

## DESCRIPTION OF THE COURSE OF STUDY

<b>Course code</b>		
<b>Name of the course in</b>	Polish	<b>Analiza statystyczna danych</b>
	English	<b>Statistical data analysis</b>

### 1. LOCATION OF THE COURSE OF STUDY WITHIN THE SYSTEM OF STUDIES

<b>1.1. Field of study</b>	physics
<b>1.2. Mode of study</b>	Full-time
<b>1.3. Level of study</b>	3 <sup>rd</sup> degree
<b>1.4. Profile of study</b>	General academic
<b>1.5. Person/s preparing the course description</b>	Prof. dr hab. Francesco Giacosa
<b>1.6. Contact</b>	<a href="mailto:fgiacosa@ujk.edu.pl">fgiacosa@ujk.edu.pl</a>

### 2. GENERAL CHARACTERISTICS OF THE COURSE OF STUDY

<b>2.1. Language of instruction</b>	English
<b>2.2. Prerequisites</b>	Basics of algebra and mathematical analysis

### 3. DETAILED CHARACTERISTICS OF THE COURSE OF STUDY

<b>3.1. Form of classes</b>	Lecture	
<b>3.2. Place of classes</b>	Courses in the UJK teaching rooms of the Faculty of Exact and Natural Science	
<b>3.3. Form of assessment</b>	Credit with grade	
<b>3.4. Teaching methods</b>	Lectures, problem solving (numerical and analytical)	
<b>3.5. Bibliography</b>	<b>Required reading</b>	John R. Taylor, An Introduction to Error Analysis: The Study of Uncertainties in Physical Measurements, ISBN-13: 978-0935702750
	<b>Further reading</b>	Probability and statistics, in mathematical tools of the Particle Data Group, <a href="http://pdg.lbl.gov/2015">http://pdg.lbl.gov/2015</a> Hans Bandemer, Mathematics of Uncertainty, ISBN 978-3-540-31228-4

### 4. OBJECTIVES, SYLLABUS CONTENT AND INTENDED LEARNING OUTCOMES

<b>4.1. Course objectives (including form of classes)</b>
<p><b>Knowledge (lectures and laboratories)</b> C1. Knowledge of the fundamentals of statistical methods: fits, calculation of the parameter errors and determination of the quality of fits.</p> <p><b>Abilities (laboratories and project)</b> C2. Understanding the mathematical tools related to statistics C3. Developing of the skills to solve exercises.</p>

<b>4.2. Detailed syllabus (including form of classes)</b>
<b>Lectures:</b> 1. Recall of error propagation and error analysis. 2. Distributions: Gaussian, binomial, Poisson. 3. Statistical and systematic errors. 4. Errors and significant digits. 5. Fit: determination of the parameters, statistical tests.

<b>4.3. Education outcomes in the discipline</b>		
<b>Code</b>	<b>A student, who passed the course</b>	<b>Relation to learning outcomes</b>
within the scope of <b>KNOWLEDGE:</b>		
W01	has extended knowledge of the latest scientific achievements, including theoretical foundations, general issues and selected specific issues appropriate to the scientific discipline covering scientific issues that are the subject of the doctoral dissertation	P8U_W P8S_WG
W02	has extensive knowledge of scientific research methodology, including statistical analysis	P8U_W P8S_WG
within the scope of <b>ABILITIES:</b>		
U01	is able to define the purpose and subject of research, formulate research hypotheses in the field of discipline covering scientific issues that are the subject of a doctoral dissertation	P8U_U P8S_UW
within the scope of <b>SOCIAL COMPETENCE:</b>		
K01	can justify considerable knowledge in solving cognitive and practical problems	P8U_U P8S_KK

<b>4.4. Methods of assessment of the intended learning outcomes</b>																						
<b>Teaching outcomes (code)</b>		<b>Method of assessment (+/-)</b>																				
		<b>Oral answer</b>			<b>Project</b>			<b>Self-study</b>			<b>Group work</b>			<b>Exam</b>								
		<i>Form of classes</i>			<i>Form of classes</i>			<i>Form of classes</i>			<i>Form of classes</i>			<i>Form of classes</i>			<i>Form of classes</i>			<i>Form of classes</i>		
		<i>L</i>	<i>C</i>	<i>P</i>	<i>L</i>	<i>C</i>	<i>P</i>	<i>L</i>	<i>C</i>	<i>P</i>	<i>L</i>	<i>C</i>	<i>P</i>	<i>L</i>	<i>C</i>	<i>P</i>	<i>L</i>	<i>C</i>	<i>P</i>	<i>L</i>	<i>C</i>	<i>P</i>
W01														X								
U01														X								
U02														X								

<b>4.5. Criteria of assessment of the intended learning outcomes</b>		
<b>Form of classes</b>	<b>Grade</b>	<b>Criterion of assessment</b>
<b>lecture (L)</b>	<b>3</b>	at least 50% and not more than 60% of the total number of available points
	<b>3,5</b>	more than 60% and not more than 70% of the total number of available points
	<b>4</b>	more than 70% and not more than 80% of the total number of available points
	<b>4,5</b>	more than 80% and not more than 90% of the total number of available points
	<b>5</b>	more than 90% of the total number of available points
<b>classes (C)</b>	<b>3</b>	at least 50% and not more than 60% of the total number of available points
	<b>3,5</b>	more than 60% and not more than 70% of the total number of available points
	<b>4</b>	more than 70% and not more than 80% of the total number of available points
	<b>4,5</b>	more than 80% and not more than 90% of the total number of available points
	<b>5</b>	more than 90% of the total number of available points
<b>project (P)</b>	<b>3</b>	at least 50% and not more than 60% of the total number of available points
	<b>3,5</b>	more than 60% and not more than 70% of the total number of available points
	<b>4</b>	more than 70% and not more than 80% of the total number of available points
	<b>4,5</b>	more than 80% and not more than 90% of the total number of available points
	<b>5</b>	more than 90% of the total number of available points

### 5. BALANCE OF ECTS CREDITS – STUDENT’S WORK INPUT

Category	Student's workload	
	Full-time studies	Extramural studies
<b>NUMBER OF HOURS WITH THE DIRECT PARTICIPATION OF THE TEACHER /CONTACT HOURS/</b>	<b>10</b>	
<i>Participation in lectures</i>	10	
<i>Participation in laboratories/project</i>		
<i>Preparation for the exam</i>		
<i>Others</i>		
<b>INDEPENDENT WORK OF THE STUDENT/NON-CONTACT HOURS/</b>	<b>5</b>	
<i>Preparation for the lecture</i>	5	
<i>Preparation for the laboratories</i>		
<i>Preparation for the exam</i>		
<i>Gathering materials for the project</i>		
<i>Preparation of multimedia presentation</i>		
<i>Others*</i>		
<b>TOTAL NUMBER OF HOURS</b>	<b>15</b>	
ECTS credits for the course of study	<b>1</b>	

**Accepted for execution** (date and signatures of the teachers running the course in the given academic year)

.....