can deepen their knowledge of particular topics of their interest in specialized courses at University of Economics, Prague. Additional objective of the course is to provide knowledge in the field of multi-agent systems and serious gaming as methods of social systems simulation.

## Learning outcomes and competences

Upon successful completion of this course, students:

- become familiar with the field of computer simulation in social science,
- will be able to distinguish various approaches to simulation and choose the proper one for the particular task,
- will be able to practically analyze the problems that can be solved by using simulation models,
- will be able to build discreet simulations, system dynamics models, agent-based simulations and other kinds of simulation models.

## Course contents

Lectures:

Introduction to social sciences – Economics, Sociology, Political science, Psychology and their areas of interest

Game Theory

Overview of econometric methods

Systems dynamics

Multi-agent systems

Serious gaming

Gathering data about human behavior through MMORPG

Economy of MMORPG from neoclassical perspective

MMORPG from institutional perspective

Tutorials:

The purpose of tutorials is to practice concepts introduced in lectures. MS Excel, Simprocess, PowerSim, JADE and other tools will be used.

## Teaching methods and student workload

Type of teaching method	Hours of workload
	daily attendance
Participation in lectures	26
Preparation for lectures	26
Attendance at seminars/workshops/tutorials	26
Preparation for seminars/workshops/tutorials	26
Preparation of term paper	26
Preparation for final test	26
<b>Total</b>	<b>156</b>

## Assessment methods

Requirement type	Weight
	daily attendance
Term paper	30 %
Mid-term test(s)	20 %
Final test	20 %
simulation development	30 %
<b>Total</b>	<b>100 %</b>
<b>Special requirements and details: none</b>	

## Recommended reading

Type*	Author	Title	Published in	Publisher	Year	ISBN
R	SVATOŠ, O.	Simulace sociálních jevů – v tisku				
R	WOOLDRIDGE, M. J.	An introduction to multiagent systems	Chichester	John Wiley & Sons	2002	0-471-49691-X
A	STERMAN, J. D.	Business dynamics : systems thinking and modeling for a complex world	Boston	Irwin/McGraw-Hill	2000	0-07-231135-5
A	DLOUHÝ, M. – KUNCOVÁ, M. – FÁBRY, J.	Simulace pro ekonomii	Praha	Oeconomica	2005	80-245-0973-3
A	MILDEOVÁ, S. – VOJTKO, V.	Systémová dynamika	Praha	Oeconomica	2003	80-245-0626-2
A	COLMAN, A.	Game Theory and Experimental games.		Pergamon Press	1982	0080260705

\* R – required reading, A – additional reading