

## SUBJECT TEACHING GUIDE

### M1111 - Recent and Historical Development in Mathematics and School Knowledge Master's Degree in Secondary Education Teacher Training

Academic year 2019-2020

1. IDENTIFYING DATA			
Degree	Master's Degree in Secondary Education Teacher Training		Optional. Year 1
Faculty	School of Teacher Training		
Discipline	Subject Area: Complements for Disciplinary Training Specific Module in the Speciality of Mathematics		
Course unit title and code	M1111 - Recent and Historical Development in Mathematics and School Knowledge		
Number of ECTS credits allocated	4,5	Term	Semester based (2)
Web			
Language of instruction	Spanish	English Friendly	No
		Mode of delivery	Face-to-face

Department	DPTO. MATEMATICAS, ESTADISTICA Y COMPUTACION
Name of lecturer	DANIEL SADORNIL RENEDO
E-mail	daniel.sadornil@unican.es
Office	Facultad de Ciencias. Planta: + 3. DESPACHO PROFESORES (3003D)
Other lecturers	MARIA PILAR SABARIEGO ARENAS

### 3.1 LEARNING OUTCOMES

-

### 4. OBJECTIVES

- Learn about the fundamental aspects of the History of Mathematics which are useful for the practice of teaching.
- Learn about the genesis of mathematical concepts.
- Providing bibliographic resources, from the Internet, etc, to be able of confronting new issues, to be up-to-date in the news of the subject, etc.
- Placing Mathematics between other subjects and its use in the everyday life.
- Learn about the current fields of mathematical development.

6. COURSE ORGANIZATION	
CONTENTS	
1	• Mathematical language and rigour.
2	• History as a didactics tool. Equation resolutions.
3	• A historical description of probability
4	• Figurative numbers and Pythagorean triples. Electoral Mathematics.
5	• Newton and Leibniz. The Calculus Wars.
6	• Euler 1739.
7	• Mathematicians in the II World War and the Cold War.
8	• Women and Mathematics.
9	Mathematicians in History, its influence in the classroom of mathematics.

7. ASSESSMENT METHODS AND CRITERIA				
Description	Type	Final Eval.	Reassessn	%
• Presentation of a work done by a small group of students.	Work	No	No	50,00
• Realización of diverse tasks proposed by the profesor.	Others	No	Yes	30,00
Active participation in the sessions	Others	No	Yes	20,00
TOTAL				100,00
Observations				
<p>The assessment will be done in the following way:            At the end of each point of the course it will be proposed some questions and exercises, to be done individually or in a small group, to reinforce the issues worked in the class.            In addition, there will be to do a work in a small group, which will have to be presented, about a mathematical topic that will include historic aspects. This activity will not be retrievable.</p> <p>If some student do not pass the subject doing these activities, he/she can do a wrote exam of 2 hours, about the contents and the tasks proposed.</p>				
Observations for part-time students				
<p>The evaluation procedure for part-time students who do not attend class regularly will consist of other exercises and works corresponding to the contents with extra reading that this student will have to do in order to obtain the same grade as the students attend class. Likewise, the realization of the group activities will be carried out, in this case, individually.            Those of these who come to class can benefit from the same evaluation as all students.</p>				

## 8. BIBLIOGRAPHY AND TEACHING MATERIALS

### BASIC

- S. Fernández, E. Morente, G. Basabé. El rostro humano de las matemáticas. Editorial Nivola 2008.
- J. Muñoz Santoja, Cuaderno de Actividades de el rostro humano de las Matemáticas. Centro de Profesorado de Sevilla, Consejería de Educación de la Junta de Andalucía. 2010.  
Disponible en <https://docs.google.com/file/d/0B0mAYGCuF91vQUg2Z3R5bVNMMzg/edit?pli=1>
- A. Pérez, M. Sanchez (Editores) Matemáticas para estimular el talento : actividades del proyecto ESTALMAT I, II y III. Sociedad Andaluza de Educación Matemática Thales, 2009, 2011 y 2014
- R. Moreno, Una historia de la matemáticas para jóvenes : la historia de la ecuaciones. Nivola, 2010.
- J. L. Carlavilla y G. Fernández. Historia de las matemáticas en comic. Proyecto Sur 2005
- J. A. Durán, El Legado de la Matemáticas. Ed. Consejería de Cultura (Junta de Andalucía), Universidad de Sevilla, RSME, SAEM Thales 2000.
- J.A. Durán, Pasiones, Piojos, Dioses... y Matemáticas. Ed Destino 2009.
- C. A. Pickover, The Math Book. Ed. Sterling 2009.
- Sauty, M. du, La Música de los Números Primos. Ed. Acantilado 2007.

Se facilitarán textos y direcciones web durante el desarrollo de la asignatura. Y también bibliográfica específica para la realización de los ejercicios y trabajos.