

Course Title	Economic dynamics
Language	English
Level of Higher Education	Third (PhD)
Semester	3
Course Launch Base	Department of Economic Cybernetics and Applied Economics
Course Coordinator, Contact Details	Prof. Tamara Merkulova e-mail: tamara.merkulova@karazin.ua
Prerequisites	Higher Mathematics, Macroeconomics, Informatics, Economics, Modelling Economy
Objective	<p>The purpose of teaching the discipline is to form theoretical knowledge, skills and practical abilities in the construction, analysis and use of mathematical models of the dynamics of economic systems.</p> <p>The main objectives of studying the discipline are to master theoretical knowledge and tools regarding:</p> <ul style="list-style-type: none"> – methodology for modeling the dynamics of economic systems; – formulation and independent solution of problems of analysis, forecasting, decision-making using dynamics models.
Program learning outcomes	<p>GC01. Ability to abstract thinking, analysis and synthesis.</p> <p>PLO03. Develop and research fundamental and applied models of socio-economic processes and systems, effectively use them to obtain new knowledge and/or create innovative products in economics and related interdisciplinary areas</p>
Methods of control and assessment	<p>The following teaching methods are used: lectures, seminars, practical classes with problem solving, computer modeling, experiments with models. , Training is carried out using ICT (data collection and processing, model parameter estimation, model calculations, analysis of results), MAPLE software. Current and final (semester) control.</p> <p>Current control - control work, completion of independent work tasks, assessment of student activity in classes. Final control - written exam.</p>
Course content	<p>Topic 1. Modeling economic dynamics: an overview of approaches and tools.</p> <p>Topic 2. Discrete cycle and market models</p> <p>Topic 3. Continuous one-dimensional models.</p> <p>Topic 4. Multidimensional continuous models.</p> <p>Topic 5. Phase trajectories and phase portraits.</p> <p>Topic 6. One-dimensional nonlinear models.</p> <p>Topic 7. Multidimensional Nonlinear Models: Analysis Using Linearization</p> <p>Topic 8. Bifurcations</p>