200002 - AL - Linear Algebra

**Coordinating unit:** 200 - FME - School of Mathematics and Statistics  
**Teaching unit:** 749 - MAT - Department of Mathematics  
**Academic year:** 2019  
**Degree:** BACHELOR'S DEGREE IN MATHEMATICS (Syllabus 2009). (Teaching unit Compulsory)  
**ECTS credits:** 7.5  
**Teaching languages:** Catalan

### Teaching staff

**Coordinator:** MARTA CASANELLAS RIUS

**Others:**  
- Primer quadrimestre:  
  - MARTA CASANELLAS RIUS - M-A, M-B  
  - JESUS FERNANDEZ SANCHEZ - M-B  
  - MARINA GARROTE LOPEZ - M-A, M-B  
  - JORDI GUARDIA RUBIES - M-A  
  - JAUME MARTI FARRE - M-A, M-B

- Segon quadrimestre:  
  - MARTA CASANELLAS RIUS - REF  
  - JAUME MARTI FARRE - REF

### Degree competences to which the subject contributes

**Specific:**  
1. CE-2. Solve problems in Mathematics, through basic calculation skills, taking in account tools availability and the constraints of time and resources.  
2. CE-3. Have the knowledge of specific programming languages and software.

3. CE-4. Have the ability to use computational tools as an aid to mathematical processes.

**Generical:**  
4. CB-1. Demonstrate knowledge and understanding in Mathematics that is founded upon and extends that typically associated with Bachelor's level, and that provides a basis for originality in developing and applying ideas, often within a research context.  
5. CB-2. Know how to apply their mathematical knowledge and understanding, and problem solving abilities in new or unfamiliar environments within broader or multidisciplinary contexts related to Mathematics.  
6. CB-3. Have the ability to integrate knowledge and handle complexity, and formulate judgements with incomplete or limited information, but that include reflecting on social and ethical responsibilities linked to the application of their knowledge and judgements.  
7. CG-1. Show knowledge and proficiency in the use of mathematical language.

8. CG-2. Construct rigorous proofs of some classical theorems in a variety of fields of Mathematics.

9. CG-3. Have the ability to define new mathematical objects in terms of others already know and ability to use these objects in different contexts.

10. CG-4. Translate into mathematical terms problems stated in non-mathematical language, and take advantage of this translation to solve them.

11. CG-6 Detect deficiencies in their own knowledge and pass them through critical reflection and choice of the best
Transversal:
11. SELF-DIRECTED LEARNING. Detecting gaps in one's knowledge and overcoming them through critical self-appraisal. Choosing the best path for broadening one's knowledge.

Teaching methodology

(Section not available)

Learning objectives of the subject

(Section not available)

Study load

<table>
<thead>
<tr>
<th>Total learning time: 187h 30m</th>
<th>Hours large group: 45h</th>
<th>24.00%</th>
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<tr>
<td></td>
<td>Hours medium group: 0h</td>
<td>0.00%</td>
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<tr>
<td></td>
<td>Hours small group: 30h</td>
<td>16.00%</td>
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<td></td>
<td>Guided activities: 7h 30m</td>
<td>4.00%</td>
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<tr>
<td></td>
<td>Self study: 105h</td>
<td>56.00%</td>
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## 200002 - AL - Linear Algebra

### Content

<table>
<thead>
<tr>
<th>Matrices, determinant and linear systems</th>
<th>Learning time: 25h</th>
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<tbody>
<tr>
<td><strong>Description:</strong></td>
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<table>
<thead>
<tr>
<th>Vector spaces</th>
<th>Learning time: 37h 30m</th>
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<tbody>
<tr>
<td><strong>Description:</strong></td>
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<table>
<thead>
<tr>
<th>Linear maps</th>
<th>Learning time: 25h</th>
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<tr>
<td><strong>Description:</strong></td>
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<tr>
<th>Diagonalization</th>
<th>Learning time: 37h 30m</th>
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<td><strong>Description:</strong></td>
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The subject is assessed by means of the continuous assessment and a final exam. The continuous assessment mark will be obtained from a not eliminatory midterm exam, similar to the final exam, and from qualifying some other activities carried out during the term.

The final mark of the subject will be worked out according to the formula:

\[
\text{Final Mark} = \max\{\text{final exam mark}; 70\% \text{ final exam mark} + 25\% \text{ midterm exam mark} + 5\% \text{ other activities}; 95\% \text{ final exam} + 5\% \text{ other activities}\}
\]

An extra exam will take place on July for students that failed during the regular semester and will substitute the total of the final mark.

### Qualification system

**Bibliography**

#### Basic:


#### Complementary:


### Others resources:

**Ortogonalitat**

**Description:**


**Learning time:** 37h 30m

- Theory classes: 9h
- Practical classes: 6h
- Self study: 22h 30m