

**COURSE OF STUDY** *Master degree: Food Science and Technology (L26)*

**ACADEMIC YEAR** 2023-2024

**ACADEMIC SUBJECT** *Mathematics*

General information			
Year of the course	First		
Academic calendar (starting and ending date)	First semester (09/10/2023 - 26/01/2024)		
Credits (CFU/ETCS):	6		
SSD	Mat/05 Mathematical Analysis		
Language	Italian		
Mode of attendance	No Compulsory		
Professor/ Lecturer			
Name and Surname	Sabina Milella		
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Telephone			
Department and address	DIP. DISSPA – Università degli Studi di Bari		
Virtual room	Microsoft Teams		
Office Hours (and modalities: e.g., by appointment, on line, etc.)	By appointment to be requested by e-mail		
Work schedule			
Hours			
Total	Lectures	Hands-on (laboratory, workshops, working groups, seminars, field trips)	Out-of-class study hours/ Self-study hours
150	32	28	90
CFU/ETCS			
6	4	2	
Learning Objectives			
To provide the mathematical tools concerning elementary functions, and differential calculus.			
Course prerequisites			
Basics notions of algebra and calculus			

<b>Teaching strategy</b>	<p>Lectures and exercise workshops.</p> <p>During the course, exercise worksheets will be proposed. The solution to such exercises will be checked during appropriate workshops where the active participation of students will be stimulated.</p> <p>The diary of lessons will be published and regularly updated on the course webpage as a support to self- study.</p>
<b>Expected learning outcomes in terms of</b>	The expected learning outcomes, in terms of both knowledge and skills, are provided in Annex A of the Academic Regulations of the Degree in Food Science and Technology (expressed through the European Descriptors of the qualification)
<b>Knowledge and understanding on:</b>	Understanding the concept of function and the basics of differential calculus for real functions.
<b>Applying knowledge and understanding on:</b>	Solving simple applied problems, constructing or getting information from graphs of functions, understanding and applying the fundamental concepts of differential calculus.
<b>Soft skills</b>	<p><a href="#">Making informed judgements and choices</a> Choosing and using the most appropriate analytical techniques to solve specific problems in food processes.</p> <p><a href="#">Communicating knowledge and understanding</a> Ability to describe the qualitative and quantitative trends of specific quantities in the food process.</p> <p><a href="#">Capacities to continue learning</a> Ability to deepen the knowledge of specific mathematical functions useful in describing or analyzing food production processes.</p>
<b>Syllabus</b>	
<b>Content knowledge</b>	<p>Basic notions of set theory .</p> <p>Numerical sets.</p> <p>Equations and Inequalities.</p> <p>Elements of analytic geometry.</p> <p>Real variable functions.</p> <p>Limits and continuity.</p> <p>Differential calculus.</p>
<b>Texts and readings</b>	<p>P. MARCELLINI - C. SBORDONE, Analisi Matematica uno, Editore Liguori, Napoli.</p> <p>P. MARCELLINI - C. SBORDONE, Esercitazioni di Matematica, vol. I (parte I<sup>^</sup> e II<sup>^</sup>), Editore Liguori, Napoli.</p>
<b>Notes, additional materials</b>	Exercise sheets available on the course webpage.
<b>Repository</b>	

Assessment	
Assessment methods	<p>The exam consists of both written exercises and oral dissertation on the topics developed during the theoretical and theoretical-practical lectures in the classroom, as reported in the Academic Regulations for the Bachelor Degree in Food Science and Technology (article 9) and in the study plan (Annex A). Students attending at the lectures may have a middle-term preliminary exam, consisting of a written test, relative to the first part of the program, which will concur to the final evaluation and will be considered valid for a year. The evaluation of the preparation of the student occurs on the basis of established criteria, as detailed in Annex A of the Academic Regulations for the Bachelor Degree in Food Science and Technology. Non-Italian students may be examined in English language, according to the aforesaid procedures.</p>
Assessment criteria	<p><b>Knowledge and understanding</b> To be able to describe the qualitative behavior of mathematical functions. To know and to be able to apply basics of differential calculus for real functions.</p> <p><b>Applying knowledge and understanding</b> To be able to adequately apply basic formulas of calculus. Making informed judgements and choices To be able to apply the most appropriate analytical techniques to solve specific problems in food processes.</p> <p><b>Communicating knowledge and understanding</b> To be able to describe the qualitative and quantitative trends of specific quantities in the food process.</p> <p><b>Capacities to continue learning</b> To be able to deepen the knowledge of specific mathematical functions useful in describing or analyzing food production processes.</p>
Final exam and grading criteria	<p>Knowledge and understanding, ability to apply knowledge, autonomy of judgment, communication skills.</p>
Further information	
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