

Program	Level	Third cycle		
	Name of the program	SEE Doctoral Studies in Mathematical Science		
<b>COURSE</b>				
Course title	<b>Analytic number theory II</b>			
Course code	Semester	Course status	ECTS	Contact hours
PMAT 685	II	Elective course	10	30
Lecturer	<b>Prof. Dr. Dženan Gušić</b>			
Course Goals	<p>Number theory is always characterized by the fact that some problems, whose formulations are easily understood by mathematicians, over a very long period resist intensive efforts aimed at finding their solutions. In that process, number theory significantly influenced and influences the development of many mathematical disciplines, on the one hand, and is enriched by their influence on the other side. Several epoch-making achievements during the last decades, as well as an unexpected large area of applications, have multiplied the interest of mathematicians in this area of research. Depending on the interests, tendencies and mathematical maturity of the participants, the course will focus on an appropriate area of current research, within the abundance to which the selected literature refers.</p>			
<b>COURSE CONTENT</b>				
<ul style="list-style-type: none"> <li>- Three approaches to L-functions,</li> <li>- Analytic properties of L-functions,</li> <li>- Trace formulas and explicit formulas,</li> <li>- Zeta functions of Ruelle and Selberg,</li> <li>- Prime geodesic theorems,</li> <li>- Zeta functions and growth rate of subgroups.</li> </ul>				
<b>LITERATURE</b>				
<p>[1] Dž. Gušić, Generalizacije Teorema o Prostim Brojevima, Prirodno-matematički fakultet Univerziteta u Sarajevu, Sarajevo, 2021.</p> <p>[2] U. Bunke and M. Olbrich, Selberg Zeta and Theta Functions, A Differential Operator Approach, Akademie Verlag, Berlin, 1995.</p> <p>[3] E. Ingham, The Distribution of Prime Numbers, Cambridge Mathematical Library, New York-London, 1964.</p> <p>[4] E. C. Titchmarsh, The theory of the Riemann zeta- function, Clarendon Press, Oxford, 1986.</p>				
<b>GRADING</b>			<b>REMARKS</b>	
Criterion	Maximum points	Minimum points		
Midterm exams	100	55		
Final exam	100	55		
T o t a l	100	55		