

**Mathematical Games and Activities in early
childhood education**

Code: 101985
ECTS Credits: 6

2025/2026

| Degree | Type | Year |
|---------------------------|------|------|
| Early Childhood Education | OT | 4 |

Contact

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Teaching groups languages

You can view this information at the [end](#) of this document.

Prerequisites

It is highly recommended that students have taken and apply knowledge from the following subjects:

- Mathematics in the Early Childhood Education curriculum (3rd year).
- Mathematical practice in the Early Childhood Education classroom (4th year).

Objectives and Contextualisation

The course "Play and Mathematical Activity in Early Childhood Education" is an elective course for fourth-year students that focuses on a specific didactics.

It is taught when the students have already completed all the basic training and is taken following the two mandatory subjects: "Mathematics in the Early Childhood Education Curriculum" (3rd year) and "Mathematical Practice in the Early Childhood Education Classroom" (4th year). In this course, the aim is for students to deepen their knowledge of mathematics didactics in early childhood education through the design and implementation of workshops and mathematical spaces.

This course is conducted in collaboration with the school "L'Escoleta de Bellaterra." For this reason, the workshops and mathematical spaces designed by the students will be directly implemented with the preschool children of this center. In this sense, the students of the Early Childhood Education Degree who take the course will become mentors for two groups of children from l'Escoleta and will conduct thorough monitoring of one or two children for each degree student. This subject has a completely practical nature and is applied to the school reality of a specific center. Approximately half of the class hours are conducted at the Escoleta de Bellaterra in direct contact with children.

Objectives:

- 1.- Design workshops and mathematical spaces for children in the 3-6 age range.
- 2.- Implement workshops and mathematical spaces with children in the 3-6 age group.
- 3.- Document the mathematical progress of one or two students thoroughly.

Competences

- Consider classroom practical work to innovate and improve teaching.
- Demonstrate knowledge and understanding of the aims, curricular contents and criteria of evaluation of Infant Education
- Design and regulate learning spaces in diverse contexts which attend to the particular issues of pupils regarding gender equality, equity and respect for human rights.
- Promote and facilitate early infant learning, from a global and integrative perspective of different cognitive, emotional, psychomotor and developmental dimensions.
- Promoting experiences of initiation into information and communication technologies.
- Take account of social, economic and environmental impacts when operating within one's own area of knowledge.
- Understand mathematics as sociocultural knowledge.
- Understand teaching strategies to develop numerical representations and spatial geometric and logical development notions,.
- Understand the scientific, mathematical and technological bases of the curriculum at this stage as well as theories on the acquisition and development of the corresponding learning.
- Work in teams and with teams (in the same field or interdisciplinary).

Learning Outcomes

1. Apply key elements of the mathematics curriculum to a personal design.
2. Be able to analyse a learning situation, assess its relevance and make innovative alternative proposals.
3. Be able to design personal teaching situations based on the curriculum and theoretical guidelines and examples shown in the subject for the teaching and learning of mathematics in infant education.
4. Be able to draw on best mathematical practices to create new and personal ones.
5. Be able to identify mathematical aspects in everyday life and be able to potentiate them and share them with children to facilitate their learning.
6. Be able to include attention to diversity, gender equality, equity and respect for human rights in one's own design.
7. Be able to organize both personal and group work to design and implement a joint project.
8. Know about didactic situations and experiences that are created with a global and inclusive perspective of different cognitive, emotional, psychomotor and volitional dimensions.
9. Propose viable projects and actions to boost social, economic and environmental benefits.
10. Understand learning and teaching theory as governed by the mathematics curriculum.
11. Understand the diversity of educational situations designed around the mathematics curriculum.
12. Understand the diversity of interdisciplinary teaching situations for teaching and learning of mathematics in kindergarten.
13. Using technologies in the design of didactic proposals for teaching and learning mathematics in nursery school or the initial cycle of primary school.

Content

This course covers the following content developed in a single teaching unit:

1. Difference between play and playful activity.
2. Mathematical perspective on the evolution of play in early childhood education.
3. Mathematical learning through different types of games.
4. Design, creation, implementation, and evaluation of workshops and mathematical spaces based on games.
5. Review of mathematical concepts from different content blocks and various ages in the 3-6 stage.
6. Use and interpretation of the blank page as a tool for mathematical representation.

7. Use of school documentation as a tool for communication and assessment.

Activities and Methodology

| Title | Hours | ECTS | Learning Outcomes |
|---|-------|------|-------------------|
| Type: Directed | | | |
| Large group | 45 | 1.8 | 11 |
| Type: Supervised | | | |
| Analysis of materials and classroom experiences | 30 | 1.2 | |
| Type: Autonomous | | | |
| Autonomous activity | 75 | 3 | 11 |

The methodology of this subject is based on its applicability in a concrete reality.

You will dive into the didactics of mathematics starting from a practical context. In this sense, you will become the mathematical godparents of children in Early Childhood Education at l'Escoleta de Bellaterra. During the entire course, you will have one or two children under your care (who will become your godchildren) and you will accompany them for five months.

The main purpose of the course is to design game-based mathematical workshops and spaces that you will share with your classmates and carry out with your godchildren. You will document the design and implementation of each of the workshops and spaces created, collecting evidence of learning and assessment of your godchildren.

Finally, you will draft a comprehensive documentation of the entire process that will be shared with the classroom tutors and the families of the children. Due to the nature of the subject and its practicality, full attendance and involvement are required. You must act with the utmost responsibility and dedication, as every two weeks we will attend l'Escoleta and be in charge of 40 children.

The course follows a cyclical methodology that repeats approximately every 2 weeks. In each cycle, each of the 5 work teams (composed of approximately 6 godparents) will carry out the following tasks:

- Week 1: Design of a workshop or a proposal for mathematical spaces that address the specific school reality of the godchildren. Implementation with the classmates to improve the proposal.
- Week 2: Implementation of the workshop or the improved proposal of mathematical spaces with the godchildren and their tutors. Collection of learning evidence and evaluation of the session.

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.

Assessment

Continuous Assessment Activities

| Title | Weighting | Hours | ECTS | Learning Outcomes |
|-------|-----------|-------|------|-------------------|
| | | | | |

| | | | | |
|--|-----|---|---|---|
| Classroom diary | 40% | 0 | 0 | 3, 5, 6, 11, 12, 10, 8, 13 |
| Design and implementation of workshops and/or spaces | 20% | 0 | 0 | 1, 2, 3, 5, 6, 4, 7, 11, 12, 10, 8, 9, 13 |
| Folder for families | 15% | 0 | 0 | 1, 2, 3, 5, 6, 4, 7, 12, 8, 9, 13 |
| Student evaluation report | 5% | 0 | 0 | 1, 2, 5, 6, 4, 7, 8 |
| Video summary of the process | 20% | 0 | 0 | 2, 5, 7, 11, 10, 13 |

The CONTINUOUS assessment will be carried out throughout the entire course through the activities shown below. As can be seen, the evaluation of the course consists of 60% corresponding to individual assessment tasks and 40% corresponding to group assessment tasks.

| Assessment tasks | Percentage of the final mark | Hours of dedication | Description |
|---------------------------|------------------------------|--|---|
| Classroom diary | 40% (individually) | 4 hours in-person + Independent work | <p>The students must create a descriptive classroom diary (accompanied by photographs) that shows the teaching-learning process of the godchild. This diary should include the description and analysis of the 6 workshops conducted with the children, providing evidence of the godchild's learning as well as a reflection on the process carried out.</p> <p>The teacher will publish the deadline for submitting the folder when the program is released, as the dates depend on the school's scheduling (15%).</p> <p>This activity is recoverable. The day of the recovery will be 03/07/2026.</p> |
| Folder for families | 15% (individually) | 2 hours in-person + Independent work | <p>Students will prepare a folder for the families that includes a presentation of the godfather or godmother as well as a detailed description of the workshops and spaces conducted, with an objective interpretation of the teaching-learning process of the child. This folder will be delivered to the families at the end of the school year.</p> <p>The teacher will publish the deadline for submitting the folder when the program is released, as the dates depend on the school's scheduling (15%).</p> <p>This activity is recoverable. The day of the recovery will be 19/06/2026.</p> |
| Student evaluation report | 5% (individually) | 1 hour in-person + Independent work | The students will prepare a small qualitative evaluation report of their godchild, highlighting the mathematical aspects that he/she has been demonstrating during the workshops. This report will be submitted to the tutor at the end of the course. |

| | | | |
|--|-------------------|---|---|
| | | | <p>The teacher will publish the deadline for submitting the dossier when the program is released, as the dates depend on the school's scheduling (5%).</p> <p>This activity is not recoverable.</p> |
| Design and implementation of workshops and/or spaces | 20% (in group) | 5 hours in-person + Independent work | <p>Each of the 5 working groups will design a workshop proposal or a proposal for game-based mathematical spaces. Each group must present their collective proposal to their classmates and implement it with them in order to gather suggestions for improvement.</p> <p>The teacher will publish the deadline for submitting the design and implementation of the workshops and/or spaces when the program is released, as the dates depend on the school's temporal organization (20%).</p> <p>This activity is not recoverable.</p> |
| Video summary of the process | 20% (in group) | 1 hour in-person + Independent work | <p>Each of the 5 workgroups will create a short 5-minute video that showcases a compilation of learning evidence carried out by the godchild. The group must present the video to the rest of their peers, and a 360 evaluation will be conducted (self-assessment, peer-assessment, and evaluation by the teacher).</p> <p>The teacher will publish the deadline for submitting the presentation of the video when the program is released, as the dates depend on the school's scheduling (20%).</p> <p>This activity is not recoverable.</p> |

RETAKE:

Students who do not obtain a grade of 5 or higher in the classroom diary may take a retake exam that will account for 40% of the course grade, replacing the grade from the classroom diary. The maximum grade for the retake exam will always be 5. This retake exam will be held on the 03/07/2026.

Students who do not obtain a grade of 5 or higher in the folder for families may take a retake exam that will account for 15% of the course grade, replacing the grade for the folder for families submitted. The maximum grade for the retake will always be 5. This retake exam will be held on 19/06/2026.

CALCULATION OF THE SUBJECT MARK:

The final course mark is the weighted average of the evaluation activities highlighted above with the following conditions:

- To be eligible for a weighted average with the rest of the course marks, the student must have obtained a minimum of 5 in the classroom diary and the folder for families or in the retake tests. If the student does not obtain a minimum of 5, they do not pass the course and the final mark for the subject will be a 3.
- Submitting evaluation activities after the deadline results in a 0 for those evaluations.

- In order for students to be assessed, they must submit at least 75% of the assessable assignments (in addition to attending and passing the classroom diary and the folder for families with a grade of 5, or failing that, the resit exams). If students do not submit at least 75% of the assessable assignments, they will be considered "unassessed".
- The evaluation activities will not be recoverable under any circumstances, except for the classroom diary and the folder for families.
- Despite having obtained a grade higher than 5 in the classroom diary and the folder for families or, if applicable, in the retakes, if the weighted average of the grades does not reach 5, the student will not pass the course and the final mark on their transcript will be a 3.
- Attendance to class is mandatory: the student must attend all classes to be evaluated (a maximum of 20% absences is allowed).

The student, at the same time, must take into account the following regulatory considerations regarding evaluation:

- Regarding the use of Artificial Intelligence, the course will follow Model 2 - Restricted Use: For this course, the use of Artificial Intelligence (AI) technologies is allowed exclusively for support tasks such as bibliographic or information searches and the correction of texts or translations. The student must clearly identify which parts were generated with this technology, specify the tools used, and include a critical reflection on how these have influenced the process and the final outcome of the activity. The lack of transparency in the use of AI in this evaluable activity will be considered a breach of academic honesty and may result in a partial or total penalty on the activity's grade, or more severe sanctions in cases of gravity.
- All evaluation activities are mandatory for all students.
- The mark for a group submission is not necessarily the individual mark for each student in that group.
- Students who are not physically present in the seminar session where the implementation of the workshop/designed spaces is presented or in the presentation of the summary video of the process, will receive a maximum grade of 5 for that activity.

To pass this course, it is necessary for the student to demonstrate good general communicative competence, both oral and written, and a good command of the vehicular language specified in the course syllabus. In all activities (individual and group), linguistic accuracy, writing, and formal presentation aspects will therefore be taken into account.

Students must be able to express themselves fluently and correctly and demonstrate a high degree of comprehension of academic texts. The student must demonstrate a competence equivalent to level 2 (equivalent to C2). Before submitting learning evidence, it is necessary to verify that the sources, notes, direct quotes, and bibliographic references have been correctly written according to APA 7 guidelines.

Total or partial plagiarism of any evaluation activity and/or copying during an evaluation test is grounds for failing the course. Copying or plagiarizing any type of evaluation activity constitutes a crime, penalized with a 0 as the grade for the subject, losing the possibility of recovering it, whether it is an individual or group work (in this case, all group members will receive a 0).

The return and grading of evaluation activities will be done within a maximum of 15 business days after submission.

SINGLE ASSESSMENT and SYNTHESIS ASSESSMENT

THERE WILL BE NO SINGLE ASSESSMENT OR SYNTHESIS ASSESSMENT for this subject due to its predominantly practical nature. It is recommended that students repeating the course ensure their temporal availability to attend it regularly, if necessary, avoiding enrolling in other courses from different programs that are held on the same day in the same time slot.

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Software

There is no need.

Groups and Languages

Please note that this information is provisional until 30 November 2025. You can check it through this [link](#). To consult the language you will need to enter the CODE of the subject.

| Name | Group | Language | Semester | Turn |
|-------------|-------|----------|-----------------|---------------|
| (TE) Theory | 1 | Catalan | second semester | morning-mixed |