



Academia de Studii Economice
Departamentul de Informatică și Cibernetică Economică

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Contest Topics for Professor
Position 29, year 2023-2024, semester 1

Discipline: Basics of Economic Cybernetics

1. The emergence and development of cybernetics. The main stages of the development of cybernetics from the beginning to the present;
2. Defining cybernetics as science. The object and methods of economic cybernetics;
3. Modeling - main method of studying cybernetics;
4. Equation-based modeling in economics;
5. Agent-based modeling in the economy;
6. Simulation and its use as a method of studying economic systems;
7. The complex adaptive system. Definitions and properties;
8. Connectivity and interdependence in complex adaptive systems. Complex networks in the economy;
9. The evolution of complex adaptive systems in the economy. The fitness landscape and co-evolution models;
10. Dissipation and chaos in the complex systems of the economy. Operation-away-from-equilibrium;
11. Adjustment feedback processes. Fundamental processes of multiplier, accelerator and mixed type;
12. Self-organization of complex adaptive systems in the economy;
13. Emergency - fundamental property of complex adaptive systems in the economy;
14. Examples of complex adaptive systems and models of their evolution.

Bibliography:

1. Scarlat E., Chiriță Nora, *Bazele Ciberneticii Economice*, Editura Economica, București, 2020, România;
2. Scarlat E., Chiriță Nora, Delcea Camelia, *Bazele Ciberneticii Economice. Teorie și Aplicații*, Editura Economica, București, 2015, România;
3. Chiriță Nora, Ionuț Nica, *Cibernetica Firmei. Aplicații și Studii de Caz*, Editura Economica, București, 2019