



CALCULUS AND TOPICS IN STATISTICS (SURNAMES A-H)

Enrollment year	2017/2018
Academic year	2017/2018
Regulations	DM270
Academic discipline	MAT/05 ()
Department	DEPARTMENT OF DRUGS SCIENCES
Course	PHARMACY
Curriculum	PERCORSO COMUNE
Year of study	1°
Period	
ECTS	6
Lesson hours	48 lesson hours
Language	Italian
Activity type	WRITTEN TEST
Teacher	MORA MARIA GIOVANNA - 6 ECTS
Prerequisites	=
Learning outcomes	The course provides tools of Mathematics and Statistics, with a special emphasis on applications in the bio-medical field.
Course contents	Mathematics: Percentages and concentrations. Equation of a straight line. Real functions of real variable: graph, domain, range. Injective, surjective and bijective functions. Operations with functions. Composition of functions. Inverse function. Elementary functions, polynomial and rational functions. Absolute value. Exponential and logarithmic functions. Trigonometric functions. Logarithmic and semilogarithmic scales. Translations, dilations, reflections. Monotone functions. Relative and absolute maximizers and minimizers. Notion of limit and its properties. Continuous functions. Weierstrass Theorem. Definition of derivative.

	<p>Tangent line. Derivatives of elementary functions. Derivation rules. Monotonicity criterion. Maximum and minimum problems. Convex functions. L'Hôpital rule. Statistics: Mean value, geometric mean, median, and mode for a frequency distribution. Frequency histogram and frequency polygon. Cumulative frequency graph. Data dispersion: variance and standard deviation of a frequency distribution. Quartiles, interquartile range. Statistical distributions with emphasis on the normal distribution. Fundamental properties of the gaussian distribution. Central limit theorem and confidence intervals. Statistical hypothesis testing.</p>
Teaching methods	Lectures and exercise sessions.
Reccomended or required readings	V. Villani, G. Gentili "Matematica 5/ed - Comprendere e interpretare fenomeni delle scienze della vita" (ed. McGraw-Hill)
Assessment methods	<p>In itinere tests: none. Written exam (compulsory) and oral exam (optional). Students may take the oral exam only if they have passed the written exam. "Matematica con Elementi di Statistica" (6 CFU) is part of the course "Scienze Matematiche e Fisiche" (12 CFU). Students will acquire the credits only after passing the exams of both courses ("Fisica" and "Matematica con Elementi di Statistica").</p>
Further information	<p>In itinere tests: none. Written exam (compulsory) and oral exam (optional). Students may take the oral exam only if they have passed the written exam. "Matematica con Elementi di Statistica" (6 CFU) is part of the course "Scienze Matematiche e Fisiche" (12 CFU). Students will acquire the credits only after passing the exams of both courses ("Fisica" and "Matematica con Elementi di Statistica").</p>
Sustainable development goals - Agenda 2030	\$lbl legenda sviluppo sostenibile