

**Subject card**

<b>Subject name and code</b>		Time Series Analysis II, PG_00204636						
<b>Field of study</b>		Informatics and Econometrics						
<b>Date of commencement of studies</b>		October 2026	<b>Academic year of realisation of subject</b>			2026/2027		
<b>Education level</b>		Master's studies	<b>Subject group</b>			Obligatory subject group in the field of study Optional subject group Subject group related to scientific research in the field of study		
<b>Mode of study</b>		full-time studies	<b>Mode of delivery</b>			at the university		
<b>Year of study</b>		1	<b>Language of instruction</b>			Polish		
<b>Semester of study</b>		2	<b>ECTS credits</b>			7.0		
<b>Learning profile</b>		academic	<b>Assessment form</b>			exam		
<b>Conducting unit</b>		Department of Econometrics -> Faculty of Management -> Rector						
<b>Name and surname of lecturer (lecturers)</b>		<b>Subject supervisor</b>		dr Marta Chylińska				
		<b>Teachers</b>						
<b>Lesson types</b>		<b>Lesson type</b>	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
		<b>Number of study hours</b>	15.0	15.0	30.0	0.0	0.0	60
		E-learning hours included: 0.0						
<b>Learning activity and number of study hours</b>		<b>Learning activity</b>	Participation in didactic classes included in study plan	Participation in consultation hours		Self-study		SUM
		<b>Number of study hours</b>	60	4.0		111.0		175
<b>Subject objectives</b>		Introduction of students to the basic models of dynamic econometrics.						
<b>Learning outcomes</b>		<b>Course outcome</b>	<b>Subject outcome</b>			<b>Method of verification</b>		
		[[iEMU2_W05] Possesses advanced knowledge and understanding of informatics, statistics, and econometrics techniques and tools used to acquire, process, or visualise data to aid in decision-making and verify research hypotheses	The student identifies and discusses issues in the field of dynamic econometrics.			[SW4] test/exam - oral or written		
		[[iEMU2_U03] Is able to obtain and verify data from properly selected sources and to collect, process, and visualize it using modern econometrics, informatics or statistics tools	The student obtains financial time series of various frequencies from databases, verifies their validity, and uses the data to construct dynamic econometric models.			[SU2] presentation/project/paper/report [SU4] test/exam - oral or written		
		[[iEMU2_U01] Can creatively and profoundly analyze complex social and economic processes using structured knowledge, econometrics, informatics, or statistics tools	The student selects and constructs appropriate models in the field of dynamic econometrics.			[SU2] presentation/project/paper/report		
		[[iEMU2_W02] Comprehends advanced theoretical and practical concepts in econometrics, informatics, or statistics, which are essential for a deeper understanding of economic and social phenomena	The student identifies appropriate methods for processing time series.			[SW4] test/exam - oral or written		

Subject contents	<ol style="list-style-type: none"> <li>1. Dynamic econometric models. Examples of dynamic relationships in economics and finance.</li> <li>2. Basic tools of dynamic analysis: ACF and PACF functions, Ljung-Box statistic.</li> <li>3. Single-equation linear models of stationary time series (AR, MA, ARMA).</li> <li>4. Modeling seasonal phenomena (SARIMA models).</li> <li>5. Modeling high-frequency financial processes. ARCH and GARCH models.</li> <li>6. Models of non-stationary time series and their applications.</li> <li>7. Spurious regression. The concept of cointegration of variables and methods of testing it. Univariate error correction model (ECM).</li> <li>8. Multivariate time series models and their applications.</li> <li>9. Analysis of relationships between selected economic and financial categories. VAR model.</li> <li>10. Vector error correction model (VECM). Engle-Granger and Johansen procedures.</li> </ol>														
Prerequisites and co-requisites	Basic knowledge of time series analysis.														
Assessment methods and criteria	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 45%;">Subject passing criteria</th> <th style="width: 25%;">Passing threshold</th> <th style="width: 30%;">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td>Lecture assessment based on a written exam.</td> <td>51.0%</td> <td>30.0%</td> </tr> <tr> <td>Laboratory class assessment: team project and its presentation.</td> <td>51.0%</td> <td>30.0%</td> </tr> <tr> <td>Assessment of auditorium classes: written test.</td> <td>51.0%</td> <td>40.0%</td> </tr> </tbody> </table>			Subject passing criteria	Passing threshold	Percentage of the final grade	Lecture assessment based on a written exam.	51.0%	30.0%	Laboratory class assessment: team project and its presentation.	51.0%	30.0%	Assessment of auditorium classes: written test.	51.0%	40.0%
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Example issues/ example questions/ tasks being completed															
Work placement	Not applicable														

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