

27039 - History of Mathematics

Información del Plan Docente

Academic Year	2016/17
Academic center	100 - Facultad de Ciencias
Degree	453 - Degree in Mathematics
ECTS	6.0
Course	4
Period	Second semester
Subject Type	Optional
Module	---

1. Basic info

1.1. Recommendations to take this course

1.2. Activities and key dates for the course

2. Initiation

2.1. Learning outcomes that define the subject

2.2. Introduction

3. Context and competences

3.1. Goals

3.2. Context and meaning of the subject in the degree

3.3. Competences

3.4. Importance of learning outcomes

4. Evaluation

5. Activities and resources

5.1. General methodological presentation

This course has a value of 6 ECTS. It is focused on the application of basic knowledge on historical development of mathematics to case studies based on primary sources.

5.2. Learning activities

1. Master lectures on history of mathematics, and problem-solving seminars based on original sources (60 hours).
2. Teacher-guided case studies based on historical mathematical texts: writing a team-based assignment (2-3 students/team) explaining events, procedures, ideas, and concepts in a historical mathematical text.

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5.3.Program

1. Introduction, objectives and methodology. The origins of mathematics (Prehistory)
2. Mathematics in Antiquity: The Bronze Age (Egypt and Mesopotamia) and the Iron Age (Ionian awakening, Classic and Hellenistic Periods)
3. Medieval Mathematics: Far East Asia (China and India), Arabic mathematics, the Latin West.
4. Renaissance mathematics: Trigonometry, Calculation methods and Algebra.
5. The Scientific Revolution: Analytic Geometry and Infinitesimal Calculus.
6. The Enlightenment: The development of infinitesimal methods and applications.
7. The Industrial Revolution (18th-19th centuries): Descriptive Geometry, Algebraic equations, Probability Calculus, Foundations of Analysis, Numerical systems, Function Theory.
8. The Industrial Revolution (19th century): Applied mathematics (Analytical Mechanics and Mathematical physics) and Algebra (Theory of Determinants and Matrices, Quaternions and Vector Algebra, Structural Algebra).
9. The Industrial Revolution (19th century): Higher Geometry and Set theory.
10. The 20th Century: Mathematical Logic and Modern Algebra, Functional Analysis, Probability Theory, Linear Optimization and Computation.

5.4.Planning and scheduling

5.5.Bibliography and recommended resources

Katz, Victor J. (1993) [A history of mathematics : an introduction](#) . New York: Harper Collins.

Eves, Howard (1980) [Great moments in mathematics. before 1650 / by Howard Eves](#) . United States of America: The Mathematical Association of America.

Eves, Howard (1981) [Great moments in mathematics. after 1650](#) . United States of America: The Mathematical Association of America.

BB	Biografías de grandes matemáticos / H. Wussing, W. Arnold ; [versión castellana de Mariano Hormigón (director), Luis Floría, Elena Ausejo, María Angeles Velamazán ... et al.] Zaragoza : Universidad de Zaragoza, 1989.
BB	Wussing, Hans. Lecciones de historia de las matemáticas / H. Wussing; en colaboración con S. Brentjes...[et al.]; traducción Elena Ausejo...[et al.] . - 1a ed. en castellano Madrid : Siglo XXI de España Editores, 1998.