



Corso di Laurea in
**SCIENZA E TECNOLOGIA
 DEI MATERIALI**

Triennale – L30

General information	
Academic subject	Mathematical Analysis I
Degree course	SCIENZA E TECNOLOGIA DEI MATERIALI L-30
Academic Year	2021-2022
European Credit Transfer and Accumulation System (ECTS)	8
Language	Italian
Academic calendar (starting and ending date)	
Attendance	

Professor/ Lecturer	
Name and Surname	Fabio Deelan Cunden
E-mail	Fabio.cunden@uniba.it
Telephone	805442275
Department and address	
Virtual headquarters	
Tutoring (time and day)	Monday 3-5 pm (by appointment)

Syllabus	
Learning Objectives	<i>To learn the basics of mathematical analysis and calculus: real numbers, limits, real sequences, real functions, series, integration.</i>
Course prerequisites	<i>Analytic geometry, elementary logic and set theory, algebra of polynomials.</i>
Contents	<i>Real numbers, elementary functions, limits, continuity, differentiation. Differential calculus, approximation theory. Integrals and series.</i>
Books and bibliography	<p><i>Raccomended textbooks:</i> <i>H. J. Keisler, Elementary Calculus, disponibile online</i> https://people.math.wisc.edu/~keisler/keislercalc-3-17-21.pdf <i>H. J. Keisler, Elementi di analisi matematica, Piccin-Nuova Libreria</i> <i>P. Marcellini & C. Sbordone –Elementi di Analisi Matematica I– Liguori Editore, Napoli.</i> <i>M. Bramanti Esercitazioni di Analisi Matematica Esculapio</i></p>
Additional materials	

Work schedule			
Total	Lectures	Hands on (Laboratory, working groups, seminars, field trips)	Out-of-class study hours/ Self-study hours
Hours			
200	40	45	115
ECTS			
8	5	3	
Teaching strategy	<i>Lectures using blackboards and/or slides. Tutorials.</i>		
Expected learning outcomes			
Knowledge and understanding on:	<i>Be able to follow and understand a lecture in mathematics. Be able to take notes and use appropriately textbooks of mathematical analysis and calculus. Be able to understand the solution of mathematical exercises and problems.</i>		



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Applying knowledge and understanding on:	<i>Application and revision of the theoretical aspects of mathematical analysis.</i>
Soft skills	<p><i>Making informed judgments and choices</i> <i>Be able to compare different proofs and calculations.</i></p> <p><i>Communicating knowledge and understanding</i> <i>Be able to define mathematical objects, and to state and prove theorems.</i></p> <p><i>Capacities to continue learning</i> <i>To develop an autonomous study method, adequate to learn mathematical analysis and calculus.</i></p>
Assessment and feedback	
Methods of assessment	<i>Midterms (30%) and final written exam (70%). The lecturer might ask for a supplemental oral exam.</i>
Evaluation criteria	<ul style="list-style-type: none"> • <i>Knowledge and understanding</i> <i>Be able to manipulate real numbers and real functions. Be able to compute limits, derivatives, integrals, series.</i> • <i>Autonomy of judgment</i> <i>Be able to understand mathematical proofs and to choose the mathematical tools to solve scientific problems.</i> • <i>Communicating knowledge and understanding</i> <i>Be able to communicate mathematics during the exam(s).</i>
Criteria for assessment and attribution of the final mark	
Additional information	