**COURSE DETAILS**

- **Course Code:** F18XS
- **Full Course Title:** Mathematics 4
- **SCQF Level:** 8
- **SCAF Credits:** 15
- **Available as Elective:** No

**DELIVERY LEVEL**

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<th>No</th>
<th>Postgraduate Research</th>
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Additional Information:

**COURSE AIMS**

Study and explore the laws of random phenomena in the objective world

**LEARNING OUTCOMES – SUBJECT MASTERY**

- Understand the axiomatic definition of probability.
- Solve for the distribution function of the random variable.
- Independence and correlation of random variables.
- Mathematical expectation, variance, standard deviation and their properties of random variable function.
- Various laws of large numbers and central limit theorems.
- Basic concepts and primary distribution of statistics.
- Master the methods and standards of evaluation estimates.
- Hypothesis testing for practical problems.

**LEARNING OUTCOMES – PERSONAL ABILITIES**

**SYLLABUS**

Course content includes probability theory and mathematical statistics.
Probability Theory

Random occurrence and probability.

Random variable and distribution function.

N-dimensional random variable and joint probability distribution.

Numerical characteristics of random variables.

Bernoulli’s law of large numbers and central limit theorem

Mathematical Statistics

Basic concepts of mathematical statistics

Parameter estimation

Hypothesis testing

COURSE RELATIONSHIPS

N/A

LOCATION AND ASSESSMENT METHODS

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