COURSE DATA

DATA SUBJECT

Code: 34148
Name: Basic mathematics
Cycle: Undergraduate Studies
ECTS Credits: 6
Academic year: 2025-26

STUDY (S)

Degree	Center	Acad. year	Period
1107 - Degree in Mathematics	Facultat de Ciències Matemàtiques	1	First quarter

SUBJECT-MATTER

Degree	Subject-matter	Character
1107 - Degree in Mathematics	Mathematics	BASIC

COORDINATION

SANUS VITORIA LUCIA

MORETO QUINTANA ALEXANDER

TENT JORQUES JOAN FRANCESC

SUMMARY

The subject "Basic Mathematics" is conceived as an essential subject that serves as a basis for the subsequent subjects of the degree, providing an adequate training for understanding of the mathematical language and the most fundamental concepts.

Some of the contents of this subject are well known for high school students, although they might not have seen them with the rigor that we require. No previous knowledge is needed at this subject.

PREVIOUS KNOWLEDGE

RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

There are no specified enrollment restrictions with other subjects of the curriculum.

OTHER REQUIREMENTS

None.

COMPETENCES / LEARNING OUTCOMES

1107 - Degree in Mathematics

Ability to work in teams.

Capacity for analysis and synthesis.

Capacity of abstraction and modeling.

Expressing mathematically in a rigorous and clear manner.

Knowing the time and the historical context in which occurred the great contributions of women and men in the development of mathematics.

Learn autonomously.

Possess and understand the mathematical knowledge.

Reason logically and identify errors in the procedures.

DESCRIPTION OF CONTENTS

1. Statements and proof in Mathematics.

2. Elementary set theory. Mappings.

3. Numerability. Denumerable sets.

4. Equivalence relations and order relations.

5. Definitions and examples of basic algebraic structures: Groups, rings and fiels.

6. Integers and divisibility. Algorithms.

7. Polynomials. Factoring polynomials.

8. Complex numbers.

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Theory	22,50
Other activities	7,50
Classroom practices	30,00
Total hours	**60,00**

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	0,00
Individual or group project	0,00
Independent study and work	7,50
Preparation of lessons	52,50
Preparation for assessment activities	30,00
Resolution of case studies	0,00
Total hours	**90,00**

TEACHING METHODOLOGY

In this subject, it will be used some teaching and learning methodologies in order to introduce students into the mathematical reasoning. The theoretical part takes place in master classes, where the professor will introduce progressively the topics and the mathematical method.

In each topic, in addition to the theoretical knowledge, it will be included numerous examples, as well as the resolution of standard problems related to it. In addition, at the end of each topic it will be provided some exercises in order to be solved by the students.

In the practical part and seminars, work will be done in groups of students.

EVALUATION

Evaluation of learning the knowledge and skills acquired by students will be continuous assessment, and it will consist of the following:

1. 10% for participation in the seminars/tutorials.

2. 15% for evidence of continuous assessment.

3. 75% for the final exam, with theoretical and practical contents, in which it will be necessary to obtain at least a rating of 4 over 10 to pass the subject.

To pass you must obtain a minimum grade of 4 out of 10 on the final exam.

Rating in the Second Call.

There will only be offered a final exam and the criteria to obtain the final grade will be the same as in the First Call. (I.e. with the grades of paragraphs 1 and 2 obtained during the course.) The participation in the seminars/tutorials and the continuous assessment will not be recoverable in the Second Call.

REFERENCES

- Eccles,P.J. An introduction to mathematical reasoning, Cambridge Univ. Pess,1970
- Gerstein,L.J. Mathematical structures and proofs, John and Barlett Publ. Springer, 1996
- Halmos, P. Naive set theory, Princeton, Van Nostrand Company Inc, 1960
- Hungerford, T. H. Algebra, Springer-Verlag, 1974
- Liebeck M. A Concise introduction to Pure Mathematics, Taylor&Francis Group, 2016
- Navarro, G. Un curso de números, Publicacions Universitat de València, 2007
- Navarro, G. Un curso de Álgebra, 2a ed., Publicacions Universitat de València, 2016
- Stillwell, J. Numbers and Geometry, Springer, 1998