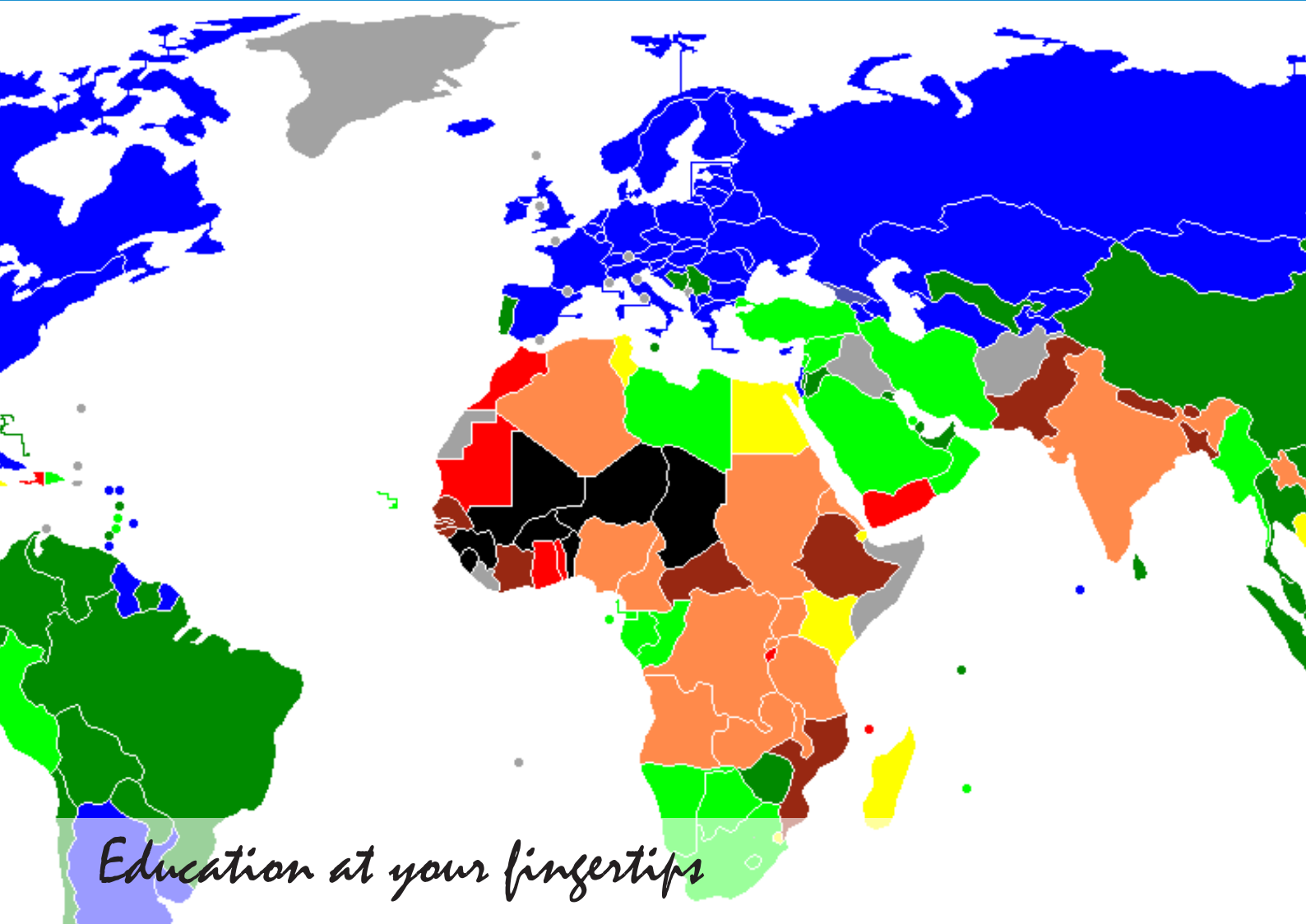




MASENO UNIVERSITY
FOUNTAIN OF EXCELLENCE

eCampus



Education at your fingertips

Bachelor of Science in Applied Statistics, With IT eLearning Programme

SCHOOL OF MATHEMATICS AND APPLIED STATISTICS



ISO 9001:2008
CERTIFIED



1. Introduction

Applied statisticians apply their knowledge of statistical methods to a variety of subject areas, such as biology, economics, engineering, medicine, public health, psychology, marketing, and education.

The programme leading to BSc degree in Applied Statistics is structured to provide fundamental knowledge of application of statistics in these fields. The program covers five major areas of Applied Statistics, namely:

- i) Mathematical Statistics
- ii) Economic Statistics
- iii) Demography and Social Statistics
- iv) Actuarial Science
- v) General Applied Statistics.

2. Expected Learning Objectives

The main objectives of this programme are to:

- i) equip the student with a broad based statistical knowledge and skills;
- ii) train statisticians for employment in public and private sectors.
- iii) prepare candidates for postgraduate studies in statistics

3. Entry Requirements

To be admitted in BSc. Applied Statistics programme a candidate must, satisfy the minimum University entry requirements. A student must have passed Mathematics in the KCSE with a minimum grade of B-.

4. Duration of the Programme

The duration of the programme shall normally extend over a period of four academic years.

5. Programme Structure

- i) The courses are offered in units in which a course unit is defined as one hour lecture or two hours tutorials or three hours practical session per week per semester.
- ii) Students will take a minimum of 42 and maximum of 48 units in each year of study.
- iii) Students wishing to take more than 48 units will require senate approval.
- iv) In the first year, students will take 36 core units from the department, 6 units from the IT courses offered as common units. In the second year, students will take 33 core units from the department, 9 units from the elective listed and 6 units from the common university IT courses.
- v) In the third and fourth years of study, Students will take courses from their respective areas of specialisation.
- vi) In the third year students will take 36 core units and

3 required units from the department of Mathematics. In the fourth year students will take 18 core units. The additional units will be chosen from the elective units listed, in line with the desired area of specialisation.

6. Mode of Delivery

- i) Face to face sessions involving students and lecturers with 42 contact hours
- ii) eLearning

7. Examinations

- i) The University common examination regulations shall apply.
- ii) Examinations shall be held at the end of the semester in which the courses are taught.

8. Modules Distribution

First Year

FIRST SEMESTER

MAC 107:	Introduction to Actuarial science	1C
MAC 105:	Micro economics	1C
MAS 101:	Descriptive statistics	1C
MAS 103:	Introduction to probability theory	1C
MMA 100:	Basic mathematics	1C
MMA 111:	Introduction to Calculus	1C
MIT 101:	Basic Concepts of IT	1C
MIT 103:	Web Browsing and Communication	1 C

SECOND SEMESTER

MAS 102:	Probability and Distribution Theory I	3C
MAS 104:	Programming Methodology	3C
MAS 106:	Introduction to Biostatistics	3C
MAC 104:	Linear Models and Forecasting	3C

MAC 106:	Macroeconomics	3C
MMA 102:	Calculus I	3C
MMA 103:	Linear Algebra I	3C
SCS 114:	Introduction to Spreadsheets and Database (IT)	3C
SCS 116:	Programming in C (IT)	3C

MAC 307:	Financial Economics I	3E
MMA 300:	Real Analysis I	3C
MMA 301:	Ordinary Differential Equations I	3C
SCS 301:	Data Structure and Algorithms (IT)	3C
SCS 308:	Object Oriented Programming in C++ (IT)	3C

Second Year

FIRST SEMESTER

MAS 201:	Sample Surveys	3C
MAS 203:	Economic Statistics	3C
MAS 205:	Statistical Computing I	3C
MAS 207:	Probability and Distribution Theory II	3C
MMA 200:	Calculus II	3C
MMA 202:	Vector Analysis	3C
MMA 214:	Operating Systems	3E
SCS 202:	Object Oriented Programming in Java I(IT)	3C
SCS 203:	Information Systems Analysis and Design (IT)	3C

SECOND SEMESTER

MAS 202:	Principles of Statistical Inference	3C
MAS 204:	Demography and Social Statistics	3C
MAC 206:	Actuarial Mathematics I	3E
MAC 210:	Investment and Asset Management I	3E
MMA 201:	Linear Algebra II	3C
MMA 206:	Algebraic Structures	3E
MMA 207:	Calculus III	3C
MMA 208:	Analysis	3C
SCS 211:	Visual Basic Programming (IT)	3C
SCS 212:	Database Systems (IT)	3C

Third Year

FIRST SEMESTER

MAS 301:	Numerical Analysis I	3E
MAS 303:	Estimation Theory	3C
MAS 305:	Stochastic Processes I	3C
MAS 307:	Theory of sampling Techniques	3C
MAS 309:	Time Series Analysis and Forecasting	3C
MAS 311:	Statistical Demography I	3E
MAS 313:	Principles of Econometrics	3E
MAS 315:	Statistical Genetics	3E
MAC 301:	Methods of Actuarial Investigations I	3E

SECOND SEMESTER

MAS 302:	Mathematical Methods	3C
MAS 304:	Test of Hypotheses	3C
MAS 306:	Statistical Modeling	3C
MAS 308:	Analysis of Experimental Designs I	3E
MAS 310:	Stochastic Decision Models I	3E
MAS 312:	Statistical Computing II	3E
MAS 314:	Research Methodology	3C
MAC 302:	Methods of Actuarial Investigations II	3E
MAC 304:	Actuarial Life Contingencies I	3E
MMA 303:	Complex Analysis I	3C
MMA 312:	Operations Research I	3C
SCS 318:	Design and Analysis of Algorithms (IT)	3C
SCS 324:	Statistical Analysis with SPSS (IT)	3C

THIRD SEMESTER

SAS 317	Industrial Attachment	3C
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Fourth Year

FIRST SEMESTER

MAS 401:	Further Distribution Theory	3C
MAS 403:	Non Parametric methods	3C
MAS 405:	Analysis of Experimental Designs II	3E
MAS 407:	Further Time series Analysis	3E
MAS 409:	Further Sample Survey Theory and Methods	3E
MAS 411:	Stochastic Decision Models II	3E
MAS 413:	Stochastic Models for Biological Processes	3E
MAS 415:	Biometric Models	3E
MAS 417:	Statistical Demography II	3E
MAS 419:	Econometric Models I	3E
MAS 421:	Stochastic Processes II	3E
MAS 423:	Practical Statistics	3C
MAS 425:	Labour Dynamics	3E
MAS 427:	Agricultural Indices	3E
MAS 429:	Energy Analysis	3E

MAS 431:	Teaching of Statistics	3E
MAC 403:	Actuarial Life Contingencies I	3E
MAC 411:	Theory of Business Decisions	3E
MAC 415:	Survival Analysis	3E
MMA 405:	Partial Differential Equations I	3E
MMA 420:	Operations Research II	3E
SCS 409:	IT and Society(IT)	3C

SECOND SEMESTER

SAS 402	Bayesian Inference and Decision Theory	3C
SAS 408	Multivariate Methods	3C
SAC 402	Modelling II	3E
SAC 406	Risk and Credibility Theory	3E
SAC 408	Actuarial Life Contingencies III	3E
SAC 410	Fundamentals of General Insurance	3E
SAS 406	Robust Methods and Non-Parametrics	3E
SAS 410	Statistical Model Building	3E
SAS 412	Stochastic Models for Social Processes	3E
SAS 414	Survey Research Methods	3E
SAS416	Quality Control Methods	3E
SAS 418	Applied Population Analysis	3E
SAS 420	Applied Demography	3E
SAS 422	Econometric Models II	3E
SAS 424	Applied Econometrics	3E
SAS 426	Statistical Computing III	3E
SAS 428	Response Surface Methodologies	3E
SAS 430	Educational Statistics	3E
SAS 432	Health Indicators	3E
SAS 434	Government Financing Structure	3E
SAS 436	Environmental/Ecological Indicators	3E
SAS 438	Statistical Organization	3E
SMA 402	Measure Theory	3C
SMA 414	Fourier Analysis	3E
SMA 429	Operations Research III	3E
SCS 433	Advanced Database Systems (IT)	3C
SCS 437	Information Systems Applications (IT)	3C

Key

C - CORE R - REQUIRED E - ELECTIVE
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