



1. General information

Course: TEACHING NUMBERS AND STOCHASTICS

Type: CORE COURSE

Degree: 392 - BACHELOR'S DEGREE IN PRIMARY EDUCATION (AB)

Center: 101 - FACULTY OF EDUCATION IN ALBACETE

Year: 1

Main language: English

Use of additional
languages:

Web site:

Code: 46304

ECTS credits: 9

Academic year: 2021-22

Group(s): 17 18 19 10 13 15 12 16 11

Duration: AN

Second language: Spanish

English Friendly: N

Bilingual: Y

Lecturer: ANTONIO BUENO AROCA - Group(s): 19 13 16				
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Lecturer: JOSÉ ANTONIO NAVARRO CHUMILLAS - Group(s): 17 19 15 16				
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2. Pre-Requisites

Students must master the concepts, skills, algorithms and the basic strategies of Mathematics in Primary and Secondary School.

3. Justification in the curriculum, relation to other subjects and to the profession

This course unit contributes to the initial training of educators in mathematics, which is integrated in the required training to be a teacher in Primary Education. In this context, a teacher must be able to answer the question about what, how and when to teach and assess in multiple subjects. Therefore, a future teacher in Primary Education must be qualified to evaluate and choose from a huge range of diverse pedagogical options and must acquire competences associated with the field of curricular design.

This course unit is placed in module 1.2.3 "Teaching and learning of Mathematics", within module 1.2. "Teaching and field requirements" and 1. "General training".

4. Degree competences achieved in this course

Course competences

Code	Description
1.2.2.II.01	Acquire basic mathematical competences (numeric, calculation, geometric, spatial representation, estimation and measurement, data organization and interpretation, etc.).
1.2.2.II.02	Know the Mathematics curriculum in Primary schools.
1.2.2.II.03	Analyse, figure out and communicate mathematical proposals.
1.2.2.II.04	Pose and solve problems related to daily life.
1.2.2.II.05	Value the relationship between mathematics and science as one of the foundations of scientific reasoning.
1.2.2.II.06	Develop and assess contents from the curriculum by using appropriate teaching resources and promote the corresponding competences in the students.

CB02	Apply their knowledge to their job or vocation in a professional manner and show that they have the competences to construct and justify arguments and solve problems within their subject area.
CG10	Reflect on classroom practice to allow innovation and improvement of the teaching practice. Acquire habits and skills for autonomous and cooperative learning and promote it among pupils.
CG11	Know and apply information and communication technology in the classroom. Select audiovisual information which contributes to learning, civic training and cultural richness.
CT03	Correct oral and written communication.
CT04	Moral obligation and professional ethics.

5. Objectives or Learning Outcomes

Course learning outcomes

Description

Know how to use the basic elements of the history of mathematics to promote learning on specific occasions.

Know how to use teaching materials and other resources to encourage learning.

Cope with diversity in the classroom.

Show the ability to use software in school mathematics that promotes learning.

Have knowledge of the curricular aspects related both to mathematics and to the implementation of teaching sequences in the (real or simulated) Primary classroom.

Acquire evaluation skills both about mathematical knowledge and Primary school pupils' learning processes.

Have knowledge of the new learning theories and the mathematical reasoning models and be able to design and assess activities according to those models.

Acquire mathematical knowledge broad enough to allow students to work confidently as teachers.

Understand research about Primary school pupils' difficulties, misconceptions, concept images, etc. and be able to reflect on how these results may have influence on teaching.

6. Units / Contents

Unit 1: Developing early number concepts and number sense.

Unit 2: Number systems.

Unit 3: Operations with whole numbers. Addition & Subtraction. Multiplication & Division. Divisibility.

Unit 4: Rational numbers. Proportional reasoning.

Unit 5: Data analysis. Data representation.

Unit 6: Probability.

7. Activities, Units/Modules and Methodology

Training Activity	Methodology	Related Competences (only degrees before RD 822/2021)	ECTS	Hours	As	Com	Description
Class Attendance (theory) [ON-SITE]	Lectures	1.2.2.II.01 1.2.2.II.02 1.2.2.II.03 1.2.2.II.04 1.2.2.II.05 1.2.2.II.06 CB02 CG10 CG11 CT03 CT04	1.76	44	N		- Expositive lectures.
Class Attendance (practical) [ON-SITE]	Problem solving and exercises	1.2.2.II.01 1.2.2.II.02 1.2.2.II.03 1.2.2.II.04 1.2.2.II.05 1.2.2.II.06 CB02 CG10 CG11 CT03 CT04	1.2	30	Y	N	Seminars aimed at solving problems.
Writing of reports or projects [OFF-SITE]	Cooperative / Collaborative Learning	1.2.2.II.03 1.2.2.II.04 1.2.2.II.06 CB02 CG11 CT03	1	25	Y	Y	Elaborating projects in cooperative groups.
Writing of reports or projects [OFF-SITE]	Self-study	1.2.2.II.03 1.2.2.II.04 1.2.2.II.06 CB02 CG11 CT03	2.4	60	Y	Y	Solving practical activities and problems posed in the classroom.
Project or Topic Presentations [ON-SITE]	Cooperative / Collaborative Learning	CG10 CG11 CT03	0.24	6	Y	N	Attendance and participation in the oral presentation of group work.
Workshops or seminars [ON-SITE]	Cooperative / Collaborative Learning	1.2.2.II.01 1.2.2.II.02 1.2.2.II.03 1.2.2.II.04 1.2.2.II.05 1.2.2.II.06 CG11	0.24	6	Y	N	Seminars with manipulative resources.
Study and Exam Preparation [OFF-SITE]	Self-study	1.2.2.II.01 1.2.2.II.02 1.2.2.II.03 1.2.2.II.04 1.2.2.II.05 1.2.2.II.06 CB02 CG10 CG11 CT03 CT04	2	50	N		- Consulting reference materials and bibliography. Preparation for exams.
Progress test [ON-SITE]	Assessment tests	1.2.2.II.01 1.2.2.II.02 1.2.2.II.03 1.2.2.II.04 1.2.2.II.05 1.2.2.II.06 CG11 CT03	0.08	2	Y	Y	Progress test. Students who pass these tests will not need to sit the final exam.
Final test [ON-SITE]	Assessment tests	1.2.2.II.01 1.2.2.II.02 1.2.2.II.03 1.2.2.II.04 1.2.2.II.05 1.2.2.II.06 CG11 CT03	0.08	2	Y	Y	Written exam.
Total:			9	225			
Total credits of in-class work: 3.6			Total class time hours: 90				
Total credits of out of class work: 5.4			Total hours of out of class work: 135				

As: Assessable training activity

Com: Training activity of compulsory overcoming (It will be essential to overcome both continuous and non-continuous assessment).

8. Evaluation criteria and Grading System			
Evaluation System	Continuous assessment	Non-continuous evaluation*	Description
Projects	20.00%	20.00%	<p>This mark consists of:</p> <ul style="list-style-type: none"> - Oral presentation of a group work (10%). - Activities, problems, reports, etc., which may derive from seminars and/or primary-classroom based activities (10%). <p>To pass this evaluation system, the student will need a minimum grade of 4 out of 10 (40%).</p> <p>Mandatory and non-retaking evaluation system.</p>
Assessment of active participation	10.00%	10.00%	<p>Projects ((including those that might be done with other course units of the bilingual programme), tasks and practical activities in the classroom (seminars).</p> <p>Non-retaking evaluation system.</p>
Progress Tests	70.00%	70.00%	<p>Written exams are 70% of the global mark. There are two ways to pass this part of the course unit:</p> <ol style="list-style-type: none"> 1) Sitting the final exam either in the ordinary call or in the extraordinary call. 2) Sitting two progress tests that will take place during the academic year (one at the beginning of the 2nd term and another at the end of the 2nd term). Each of these tests weighs the same (35% of the global mark). <p>To pass this evaluation system, the student will need a minimum grade of 4 out of 10 (40%).</p>
Total:	100.00%	100.00%	

According to art. 4 of the UCLM Student Evaluation Regulations, it must be provided to students who cannot regularly attend face-to-face training activities the passing of the subject, having the right (art. 12.2) to be globally graded, in 2 annual calls per subject, an ordinary and an extraordinary one (evaluating 100% of the competences).

Evaluation criteria for the final exam:

Continuous assessment:

The (global) final course mark will consist of the weighted average of the three following marks (to apply this calculation it is necessary to get at least 4 out of 10 points in each part):

- Exams (70%).
- Work (10% from oral presentation and 10% from works related to seminars and/or primary-classroom based activities).
- Tasks and practical activities (handed in in the seminars (10%).

Those students who do not pass progress progress tests will be allowed to take the final exam in the ordinary call according to the official final exam schedule. To pass this evaluation system, the student will need a minimum grade of 4 out of 10 (40%).

Important remarks: For the oral group presentations, written projects, practices and exams, the quality of the language employed will be considered. In fact, for every mistake of those included in the list "mistakes to avoid" (see Moodle), the student will miss 0.2 points in the corresponding activity up to a maximum of 1.6 points (8 mistakes).

If any student is caught cheating or breaking the rules of any of the tests or projects, their mark will be 0. No marks will be considered from different academic years.

The UCLM incorporates a centralized system of academic plagiarism detection, a computer-based service, integrated into the submission area: Moodle tasks. We must act responsibly because if plagiarism is detected in a task or activity proposed, it will be punished by failing in the overall assessment of the course. Plagiarism implies work rejection.

* The verification of the fraudulent realization of an evaluation test or the breach of the instructions set for the performance of the test will result in a failure mark (with a numerical grade of 0) in said test. In the particular case of the final tests, the fail mark will be extended to the corresponding call (art. 9 of the UCLM Student Evaluation Regulations).

** If applicable, any modifications or adaptations needed in the teaching guides as a result of a change in the teaching or evaluation model derived from the evolution of the pandemic will be documented in a later addendum.

Non-continuous evaluation:

The same criteria for the continuous assessment apply.

Specifications for the resit/retake exam:

The same criteria of the ordinary examination session apply.

Specifications for the second resit / retake exam:

The same criteria of the ordinary examination session apply.

9. Assignments, course calendar and important dates	
Not related to the syllabus/contents	
Hours	hours
Writing of reports or projects [AUTÓNOMA][Cooperative / Collaborative Learning]	4
Writing of reports or projects [AUTÓNOMA][Self-study]	12

Project or Topic Presentations [PRESENCIAL][Cooperative / Collaborative Learning]	6
Study and Exam Preparation [AUTÓNOMA][Self-study]	2
Final test [PRESENCIAL][Assessment tests]	2
Unit 1 (de 6): Developing early number concepts and number sense.	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	3
Class Attendance (practical) [PRESENCIAL][Problem solving and exercises]	2
Writing of reports or projects [AUTÓNOMA][Self-study]	4
Study and Exam Preparation [AUTÓNOMA][Self-study]	4
Teaching period: Weeks 1 y 2	
Unit 2 (de 6): Number systems.	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	7
Class Attendance (practical) [PRESENCIAL][Problem solving and exercises]	4
Writing of reports or projects [AUTÓNOMA][Cooperative / Collaborative Learning]	3
Writing of reports or projects [AUTÓNOMA][Self-study]	12
Workshops or seminars [PRESENCIAL][Cooperative / Collaborative Learning]	2
Study and Exam Preparation [AUTÓNOMA][Self-study]	8
Teaching period: Weeks 3 to 6	
Unit 3 (de 6): Operations with whole numbers. Addition & Subtraction. Multiplication & Division. Divisibility.	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	9
Class Attendance (practical) [PRESENCIAL][Problem solving and exercises]	8
Writing of reports or projects [AUTÓNOMA][Cooperative / Collaborative Learning]	6
Writing of reports or projects [AUTÓNOMA][Self-study]	16
Workshops or seminars [PRESENCIAL][Cooperative / Collaborative Learning]	2
Study and Exam Preparation [AUTÓNOMA][Self-study]	10
Teaching period: Weeks 7 to 13	
Unit 4 (de 6): Rational numbers. Proportional reasoning.	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	13
Class Attendance (practical) [PRESENCIAL][Problem solving and exercises]	11
Writing of reports or projects [AUTÓNOMA][Cooperative / Collaborative Learning]	6
Writing of reports or projects [AUTÓNOMA][Self-study]	12
Workshops or seminars [PRESENCIAL][Cooperative / Collaborative Learning]	2
Study and Exam Preparation [AUTÓNOMA][Self-study]	14
Teaching period: Weeks 14 to 22	
Unit 5 (de 6): Data analysis. Data representation.	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	7
Class Attendance (practical) [PRESENCIAL][Problem solving and exercises]	3
Writing of reports or projects [AUTÓNOMA][Cooperative / Collaborative Learning]	3
Writing of reports or projects [AUTÓNOMA][Self-study]	2
Study and Exam Preparation [AUTÓNOMA][Self-study]	8
Teaching period: Weeks 23 to 25	
Unit 6 (de 6): Probability.	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	5
Class Attendance (practical) [PRESENCIAL][Problem solving and exercises]	2
Writing of reports or projects [AUTÓNOMA][Cooperative / Collaborative Learning]	3
Writing of reports or projects [AUTÓNOMA][Self-study]	2
Study and Exam Preparation [AUTÓNOMA][Self-study]	6
Teaching period: Weeks 26 to 28	
Global activity	
Activities	hours
Workshops or seminars [PRESENCIAL][Cooperative / Collaborative Learning]	6
Class Attendance (theory) [PRESENCIAL][Lectures]	44
Final test [PRESENCIAL][Assessment tests]	2
Study and Exam Preparation [AUTÓNOMA][Self-study]	52
Class Attendance (practical) [PRESENCIAL][Problem solving and exercises]	30
Writing of reports or projects [AUTÓNOMA][Cooperative / Collaborative Learning]	25
Writing of reports or projects [AUTÓNOMA][Self-study]	60
Project or Topic Presentations [PRESENCIAL][Cooperative / Collaborative Learning]	6
Total horas: 225	

10. Bibliography and Sources						
Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
Berrondo-Agrell, Marie1945-	100 enigmas matemáticos: 8-10 años	Ceac		978-84-329-1910-7	2008	

Berrondo-Agrell, Marie1945-	100 enigmas matemáticos 10-12	CEAC	9788432919114	2008
Berrondo-Agrell, Marie1945-	1005 enigmas matemáticos: 6 a 8 años	CEAC	978-84-329-2031-8	2009
Bolt, Brian	101 proyectos matemáticos	Labor	84-335-5145-0	1991
Díaz Godino, Juan	Azar y probabilidad: fundamentos didácticos y propuestas cur	Síntesis	84-7738-025-2	1996
Dickson, Linda	El aprendizaje de las matemáticas	Ministerio de Educación y CienciaLabor	84-335-5148-5	1991
Grupo Matema	"Las matemáticas en el abaco"	Nau Libres	84-7642-060-9	1986
Nortes Checa, Andrés	1500 cuestiones y ejercicios de matemáticas	Librería Gonzalez-Palencia	84-404-2223-7	1988
Puig Mosquera, Luis	680 test de matemáticas	In Fieri Ediciones	84-922436-9-4	2000
	Didáctica de la matemática en la Educación Primaria	Síntesis	978-84-7738-919-4	2008
Batanero, M. Carmen	Razonamiento combinatorio	Síntesis	84-7738-229-8	1994