30701 - Mathematics 1

1.General information

1.1.Aims of the course

1.2.Context and importance of this course in the degree

1.3.Recommendations to take this course

2.Learning goals

2.1.Competences

2.2.Learning goals

2.3.Importance of learning goals

3.Assessment (1st and 2nd call)

3.1.Assessment tasks (description of tasks, marking system and assessment criteria)

4.Methodology, learning tasks, syllabus and resources

4.1.Methodological overview
Most of central ideas and topics are given by lectures to the whole group of students. They break up into small groups of 15 to 20 students for computer classes. The problem classes allow students to work out hand-outs under the close assistance and guideline of the teacher. In addition, there are computer sessions every two weeks which allow to emphasize numerical aspects of the subject.
For the proper monitoring of the subject the student must perform an ongoing study from the first day
of class. To support the student will have the assistence of the theater, both in the classroom and in
the tutorial sesions.

4.2.Learning tasks
Lectures, computer classes, problem classes, group work, personal work, tutorials, evaluation.

4.3.Syllabus

Algebra

- Algebraique structures.

- Linear spaces. Properties.

- Linear aplications. Matricial representation.

- Diagonalization. Applications.

Affine and euclidean geometry

- Geometrical applications of linear Algebra. Basic concepts on affine geometry and its most important elements.

- Metric geometry. The golden proportion.

Calculus. Functions of one variable

- Real functions of real variable. Limits and continuity.

- Derivability. Applications.

- Aproximation.

- Integration. Geometrical applications.

- Numerical methods of solving equations. Approximation and interpolation of real functions of real variable.

4.4.Course planning and calendar
- Schedules and classrooms for lectures, problem classes and computer classes may be found at
http://eina.unizar.es - Scheduling of examinations is agreed by the School Board and are avalaible at http://eina.unizar.es
- Deadlines for intermediate examinations and submission of group work will be announced in advance.

4.5.Bibliography and recommended resources

- Bibliography

  - David C. Lay, "Álgebra lineal y sus aplicaciones"

  Pearson Addison Wesley (3ª Ed.), 2007.

  - Gilbert Strang, "Álgebra lineal y sus aplicaciones"

  International Thomson, (4ª Ed.), 2007.

  - Salas, Hille y Etgen, "Calculus. Una y varias variables"

  Reverté, (4a Ed.), 2002