

**University of Al-Anbar**

**College of Pharmacy**

**Department of Clinical Laboratory Sciences**

Title of the course: *Mathematics and Biostatistics* Course number: **115**

Level: 1<sup>st</sup> Class, 1<sup>st</sup> Semester

Credit hours: **Theory 3 hours Laboratory -----**

Tutors:

Reference text: *1. Finny RI, Thomas GB (Eds.); Calculus and Analytical Geometry.*

*2. Daniel WW (ED.), Foundation for Analysis in the Health Science, (Latest edition).*

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**Objectives:** Gives students the ability to deal with the concept of Mathematics and Statistic, emphasizes the knowledge and skill required to efficiently discharge the duties and responsibilities of the pharmacist. The course deals with the concept of basic Mathematics and application of Biostatistics in the medical field. Upon completion of the course students will be able to understand the applications of statistics in medical field.

No	Lecture title	hours
1.	Mathematics: General concepts; coordinate and graph in plane; inequality; absolute value or magnitude; function and their graphs; displacement function; slope and equation for lines.	6
2.	Limits and continuity: Limits; theorem of limits; limit involving infinity; continuity; continuity conditions.	4
3.	Derivatives: Line tangent and derivatives; differentiation rules; derivative of trigonometric function; practice exercises.	6
4.	Integration: Indefinite integrals; rules for indefinite integrals; integration formulas for basic trigonometric function; definite integrals; properties of definite integrals; practice exercises.	6
5.	Biostatistics: General concepts of statistics; statistical methods; statistical theory; applied statistics; statistical operations.	2
6.	Probability concepts: Properties of probability; Set theory and set notation (basic notation); counting techniques- permutations and combinations; calculating the probability of an events; probability distribution of discrete variable; binomial distribution, Poisson distribution; continues probability distribution and normal distribution, review questions and exercises.	6
7.	The concept of central tendency: Mean of sample and mean of population; median; mode; measure of central tendency; review questions and exercises.	6
8.	Deviations and variation: Deviation; dispersion and variability; standard deviation and variance; coefficient of variations; standard error; correlation analysis; (regression model and sample regression equation); application of statistic in medical field; review questions and exercises.	9