

Mathematics at School

Code: 102057
ECTS Credits: 6

Degree	Type	Year	Semester
2500798 Primary Education	OT	4	2

Contact

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Use of Languages

Principal working language: catalan (cat)
Some groups entirely in English: No
Some groups entirely in Catalan: Yes
Some groups entirely in Spanish: No

Prerequisites

We recommend the accomplishment of the courses "Mathematics for Teachers", "Mathematics Learning and Cur

Objectives and Contextualisation

This subject is focused on the development of professional skills in didactic and mathematical analysis, based on the analysis of real situations in the primary school, which allows students to reflect on the management and dynamization of innovative mathematical activities. , interdisciplinary and diversified in their future teaching work.

It is taught when students have already taken the three compulsory subjects in the subject "Teaching and Learning Mathematics". From the subject Mathematics in the school it is wanted to affect the capacity to relate and to integrate the knowledge that have been acquired in the previous subjects of mathematics and didactics of the mathematics necessary for the teaching of the mathematics in the stage of primary.

The subject puts the student in a position to adapt to a work context, taking care of the students, the team of teachers, the curriculum and the school.

The specific objectives will be:

. Determine the elements that allow to analyze the learning of mathematics in a school.

- . Organize a bank of didactic and formative resources related to the learning of mathematics that complement the teaching task in a center.
- . Design intervention tools in the center processes around the learning of mathematics.
- . Establish the necessary elements to create a positive dynamic towards mathematics in the educational team of a school.

Competences

- Analyse, reason and communicate mathematical proposals.
- Critically analyse personal work and use resources for professional development.
- Design and regulate learning spaces in contexts of diversity that take into account gender equality, equity and respect for human rights and observe the values of public education.
- Design, plan and evaluate education and learning processes, both individually and in collaboration with other teachers and professionals at the centre.
- Incorporate information and communications technology to learn, communicate and share in educational contexts.
- Know how primary schools are organised and about the diversity of actions involved in running them.
- Know the curricular areas of Primary Education, the interdisciplinary relation between them, the evaluation criteria and the body of didactic knowledge regarding the respective procedures of education and learning.
- Maintain a critical and autonomous relationship with respect to knowledge, values and public, social and private institutions.
- Reflect on classroom experiences in order to innovate and improve teaching work. Acquire skills and habits for autonomous and cooperative learning and promote it among pupils.
- Stimulate and value effort, constancy and personal discipline in pupils.
- Take account of social, economic and environmental impacts when operating within one's own area of knowledge.
- Value the relationship between mathematics and sciences as one of the pillars of scientific thought.

Learning Outcomes

1. Adapt teaching and learning programs and activities to pupil diversity.
2. Analyse the goals of mathematics education at different stages of primary education.
3. Analyse the indicators of sustainability of academic and professional activities in the areas of knowledge, integrating social, economic and environmental dimensions.
4. Assessing the value of, and applying professional cases relating to, the teaching of mathematics.
5. Design innovative teaching sequences from contexts that provide recreational mathematics.
6. Design teaching and learning sequences that connect different mathematical topics.
7. Identify the social, economic and environmental implications of academic and professional activities within one's own area of knowledge.
8. Identifying, designing and communicating concepts, facts and phenomena of different sciences capable of being modelled using mathematical concepts.
9. Propose viable projects and actions to boost social, economic and environmental benefits.
10. Propose ways to evaluate projects and actions for improving sustainability.
11. Understand and apply indicators for the evaluation and design of proposals for mathematics education from a perspective of gender equity and equality.
12. Understand and critically evaluate educational software and related web-based resources in the gaming world that are suitable for teaching and learning mathematics.
13. Understand recreational didactic situations involving mathematics, both inside and outside the classroom, to promote independent learning and cooperative work.

Content

1. Mathematics and the educational center
 - 1.1. Attitude, involvement and commitment of teachers

- 1.2. Style and project of the center
- 2. Mathematics and the curriculum of the center
 - 2.1. Transversality of the area.
 - 2.2. Verticality of the area
 - 2.3. The transition between cycles and stages
- 3. Mathematics and internal resources
 - 3.1. The manipulative materials
 - 3.2. The spaces
 - 3.3. Textbooks
 - 3.4. Specific programs
- 4. Mathematics and external resources
 - 4.1. Mathematics activities and contests
 - 4.2. Complementary activities
 - 4.2.1. Activities related to other areas
 - 4.2.2. Cycle, stage, school activities ...
 - 4.2.3. Visits to exhibitions, museums ...
- 5. Mathematics and teacher training
 - 5.1. Professional development
 - 5.1.1. Training sessions
 - 5.1.2. Resources on the network (resource banks, private pages ...)
 - 5.1.3. Associations of mathematics teachers
 - 5.1.4. Recommended journals in the field
 - 5.2. Dynamization of mathematical activities among classmates
 - 5.2.1. Workshops, exhibitions, monographs, talks ...

Methodology

Group discussions and activities will take place which will then be presented in public.

There will be an exit-visit to be validated with a face-to-face session. Admission to the museum is free. In case of not being able to attend, an alternative task will be considered based on a reading.

Note: 15 minutes of a class will be reserved, within the calendar established by the center / degree, for the completion by the students of the evaluation surveys of the teacher's performance and the evaluation of the subject.

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Teamworks	16	0.64	4
Student exhibitions	12	0.48	4

Teacher exhibitions	13	0.52	
Visit museum	4	0.16	2
Type: Supervised			
Comment articles	15	0.6	4
Individual tutoring	13	0.52	
Type: Autonomous			
Didactic sequency	45	1.8	5
Preparation of oral presentations	17	0.68	
Writing texts and experiences	15	0.6	

Assessment

For each of the content topics, practical activities will be carried out (learning applications, discussions of readings or experiences and programming of tasks). These activities will be evaluated, self-evaluated and / or co-evaluated so that the student knows the degree of achievement of the learning and the margin for improvement. These activities may be individual and in groups and must be delivered within the established deadlines.

Each student will make two oral presentations (with visual or material support) in front of the rest of the group where they will explain, in each case, an activity to choose from among those carried out. The first presentation will be held at the end of topic 3 and the second, at the end of topic 5.

Recovery: Those students who have a mark higher than 3.5 in oral presentations but do not reach 5 will be able to take a recovery test. The recovery test will be done two weeks after the second exposure.

To be able to choose to make a weighted average with the rest of the course notes, the student must have obtained a minimum of 5 in each of the oral presentations or in the recovery test. If this minimum has not been reached, the final grade for the course will be a 3.

Evaluation considerations:

The final grade for the course is the weighted average of the marks of the five subjects and the mark obtained in the oral presentations.

The weighting of each of the five topics is 10%. There will be no recovery of the evaluation of practical activities.

Oral presentations weigh 50% of the grade for the subject.

All evaluation activities are mandatory. Undelivered activities count with a score of zero.

In each topic, the weight of group activities does not exceed 40%.

The grade for a group assignment is not necessarily the individual grade for each of the students in this group.

The copying or plagiarism of material in any evaluation activity implies a zero in the subject.

The subject is face-to-face. 20% incidents are contemplated.

NOTE: To pass this course, it is necessary for the student to show good general communicative competence, both orally and in writing, and a good command of Catalan. In all activities (individual and group), therefore, linguistic correctness, writing and formal aspects of presentation will be taken into account. An activity can be returned (not evaluated) or suspended if it is found that it does not meet these requirements. According to the UAB regulations, plagiarism or copying of any work will be penalized with a 0 as a grade for this work, losing the possibility of recovering it, whether it is an individual or group work (in this case, all group members will have a 0).

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Activities for children (individual and group)	30	0	0	1, 12, 13, 6, 8
Discussions (individual)	10	0	0	2, 13, 5
Oral expositions (individual)	50	0	0	5, 4
Practical learning applications (individual and group)	10	0	0	3, 11, 12, 7, 10, 9, 4

Bibliography

The four books of reference will be:

Alsina, À., Planas, N. (2008). Matemática inclusiva: Propuestas para una educación matemática accesible. Narcea.

Planas, N. (2008). Pensar i comunicar matemàtiques. Fundació Propedagògic.

Planas, N. (2012). Teoría, crítica y práctica de la educación matemática. Graó.

Planas, N. (Ed.) (2015). Avances y realidades de la educación matemática. Graó

Throughout the course, other brief reading will be recommended.

Software

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