

Program		Type of studies (cycle)	Third cycle		
		Name of the program	SEE Doctoral Studies in Mathematical Science		
Course					
Course title		Analytic Number Theory II			
Course code	Semester	Course status	ECTS credits	Contact hours	
	III		10	30	
Teaching staff	Teacher	Prof. Dr. Muharem Avdispahić			
	Other staff	Doc. Dr. Dženan Gušić			
Course goals	<p>Number theory has always exhibited a unique feature that some appealing and easily stated problems tend to resist the attempts for solution over very long periods of time. It has influenced and has been influenced by developments in many mathematical disciplines. Several breakthroughs that took place during last decades on one hand and unprecedented range of applications on the other, have significantly enlarged the interested mathematical community. Depending on participant interests and their mathematical background the course will focus on the appropriate area of current research in the abundance that indicates selected literature.</p>				
Course content/topics					
<ul style="list-style-type: none"> • Three types of L-functions • Analytic properties of L functions • Trace formulas and explicit formulas • Ruelle and Selberg zeta functions • Prime geodesic theorem • Zeta functions and rate of growth of subgroups 					
LITERATURE		Grading			
<p>[1] J. Bernstein, S. Gelbart et al., <i>An Introduction to the Langlands Program</i>, Birkhäuser 2003</p> <p>[2] Yu. I. Manin and A. A. Panchishkin, <i>Introduction to Modern Number Theory, 2nd ed.</i>, Springer 2005</p> <p>[3] H. L. Montgomery and R. C. Vaughan, <i>Multiplicative Number Theory I: Classical Theory</i>, Cambridge University Press 2006</p> <p>[4] C. Moreno, <i>Advanced Analytic Number Theory: L-Functions</i>, American Mathematical Society 2007</p> <p>[5] M. du Sautoy and L. Woodward, <i>Zeta functions of groups and rings</i>, Springer 2007</p>			Criterion	Points	Cut-off points
		1.	Written assignment	20	11
		2.	Project	40	22
		3.	Final exam	40	22
		Total		100	55