

## STATISTICS & OPERATIONS RESEARCH SUBJECT AREA

### Year One

**All students:** BL100 – Basic Life Sciences (2 credits), CS 100 – Computer Applications (2 Credits), EN 100 - Basic English (2 credits)

ST 101 Introduction to Statistics (3 credits)*	CS 104 Structured oriented Programming practical (1 credit)
ST 102 Introduction to Probability Theory (3 credits)*	CS 105 Object oriented Programming practical (1 credit)
ST 103 Statistics Applications I (1 credit) #*	MT105 Real Analysis I (3 credits)*
ST 104 Statistics Applications II (1 credit)#*	MT 107 Mathematics for Operations Research (3 credits)*
CS 101 Introduction to Computer Science (3 credits)*	MT 108 Operations Research I (2 credits)*
CS 102 Programming Techniques (3 credits)*	MT 109 Linear Programming (3 credits) # *

### Year Two

ST 201 Probability Theory (3 credits)*	CS 204 Programming using Database Management Systems (1 credit)
ST 203 Theory of Statistics (3 credits) #*	MT 202 Real Analysis II (3 credits)
ST 204 Sampling Techniques (2 credits) #*	MT 204 Mathematical Methods (3 credits)
ST 205 Statistical Simulation (2 credits) #*	MT 209 Graph Theory (2 credits)
ST 206 Introduction to Data Mining (2 credits) #	MT 210 Advanced Linear Programming (3 credits) # *
CS 201 Data Structures (2 credits)*	MT211 Integer Programming (3 credits) #*
CS 202 Data Structures Practicals (1 credit)	MT 212 Operations Research II (2 credits)*
CS 203 Database Management Systems (2 credits)	

### Year Three

ST 301 Regression Analysis (3 credits) #*	ST 325 /MT325 Seminar (1 credit) #*
ST 302 Statistical Quality Control (2 credits) #*	CS 315 Design and Analysis of Algorithms (2 credits)#
ST 303 Design and Analysis of Experiments (3 credits)#*	MT 304 Partial Differential Equations (2 credits)
ST 305 Multivariate Methods I (2 credits) #*	MT 313 Convex Analysis (2 credits)
ST 306 Data Analysis & Preparation of Reports (1 credit) #*	MT 314 Network Optimization Theory (3 credits) *
ST 307 Time Series Analysis (2 credits) #	MT 315 Operations Research III (2 credits)*
ST 308 Bayesian Statistics I (2 credits)	MT 316 Non-Linear Programming (3 credits) *
ST 309 Non Parametrics & Categorical Data Analysis (3 credits) #*	

### Year four

ST 401 Actuarial Statistics (2 credits)	CS 409 Neural networks and Fuzzy logics (3 credits) #
ST 402 Statistical Data Mining (3 credits) #*	ST 425/MT 425 Project work /Industrial training (3 credits) #*
ST 403 Statistics for Bioinformatics (2 credits)	MT 409 Selected Topics in Applied Operations Research (2 credits)
ST 404 Stochastic Processes (2 credits)	MT 411 † Optimization Modeling (2 credits)*
ST 405 Multivariate Methods II (2 credits) #*	MT 410 Optimization for Engineering Design *(3 credits)
ST 406 Bayesian Statistics II (2 credits)	MT 412 †† Financial Mathematics (3 credits) *
CS 401 Artificial Intelligence and Expert Systems (3 credits)	

† Equivalent to AS 451

†† Equivalent to AS 452

\* : Compulsory courses # : Courses including practical

The following existing courses cannot be offered by the students who follow this degree programme.

MT 101, MT 103, MT 311, MT 407, CS 201, CS 203

The following course units maybe of interest to the students:

Numerical Analysis, Economics, Environmental Science, Genetic Engineering, Geographical Information Systems, Management studies.