



ACCADEMIC YEAR: 2018-19

COURSE: Mathematical Analysis 2

TYPE OF EDUCATIONAL ACTIVITY: (Basic, Characterizing, Affine, Free choice, Other) Characterizing

TEACHER: Anna Avallone

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phone: 0971205878

mobile (optional):

Language: Italian

ECTS: (lessons and tutorials/practice) 12

n. of hours: (lessons and tutorials/practice) 120

Campus: Potenza

Dept./School: DiMIE

Program: Mathematics

Semester: Annuale

#### EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES:

The main objective of the course is to provide to students the basic study of functions of several variables, in particular the basic knowledge of continuity, differentiability, minimum and maximum, multiple integrals.

The main skills that students must acquire are the mastery of basic topics related to functions of several variables, the ability to make rigorous proofs, the capacity to clearly expose the acquired knowledge and the ability to independently apply the knowledge acquired for the resolution of specific problems.

#### PRE-REQUIREMENTS:

Students must have acquired all the knowledge provided by the course of Mathematical Analysis I

#### SYLLABUS:

1. Continuity, differentiability and differentiability: 35 hours, including 22 hours of theory and 13 hours of practice
2. Extremes: 15 hours, including 9 hours of theory and 6 hours of practice
3. Integrals :18 hours, including 10 hours of theory and 8 hours of practice
4. Series and sequences of functions: 17 hours, including 10 hours of theory and 7 hours of practice
5. Curvilinear integrals and differential forms: 20 hours, including 13 hours of theory and 7 hours of practice
6. Overview of differential equations: 15 hours, including 6 hours of theory and 9 hours of practice



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**TEACHING METHODS:**

The course includes 120 hours of theoretical lessons and classroom tutorials.

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**EVALUATION METHODS:**

Written examination and oral examination. The aim of the exam is to test the level of achievement of the previously mentioned educational goals.

The written test consists in solving 4 problems related to topics covered in the course with the objective of evaluating the study and understanding of students and the ability to apply topics of study for solving concrete problems. To each exercise is given a score of 7 or 8 points, depending on the level of difficulty. The student is admitted to the oral test if it reaches a minimum score of 18. The time allowed for the written exam is 3 hours. Students can not refer to texts, pc or smartphone, but it is permissible to use the calculator. In the oral examination it is assessed, in addition to knowledge of the topics covered, the ability to connect different of topics addressed during the course.

The oral test is passed if the student reaches a minimum score of 18.

The final grade is the average between the written test and the oral test.

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**TEXTBOOKS AND ON-LINE EDUCATIONAL MATERIAL:**

The reference textbook is Fusco-Marcellini-Sbordone. Mathematical Analysis 2. Liguori Editore.

Teaching material can be found on the teacher's website

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**INTERACTION WITH STUDENTS:**

Students can request clarification from the teacher on the following days:

Tuesday 16-18

Wednesday 16-18

In addition, for special needs, students can make an appointment in different days or times by writing to [anna.avallone@unibas.it](mailto:anna.avallone@unibas.it)

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**EXAMINATION SESSIONS (FORECAST)<sup>1</sup>**

11 giugno 2019

9 luglio 2019

10 settembre 2019

11 dicembre 2019

4 febbraio 2020

8 aprile 2020

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SEMINARS BY EXTERNAL EXPERTS YES  NO

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**FURTHER INFORMATION:**

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<sup>1</sup> Subject to possible changes: check the web site of the Teacher or the Department/School for updates.