

63222 - Disciplinary Content of Mathematics

Syllabus Information

Academic year: 2023/24

Subject: 63222 - Disciplinary Content of Mathematics

Faculty / School: 107 - Facultad de Educación

Degree: 584 - Master's Degree in Teaching Compulsory Secondary Education

590 - University Master's Degree in Teaching, specializing in Geography and History

591 - Master's Degree in Teaching, specializing in Philosophy

592 - Master's Degree in Teaching, specializing in Business and Economics

593 - Master's Degree in Teaching, specializing in Mathematics

594 - Master's Degree in Teaching, specializing in Technology and Computer Science

595 - Master's Degree in Teaching, specializing in Biology and Geology

596 - Master's Degree in Teaching, specialization in Physics and Chemistry

597 - Master's Degree in Teaching, specializing in Spanish Language and Literature. Latin and Greek

598 - Master's Degree in Teaching, specialization in Foreign Language: French

599 - Master's Degree in Foreign Language Teaching: English

600 - University Master's Degree in Teaching, specializing in Music and Dance

601 - University Master's Degree in Teaching, specializing in Industrial and Construction Processes

602 - University Master's Degree in Teaching, specializing in Administration, Marketing, Tourism, Services to the

Community and FOL

603 - Master's Degree in Teaching, specializing in Sanitary, Chemical, Environmental and Health Processes Agri-

food

ECTS: 6.0

Year: 1

Semester: Second semester

Subject type: Optional

Module:

1. General information

A global vision of the development of Mathematics from its beginnings to the present day is given, through the exposition of problems that have originated the study of different branches, with special emphasis on geometric aspects, such as the origin of perspective and its contribution to the birth and development of geometry projective. The theoretical aspects of the subject are complemented with practical exercises and the introduction to current technological resources, mainly GeoGebra due to its growing use in mathematics teaching.

Objectives:

-To complement the disciplinary training in Mathematics, with special emphasis on the application of Mathematics to some aspects related to everyday life, as well as the development of some theories of Mathematics up to their present state.

- Value and adequately apply the potential of some specific computer tools in the learning process

GSD: 4,5,8,9,10, 17

2. Learning results

1. Describe and analyse the basic contents of Mathematics and apply them in a problem solving context.

2. Value the importance of Mathematics from a phenomenological, cultural and epistemological point of view.

3. Analyse and prioritize the different Mathematics contents according to their formative value.

The learning results will help to know and apply mathematical concepts from a more global and historical perspective, to identify the underlying mathematics in different situations and contexts of everyday life, to apply mathematical ideas adapting to the level and characteristics of the audience, and to use computer resources and tools for teaching mathematics.

Competencies: CG04, CB6, CB7, CB8, CB9, CB10

3. Syllabus

Part 1. Overview of the development of Mathematics from its beginnings to the present day: problems that originated the different branches, ways of solving them, evolution and current presentation.

Part 2. Synthetic geometry with special attention to the classical Greek school and the development of projective geometry: Euclidean axiomatization, the extended plane, duality and conics.

Part 3. Reflection and analysis of the main concepts underlying the contents related to the mathematics curriculum in Secondary Education.

Part 4. Mathematical software laboratory: application in practical aspects related to the contents of parts 1, 2 and 3. The practices are carried out in parallel to the development of these contents.

4. Academic activities

Theory classes in the form of lectures.

Participative problem classes.

Practices in a computer classroom.

Individual tutoring:

Study and personal work of the student:

Training support through documents and links on the subject page in the university's ADD, (Anillo digital Docente) moodle.unizar.es (access restricted to registered students with the PIN and password provided by the University)

5. Assessment system

(a) Individual dossier linked to classroom practices and exercises (40% of the overall grade). The active participation in the classroom sessions and the delivery of work and exercises proposed in class will be valued.

(b) directed work (60%): Elaboration of a directed work on the mathematics underlying some situation related to everyday life and/or related to the Secondary Education curriculum.

The following will be valued: expository clarity and rigor in the writing, adequacy of the topic to the curriculum, oral presentation and defence

The final grade of the subject will be the sum of the grades obtained in the evaluation tests (a) and (b), provided that at least 1.5 points out of 4 possible in (a) and 2.5 points out of 6 possible in (b) have been obtained. If these minimum grades are not exceeded, the final grade will be the minimum between 4 and the sum of (a) and (b).

Based on the UZ Statutes, a single test may be requested to pass the subject with a weighting of 100%. This test will consist of four exercises that will correspond to the program of the subject, each of which will be worth 2.5 points.

The evaluation criteria of the first call are applied for the second. The student can keep, if they wishes, the grades obtained in one or more of the evaluation activities carried out in the first call.

-Fifth and sixth call. For the evaluation of students in this situation, the evaluation criteria and requirements indicated above are applied depending on whether it is the first or second call of the school year.

Finally, it must be taken into account that the Regulations of the Rules of Coexistence of the University of Zaragoza will apply to irregularities committed in the assessment tests by means of academic fraud, as well as the application of article 30 of the Regulations of the Rules of Evaluation of Learning in relation to irregular practices other than academic fraud.