

## Experimentation in early childhood education

Code: 102004  
ECTS Credits: 6

**2025/2026**

Degree	Type	Year
Early Childhood Education	OT	4

### Contact

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### Teachers

Elia Tena Gallego

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### Teaching groups languages

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

### Prerequisites

Prior to entering this subject, it is recommended that students have passed two previous subjects titled Natural, social and cultural environment education: teaching and learning from natural and social sciences in primary education I and II.

### Objectives and Contextualisation

Contextualization and global aim

*Experimentation in Early Childhood Education* is an elective subject offered within the fourth year of the Early Childhood Education Graduate Degree. At this point students have already taken the subjects whose content deals with the didactics of music, science, mathematics, social sciences and art. The global aim of this subject is to deepen systematically in the process of experimentation in early years education (0-6) engaged in STEAM educational contexts. There is a specific focus on students' competence in designing, implementing and evaluating educational proposals fostering experimentation within early years classrooms. These educational proposals aim at promoting children development, acknowledging cultural diversity, and fostering the development of caring values and attitudes towards the environment inspired by SDG. The classroom dynamics will promote small group work to integrate students' diversity, and will construct a non-competitive classroom climate to facilitate collective responsibility.

Objectives:

1. To reflect on expert voices and perspectives in relation to young children experimentation.

2. To know the background of scientific, mathematical, technological and artistic experimentation and to recognize their value in the development of children's knowledge on the natural and social phenomena.
3. To identify the different dimensions of experimentation (living beings, materials and movement) and their relationship with other curricular areas such as narrative, artwork, music, psychomotricity, nutrition and mathematics.
4. To gain first hand experience in experimenting with different objects and contexts from everyday life taking into account the values of caring for the environment inspired by SDG.
5. To know and analyze educational proposals on experimentation in early years education within STEAM educational contexts.
6. To design, implement and evaluate STEAM teaching sequences that prepare future teachers to promote experimentation in early years education

## Competences

- Acquire habits and skills for cooperative and autonomous learning and promote the same in pupils.
- Consider classroom practical work to innovate and improve teaching.
- Critically analyse personal work and use resources for professional development.
- Demonstrate knowledge and understanding of the aims, curricular contents and criteria of evaluation of Infant Education
- Develop educational proposals in relation to the interaction between science, technology, society and sustainable development.
- Maintain a respectful attitude for the environment (natural, social and cultural) to promote values, behaviours and practices that address gender equality, equity and respect for human rights.
- Make changes to methods and processes in the area of knowledge in order to provide innovative responses to society's needs and demands.
- Promote interest and respect for the natural, social and cultural environment through appropriate educational projects.
- Promoting experiences of initiation into information and communication technologies.
- Properly express oneself orally and in writing and master the use of different expression techniques.
- Systematically observe learning and coexistence contexts and learn to reflect on them.
- Understand scientific methodology and promote scientific thought and experimentation.
- 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.

## Learning Outcomes

1. Be able to analyse an educational situation focused on experimentation and make a diagnosis of its relevance based on the theoretical framework developed in the subject.
2. Be able to build instruments for observation of and reflection about experimental work in infant education.
3. Be able to develop proposals for experimentation in infant education to introduce autonomy development and cooperative work related goals.
4. Be able to develop teaching proposals for experimental work in the nursery and kindergarten that are of scientific, social, technological and environmental relevance.
5. Be able to identify scientifically, socially, technically and environmentally relevant educational situations in which to develop experimentation in infant education.
6. Be able to make oral presentations and with new technologies that include designs and reflections regarding experimental work in infant education.
7. Be able to participate in and design experimental activities in a socially and environmentally responsible manner.

8. Be able to select areas of experimentation aimed at developing values and attitudes that respect the environment in infant education.
9. Be able to self-assess and co-evaluate educational work, interventions and proposals regarding experimentation in infant education.
10. Be able to work responsibly both individually and in groups.
11. Be familiar with the infant education curriculum to understand the importance and place of experimentation during this educational stage.
12. Be familiar with the scientific method of experimentation and the main scientific models to give meaning to experimentation into such phenomena.
13. Propose new methods or well-founded alternative solutions.
14. Understand learning resources and experiences using new information and communication technologies in experimental work in infant education.
15. Understand theory on the development of the capacity for experimentation in children of these ages.

## Content

1. Foundations of experimentation in STEAM context and its role in the development of children's natural, social and technological knowledge
2. Characterization of experimentation dimensions in STEAM contexts in early year schools: living beings, materials, and movement.
3. Analysis and design of educational proposals that promote experimentation in early years education taking into account the theoretical, curricular, social and environmental referents.
4. Documentation as a reflective process that promote quality teaching of experimentation in early years education

## Activities and Methodology

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Coaching	22	0.88	
Face to face activity in whole group	45	1.8	
Formative assessment	8	0.32	
Type: Autonomous			
Autonomous work	75	3	

The teaching methodology is developed around three pillars:

- (a) offering students the opportunity to develop wide direct experience with objects, materials, and natural phenomena which are powerful contexts to work on experimentation in early years education;
- (b) offering students the opportunity to design, implement, and evaluate activities and teaching sequences on experimentation in early years education through the analysis of teaching materials, classroom videos, school visits, and leading experimentation workshops; and

(c) offering students the opportunity to reflect on the educational value of experimentation in early years education through participating in group readings and conversation with their classmates, early years teachers and other professionals from education.

The types of activities designed include lectures presenting different points of view, field trips to explore the local environment around the UAB, work in the didactic laboratory to deepen direct observation and experimentation with materials and phenomena, and small group work focused on reflection around readings and teaching proposals. A compulsory whole-group visit will be made to a nearby Environmental Education Centre, to be determined, during regular class hours. Field trip activities are mandatory and may involve travel expenses to be covered by the student (Barcelona and/or surrounding areas). The activity may incur a cost of up to €15.

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
Final paper done in small group	25%	0	0	1, 9, 2, 10, 15, 11, 12
Group work on the design and implementation of an experimentation workshop for early years teachers	25%	0	0	7, 2, 3, 4, 6, 8, 10, 14, 13
Individual portfolio of the course work	50%	0	0	1, 6, 5, 15, 11, 12

### Formative Assessment

Formative assessment will be carried out throughout the teaching period, through activities combining individual and group work. To pass the module, students must obtain a minimum mark of five (out of ten) in each of the defined assessment activities. Continuous assessment is structured around the following activities and their corresponding outputs:

a) Group design and delivery of an experimental workshop (25% of the final mark): This assessment activity includes two group tutorials with the module lecturers to prepare the workshop, the development of a written workshop script, and the delivery of the workshop to the whole class.

- The script must be submitted 4 days before the workshop is held. Feedback from lecturers will be given within seven days after the workshop has been delivered.

b) Final group project (25% of the final mark): This group project involves the theoretical foundation, development and reflection on the experimental workshop. It will consist of a written report following the guidelines provided in the module outline. Particular emphasis will be placed on meaningful integration of module content, reflective capacity, creativity in the use of different formats, inclusion of class readings, critical

reflection on the workshop and references to other sources such as *Graó 0-6*, *Perspectiva Escolar*, or *Infància*. The project must also include an individual reflection on some of the challenges the student foresees as a future teacher and how they plan to overcome them.

- The final project must be submitted two weeks after the end of each block. Feedback will be provided no later than 20 days after the last project submission from the entire class.

c) Individual portfolio (50% of the final mark): This includes: (1) A reflective theoretical introduction on experimentation, integrating the work completed during the module. (2) A selection of activities completed during the module, such as readings, experimentation tables, peer assessments, self-assessment, documentation of the experimental activity, and others. (3) Final conclusions evaluating the learning achieved in the module, following the guidelines provided in the module outline. Assessment will pay particular attention to students' ability to justify their evaluations and the appropriate integration of module content and readings.

- The portfolio must be submitted on 15 and 16 June 2025 for morning and afternoon groups respectively. Feedback will be returned no later than 20 days after the last submission from the whole class.

### Single Assessment

Students opting for the single assessment must submit the same activities as for continuous assessment and defend them in an individual interview with the module lecturers on 15 and 16 June 2025 for morning and afternoon groups respectively. The assessment breakdown is as follows:

- a) Design and delivery of an individual workshop (35% of the final mark)
- b) Individual portfolio (50% of the final mark)
- c) Oral defence and response to lecturers' questions (15% of the final mark)

Students under the single assessment scheme are subject to the same system for grade revision and reassessment as in the formative assessment.

Requirements and criteria for passing either formative or single assessment:

Students must attend at least 80% of the module sessions. All practical sessions (seminars and field trips) are compulsory. Failure to meet this requirement results in a "not assessed" grade. Justification for absences explains the absence but does not excuse it.

- Students must demonstrate competent general communication skills, both oral and written, and a good command of the Catalan language. All activities will be assessed on linguistic accuracy, spelling, grammar, and formal presentation. Failure to meet these standards may result in an activity being returned as "not assessed" or marked as failed.
- Students must display attitudes compatible with the teaching profession, including active listening, respect, participation, cooperation, empathy, kindness, punctuality, non-judgement, ability to argue constructively, and appropriate mobile phone use. In group work, poor attitude by one or more members may lower their individual mark. Group members may receive different marks.
- Assessment activities must meet the formal requirements of academic work. This includes correct referencing, footnotes, quotations, and bibliographic references in accordance with APA 7 guidelines.
- Students must comply with transparency criteria regarding AI use\*.
- Students must not violate the UAB's regulations on copying or plagiarism.\*\*

Reassessment criteria:

To qualify for reassessment, students must:

- Have been assessed in at least two out of three assessment activities.
- Have met all other assessment criteria.

- Have complied with transparency standards regarding AI use\*.
- Not have committed plagiarism or copying.\*\*

Reassessment consists of completing an additional independent task, revising previously submitted activities, or sitting a final test.

Reassessment dates for both continuous and single assessment:

- Monday 29 June 2026, 10:30-13:00
- Tuesday 30 June 2026, 18:30-21:00

The maximum mark achievable for a reassessed activity is 5 out of 10, and this mark will be averaged with the rest of the student's assessment marks.

In both the case of Continuous Assessment and Single Assessment, students will be considered not assessable if they have not met the attendance requirement or have not provided sufficient assessment evidence. In such cases, they will not be eligible for the resit process.

This module does not include a synthesis exam.

\* Use of Artificial Intelligence (AI): AI tools are allowed in all activities, but restricted to support tasks such as literature or information searches, proofreading, or translation of articles in languages other than the one used for teaching. When using AI, students must clearly identify the parts generated, state the tools used, and include a critical reflection on how AI has influenced the process and final product. Lack of transparency will be considered academic dishonesty and may lead to partial or full penalties, or more serious sanctions.

\*\* Plagiarism and copying: According to UAB regulations, copying or plagiarism in any assessment task is considered academic misconduct and will be penalised with a mark of 0 for the entire module, with no possibility of reassessment, whether the work is individual or group-based (in the latter case, all group members will receive a 0). If a student is caught copying or using unauthorised material during an in-class individual task, it will also be marked 0 with no reassessment. A task is considered "copied" when it reproduces all or a significant part of another student's work. It is considered "plagiarised" when part of another author's text is presented as the student's own without citing the source, regardless of whether the source is printed or digital.

## Bibliography

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Cantó Doménech, J., Martín Porta, A., Ortiz Hernández, M.L.; Viana Sánchez, J. (2023) Pañales científicos: una situación de aprendizaje contextualizada en el aula de 2 años para trabajar la ciencia. *Revista de didáctica de las ciencias experimentales y sociales*, 45, pp. 17-34. <https://ojs.uv.es/index.php/dces/article/view/27372/pdf>

Couso, D., & Grimalt, C. (2020). STEAM per a la primera infància. *Guix d'Infantil*, 103, 9-13.

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Xarxa Territorial d'Educació Infantil de Catalunya (2009). *Documentar: Una mirada nova*. Barcelona: Associació de Mestres Rosa Sensat.

## Curriculum

Nou currículum: <https://projectes.xtec.cat/nou-curriculum/educacio-infantil/>

## Webs

Lab 0-6: <https://blocs.umanresa-cat/educaciofub/category/lab0-6/>

Centre de Documentació i Experimentació en Ciències i Tecnologia (Dept. d'Ensenyament): <http://www.xtec.cat/web/innovacio/cesire/>

STEMarium (Comunitat STEM a Catalunya): <https://stemarium.gestioeducativa.gencat.cat/>

El safareig: educació infantil i natura ( AAMM Rosa Sensat ): <https://www.elsafareig.org/>

Xarxa d'Escoles per la Sostenibilitat de Catalunya (XESC): <https://escolesxesc.cat/>

Associació de Mestres Rosa Sensat: <https://www.rosasensat.org/>

Senderi-Educació en Valors: <https://www.senderi.org/>

Xtec-Xarxa Telemàtica Educativa de Catalunya: <https://www.xtec.es>

Tresor de recursos: Recursos per a una avaluació formadora i un aprenentatge gratificant. <https://tresorderecursos.com/>

## Revistes d'educació infantil:

*Graó 0-6*. Revista de l'editorial Graó.

*Infància*. Revista de l'Associació de Mestres Rosa Sensat

*Infància-Europa*. Revista de l'Associació de Mestres Rosa Sensat

## Software

No special digital tool is necessary

## 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
(PLAB) Practical laboratories	101	Catalan	second semester	morning-mixed



(PLAB) Practical laboratories	201	Catalan	second semester	afternoon
(TE) Theory	1	Catalan	second semester	morning-mixed
(TE) Theory	2	Catalan	second semester	afternoon