

DESCRIPTION OF THE COURSE OF STUDY

Course code	0541.6.MAT1.C.AM4	
Name of the course in	Polish	Analiza matematyczna IV
	English	Mathematical Analysis IV

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

1.1. Field of study	mathematics
1.2. Mode of study	full-time studies
1.3. Level of study	Undergraduate (Bachelor)
1.4. Profile of study*	general academic profile of studies
1.5. Person/s preparing the course description	dr Maciej Rzeszut
1.6. Contact	maciej.rzeszut@ujk.edu.pl

2. GENERAL CHARACTERISTICS OF THE COURSE OF STUDY

2.1. Language of instruction	Polish and English
2.2. Prerequisites*	Mathematical Analysis III

3. DETAILED CHARACTERISTICS OF THE COURSE OF STUDY

3.1. Form of classes	lectures and classes	
3.2. Place of classes	classes in the UJK teaching room	
3.3. Form of assessment	Exam (lectures), graded credit (classes)	
3.4. Teaching methods	Lecture - a lecture admitting student participation Exercise sessions - group discussion, problem solving	
3.5. Bibliography	Required reading	H. Amann & J. Escher, Analysis III, Springer 2001
	Further reading	W. Rudin, Principles of Mathematical Analysis, McGraw Hill 1953

4. OBJECTIVES, SYLLABUS CONTENT AND INTENDED LEARNING OUTCOMES

4.1. Course objectives (<i>including form of classes</i>)
Lecture C1 - introduction to many-variable integral calculus.
Exercises C1 - integral calculus in examples. C2 - applications to geometry, mechanics and physics.
4.2. Detailed syllabus (<i>including form of classes</i>)
Lectures (including e-learning)
1. Double and triple integral
2. Fubini Theorem
3. Change of variables formula
4. Calculating areas and volumes using integration
5. Line and area integrals (ordinary and directed)
6. Green, Gauss-Ostrogradski and Stokes Theorems
Classes (including e-learning)
Same as above, but in the form of concrete computational examples.
1. Double and triple integral
2. Fubini Theorem
3. Change of variables formula
4. Calculating areas and volumes using integration
5. Line and area integrals (ordinary and directed)
6. Green, Gauss-Ostrogradski and Stokes Theorems

4.3 Intended learning outcomes

Code	A student, who passed the course	Relation to learning outcomes
within the scope of KNOWLEDGE:		
W01	defines basic notions of multivariate integral calculus and explains connections between them	MAT1A_W02 MAT1A_W04 MAT1A_W10 MAT1A_W14

within the scope of ABILITIES:		
U01	calculates integrals: multiple, line, area (ordinary and directed)	MAT1A_U06 MAT1A_U08
U02	describes applications of integral calculus to calculating volumes and areas and to selected topics in physics, chemistry, technology and economy	MAT1A_U06
within the scope of SOCIAL COMPETENCE:		
K01	poses questions meant to deepen their understanding of the subject	MAT1A_K02

4.4. Methods of assessment of the intended learning outcomes																					
Teaching outcomes (code)	Method of assessment (+/-)																				
	Exam, oral and written			Test*			Project*			Effort in class*			Self-study*			Group work*			Others* e.g. standardized test used in e-learning		
	Form of classes			Form of classes			Form of classes			Form of classes			Form of classes			Form of classes					
	L	C	...	L	C	...	L	C	...	L	C	...	L	C	...	L	C	...	L	C	...
W01	+				+					+											
U01	+				+					+											
U02	+				+					+											
K01										+											

*delete as appropriate

4.5. Criteria of assessment of the intended learning outcomes		
Form of classes	Grade	Criterion of assessment
lecture (L) (including e-learning)	3	at least 50% and no more than 60% of the total number of points possible
	3,5	more than 60% and no more than 70% of the total number of points possible
	4	more than 70% and no more than 80% of the total number of points possible
	4,5	more than 80% and no more than 90% of the total number of points possible
	5	more than 90% of the total number of points possible
classes (C)* (including e-learning)	3	at least 50% and no more than 60% of the total number of points possible
	3,5	more than 60% and no more than 70% of the total number of points possible
	4	more than 70% and no more than 80% of the total number of points possible
	4,5	more than 80% and no more than 90% of the total number of points possible
	5	more than 90% of the total number of points possible

5. BALANCE OF ECTS CREDITS – STUDENT'S WORK INPUT

Category	Student's workload	
	Full-time studies	Extramural studies
NUMBER OF HOURS WITH THE DIRECT PARTICIPATION OF THE TEACHER /CONTACT HOURS/	65	
Participation in lectures*	30	
Participation in classes, seminars, laboratories*	30	
Preparation in the exam/ final test*	2/3	
INDEPENDENT WORK OF THE STUDENT/NON-CONTACT HOURS/	35	
Preparation for the lecture	10	
Preparation for the classes	10	
Preparation for the exam/test	8/7	
TOTAL NUMBER OF HOURS	100	
ECTS credits for the course of study	4	

*delete as appropriate

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

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