

Course Title	<b>Statistical modeling and forecasting</b>
Language	English
Level of Higher Education	Third (PhD)
Semester	3
Course Launch Base	Department of statistics, accounting and auditing
Course Coordinator, Contact Details	Prof. Oleksiy Korepanov e-mail: <a href="mailto:o.s.korepanov@karazin.ua">o.s.korepanov@karazin.ua</a>
Prerequisites	Statistics, Intelligent data analysis systems
Objective	The purpose of teaching the academic discipline is to provide knowledge and practical skills in the field of statistical modeling and forecasting, studying the cause-and-effect mechanism of variation formation and dynamics of social-economic phenomena, modeling of general indicators
Learning Outcomes	<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> <p>– PLO04. Apply modern tools and technologies for searching, processing and analyzing information, in particular, statistical methods for analyzing large data sets and/or complex structures, specialized software and information systems.</p> <p>– PLO09. Formulate and test hypotheses; use appropriate evidence to substantiate conclusions, in particular, the results of theoretical analysis, empirical research and mathematical and/or computer modeling, available literary data.</p>
Methods of control and assessment	Current and final (semester) control. Current control is carried out in practical classes during the implementation of independent tasks, verification of solving typical and non-typical tasks for the use of knowledge in practical situations; current testing and implementation of individual control work. Final (semester) control is carried out in the form of a written exam.
Course content	<p>Topic 1. Methods for Modeling Relationships</p> <p>Topic 2. Extended Regression Models</p> <p>Topic 3. Modeling of Causal Systems</p> <p>Topic 4. Principal Component Model</p> <p>Topic 5. Multivariate Classification Models</p> <p>Topic 6. Methods for Modeling and Forecasting Dynamics</p> <p>Topic 7. Seasonality Analysis and Forecasting of Univariate Time Series</p> <p>Topic 8. Dynamic Models for a Set of Objects</p>