Anno Accademico 2018/2019

CALCULUS AND TOPICS IN STATISTICS (SURNAMES A-H)

Enrollment year	2018/2019
Academic year	2018/2019
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	
Activity type	WRITTEN TEST
Teacher	MORA MARIA GIOVANNA - 6 ECTS
Prerequisites	=
Learning outcomes	Knowledge of the basic notions and tools in Calculus and Statistics. Proficiency in using these tools to understand and study the graph of a function. Proficiency in applying these tools to the study of experimental phenomena and to the correct interpretation of data.
Course contents	Mathematics: Number sets. Percentages and concentrations. Real functions of real variable: graph, domain, range. Properties of functions: injective, surjective and bijective functions, even and odd functions, monotone functions. Relative and absolute maximizers and minimizers. Composition of functions. Inverse function. Operations on functions. Translations, dilations, reflections. Elementary functions: linear functions, absolute value, power functions,

exponential and logarithmic functions, trigonometric functions.

Notion of limit and its properties. Continuous functions. Definition of derivative. Tangent line. Derivatives of elementary functions. Derivation rules. Monotonicity criterion. Maximum and minimum problems. Convex functions. Study of the graph of a function. Models of population growth.

Primitives and elementary integral calculus.

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.

Teaching methods	Lectures and exercise sessions. Some lecture notes of the course will be provided on the KIRO webpage.
Reccomended or required readings	D. Benedetto, M. Degli Esposti, C. Maffei "Matematica per le scienze della vita", terza edizione, Casa Editrice Ambrosiana V. Villani, G. Gentili "Matematica - Comprendere e interpretare fenomeni delle scienze della vita", quinta edizione, McGraw-Hill
Assessment methods	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").
Further information	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").
Sustainable development goals - Agenda 2030	$lbl_legenda_sviluppo_sostenibile