Code: 0M01

Objective	***Standard***
Statement of the Competency	**Performance Criteria for the Competency as a Whole**
Solve problems related to the natural sciences using statistical methods and probability concepts.	• Correct use of mathematical terminology and syntax • Appropriate use of necessary computer and statistical tools • Algebraic manipulation in accordance with established rules

Elements of the Competency	**Performance Criteria**
1. Use descriptive statistical methods to process data.	• Appropriate use of statistical vocabulary • Appropriate representation of a frequency distribution in the form of a table or graph • Appropriate calculation of measures of central tendency, variability and position • Accurate interpretation of tables, graphs and measurements
2. Use probability concepts in aleatory situations.	• Correct use of counting techniques [1] • Exact calculation of the probability of an event [2] • Accurate probability distribution of discrete and continuous variables • Correct resolution of problems involving the laws of probability [3]
3. Use statistical inference methods to characterize a population.	• Accurate recognition of conditions for applying the Central Limit Theorem • Accurate interpretation of the margin of error • Appropriate estimation by confidence interval [4] • Correct use of hypothesis testing [5] • Correct resolution of problems calling for the use of statistical inference methods
4. Determine the nature and intensity of the relationship between two variables.	• Accurate determination of the equation of the regression line • Accurate interpretation of the coefficients [6] • Correct resolution of problems involving the concept of a regression line • Accurate determination of the dependency relationship between two qualitative variables • Correct resolution of problems involving the chi-square test of independence

Learning Activities

Discipline:	Mathematics
Weighting:	2-1-2
Credits:	1 ⅔
Periods of instruction:	45
Indications:	

Additional information on content:

[1] Counting techniques: permutations, arrangements and combinations

[2] Probability of an event: probabilities of dependent events, probabilities of independent events, conditional probabilities

[3] Laws of probability: binomial distribution and normal distribution

[4] Estimation of a confidence interval using the:

- mean of a large sample ($n \geq 30$)
- mean of a small sample ($n < 30$)
- proportion of a large sample ($n \geq 30$)

[5] Hypothesis test using the:

- mean of a large sample ($n \geq 30$)
- mean of a small sample ($n < 30$)
- proportion of a large sample ($n \geq 30$)

[6] Coefficients: linear correlation coefficient and coefficient of determination