UNIVERSITÀ DI PAVIA

Anno Accademico 2014/2015

MATHEMATICS (SURNAMES L-Z)

Enrollment year	2014/2015
Academic year	2014/2015
Regulations	DM270
Academic discipline	MAT/05 (MATHEMATICAL ANALYSIS)
Department	DEPARTMENT OF BIOLOGY AND BIOTECHNOLOGY "LAZZARO SPALLANZANI"
Course	BIOLOGICAL SCIENCES
Curriculum	PERCORSO COMUNE
Year of study	1°
Period	(01/10/2014 - 14/01/2015)
ECTS	6
Lesson hours	48 lesson hours
Language	ITALIAN
Activity type	ORAL TEST
Teacher	SCHIMPERNA GIULIO FERNANDO - 6 ECTS
Prerequisites	Algebraic equations and inequalities of the first and second degree. Planar analytic geometry. Trigonometry. Exponential and logarithmic functions.
Learning outcomes	The course is aimed at presenting the bases of differential and integral calculus for functions of one real variable.
Course contents	Analytic geometry in the plane: lines, conics. Set theory: natural, integer, real numbers. Growth rate; arithmetic and geometric progressions, sequences. Mean and median values. Use of percentages. Concept of function: domain, image space, sign. Elementary functions: powers, polynomials, trigonometric functions, logarithms and exponentials. Logarithmic scales. Limits of sequences and of functions. Continuous functions and their basic properties. Discontinuities. Concept of derivative; geometrical and physical interpretation. Tangent line.

	Monotone, concave, convex functions. Minima, maxima and inflection points. Fundamental theorems of differential calculus. Study of a function of one real variable. Taylor polynomials. De L'Hopital's rule. Integrals. Integration by parts and by substitution.
Teaching methods	Lessons, partly devoted to the resolution of exercises. A tutoring course complements the morning lessons.
Reccomended or required readings	V. Villani, G. Gentili, Matematica - Comprendere e interpretare fenomeni delle scienze della vita, Mc Graw-Hill
Assessment methods	Written and oral exam. Further information is available at the website http://www-dimat.unipv.it/giulio/linkedmaterial/bio/faqbio2012.html
Further information	Further information at the web address: http://www-dimat.unipv.it/giulio/istmat14.html
Sustainable development goals - Agenda 2030	$lbl_legenda_sviluppo_sostenibile