UNIVERSITÀ DI PAVIA

Anno Accademico 2016/2017

NUMERICAL ANALYSIS 1

Enrollment year	2016/2017
Academic year	2016/2017
Regulations	DM270
Academic discipline	MAT/08 (NUMERICAL ANALYSIS)
Department	DEPARTMENT OF MATHEMATICS "FELICE CASORATI"
Course	MATHEMATICS
Curriculum	PERCORSO COMUNE
Year of study	1°
Period	2nd semester (01/03/2017 - 09/06/2017)
ECTS	6
Lesson hours	56 lesson hours
Language	ITALIAN
Activity type	ORAL TEST
Teacher	SANGALLI GIANCARLO (titolare) - 3 ECTS TANI MATTIA - 3 ECTS
Prerequisites	First year "Algebra lineare" course.
Learning outcomes	The course focuses on the foundation of Numerical Linear Algebra. The aim therefore is to give the student knowedge of the main algorithms for the execution of matrix operations on the computer, in particular for the solution of linear systems and the eigenvalues-eigenvectors computation. Problems of this kind arise in many computer simulations based on mathematical models, e.g., in engineering, physics, astronomy, biomathematics, finance, and informatics. Lectures will take place side by side with lab classes at the Computer Lab of the Mathematics Department.
Course contents	Error analysis. Linear systems: direct and iterative methods. Eingenvalue/eigenvector computation. Approximation of functions and data. Non linear equations and optimization. Numerical integration.

Teaching methods	Lessons and computer lab practice
Reccomended or required readings	Lecture notes; Lloyd N. Trefethen, David Bau III. Numerical Linear Algebra. SIAM.
Assessment methods	Written and oral exam. Lab report.
Further information	Written and oral exam. Lab report.
Sustainable development goals - Agenda 2030	$lbl_legenda_sviluppo_sostenibile