

MSc Social Statistics - SH508

1. Objectives

Social scientists and professionals in the social field are experiencing rapid changes in the economic and social environment in Mauritius due to various factors like industrialisation in the 1980's, globalisation, economic liberalisation etc. Furthermore, with various theoretical advances and with development of technology/software, they have to deal with an evidence-based society. There is an urgent need to enrich the social discourse with rigorous statistical analysis of qualitative and quantitative data/information.

The objectives of the MSc Social Statistics are:

- To develop the ability to master more advanced statistical tools/software and models so as to be able to analyse data and, generally, statistical information;
- To provide a postgraduate level educational opportunity to acquire further skills in data collection, both quantitative and qualitative;
- To prepare individuals to be able to identify problems, to investigate them and to develop appropriate policies within their organisation.

2. General Entry Requirements

Successful completion of an undergraduate degree with

- at least a Second Class or 50%, whichever is applicable or
- a GPA not less than 2.5 out of 4 or equivalent, from a recognised higher education institution

OR alternative qualifications acceptable to the University of Mauritius.

3. Programme Requirements

Applicants are expected to have been trained in statistics/quantitative methods in their undergraduate degree.

4. General and Programme Requirements - Special Cases

The following may be deemed to have satisfied the general and programme requirements for admission:

- (i) Applicants who do not satisfy any of the requirements as per Regulations 2 and 3 above but who submit satisfactory evidence of having passed examinations which are deemed by the Senate to be equivalent to any of those listed.
- (ii) Applicants who do not satisfy any of the requirements as per Regulations 2 and 3 above but who in the opinion of Senate submit satisfactory evidence of the capacity and attainments requisite to enable them to pursue the programme proposed.
- (iii) Applicants who hold a full practising professional qualification obtained by examination.

5. Programme Duration

The programme will be offered on a part-time basis.

	Normal (Yrs)	Maximum (Yrs)
Master's Degree:	2	4
Postgraduate Diploma:	2	4

6. Credits per Year

Minimum credits per year – 6 (or as presented by the faculty).

7. Minimum Credits Required for Awards

	Core Modules	Dissertation	Electives	Total
Master's Degree:	25.5 credits	9 credits	3 credits	37.5 credits
Postgraduate Diploma:	25.5 credits	-	3 credits	28.5 credits

8. Assessment

Students are required to register for modules, which they intend to follow in a given semester/year (Refer to Section 3.4.1).

Each yearly module will be assessed over 100 marks and each semester module will be assessed singly over 100 marks.

Assessment will be based on a written examination of 2 to 3-hour duration (normally a paper of 2 hour duration for modules carrying less or equal to three credits, 2½ hour paper for modules carrying 3.5–4.5 credits and 3 hour paper for modules carrying five-six credits) and on continuous assessment done during the semester or year.

Written examinations for modules, whether taught in semester 1 or in semester 2 or both will be carried out either at the end of the academic year.

The continuous assessment will count for 10-40% of the overall percentage mark of the module(s), except for a Programme of Studies where the structure makes for other specific provision(s). Continuous assessment may be based on laboratory work, seminars and/or assignments and should include at least one class test.

A minimum of at least 30% should be attained in each of continuous assessment and written examination with an overall total of 40% for a candidate to pass a module (unless otherwise specified). For modules being assessed jointly, a minimum of at least 30% should be attained in each of the continuous assessment and written examination, with an overall total of 40% for a candidate to pass the two modules (unless otherwise specified). Note that the overall mark for the two modules will be considered and not the individual marks for each of the two modules.

Special examinations (e.g. class test) will be arranged at the end of semester 1 or semester 2 for exchange students who have registered only for one semester. In case of yearly modules, credits will be assigned on a pro-rata basis.

Students are required to submit work for continuous assessment by due dates. Failure to do so will normally incur penalties.

All modules carry their own credit value.

Submission Deadlines for Dissertation

- First Draft: End of July in the Final Year
- Final Copy: Last working day of August in the Final Year

9. Repeat and Termination of Registration

If the CPA of a student is < 40 for an academic year, s/he will have to repeat the entire academic year, and retake modules as and when offered. However, s/he will not be required, if s/he wishes, to retake module(s) for which **Grade C** or above has been obtained.

Students will be allowed to repeat **only once** over the entire duration of the Programme of Studies.

Registration of a student will be terminated if

- (i) the CPA < 40 at the end of an academic year and the student has already repeated one year of study; or
- (ii) the maximum duration allowed for completion of the Programme of Studies has been exceeded.

10. Choice of Electives

Students will be required to submit their choice of Electives in order of priority by the middle of Semester 1 of Year 1.

The University reserves the right not to offer a given elective module if the critical number of students is not attained and/or if there are resource constraints. Additional electives may also be offered, depending on availability of resources.

11. List of Modules

YEAR 1

Code	Module Name	Hrs/Wk L+P	Credits
CORE			
Yearly Modules			
STAT5001	Statistical Inference	3 + 0	6
STAT5002	Survey Methods and Survey Data Analysis	3 + 0	3
STAT5003	Qualitative Social Enquiry & Analysis	1.5+0	3
Semester Modules			
SCDV5101	Perspectives on Social Development	3 + 0	3
STAT5004	Perspectives of Development Economics	3 + 0	3

YEAR 2

Code	Module Name	Hrs/Wk L+P	Credits
CORE			
Yearly Modules			
STAT6001	Applied Multivariate Methods		3
STAT6000	Dissertation	-	9
Semester Modules			
STAT6002	Linear Models in Social Research		3
STAT6003	Questionnaire Design		1.5
Choose any one from the following:			
STAT6004	Data Sources & Social Indicators		1.5
STAT6005	Demographic Methods	1.5+0	1.5
STAT6008	Multilevel Modelling		1.5

ELECTIVES

Choose any one from the following:

STAT6006	Experiments and Quasi Experiments in Social Research	1.5
STAT6007	Models for Social Processes	1.5
STAT6009	Dynamic Models and Forecasting	1.5
STAT6010	Structural Equation Modelling	1.5

NOTE:

- (i) Electives will be offered subject to availability of minimum number of students and Faculty resources.

12. Programme Plan - MSc Social Statistics

YEAR 1							
Code	Module Name	Hrs/Wk L+P	Credits	Code	Module Name	Hrs/wk L+P	Credits
YEARLY MODULES							
STAT5001	Statistical Inference						6
STAT5002	Survey Methods and Survey Data Analysis						3
STAT5003	Qualitative Social Enquiry and Analysis						3
SEMESTER MODULES							
Semester 1				Semester 2			
SCDV5101	Perspectives on Social Development		3	STAT5004	Perspectives of Development Economics		3
YEAR 2							
YEARLY MODULES							
STAT6001	Applied Multivariate Methods						3
STAT 6000	Dissertation						9
SEMESTER MODULES							
Semester 1				Semester 2			
				ELECTIVES (choose any one from the following)			
STAT6002	Linear Models in Social Research		3	STAT6006	Experiments and Quasi Experiments in Social Research		1.5
STAT6003	Questionnaire Design		1.5	STAT6007	Models for Social Processes		1.5
ELECTIVES (choose any one from the following)							
STAT6004	Data Sources & Social Indicators		1.5	STAT6009	Dynamic Models and Forecasting		1.5
STAT6005	Demographic Methods		1.5	STAT6010	Structural Equation Modelling		1.5
STAT6008	Multilevel Modelling		1.5				

13. Outline Syllabus

STAT5001 - STATISTICAL INFERENCE

Probability. Probability Distributions. Likelihood function. Sufficiency and MVUE. Sampling Theory. Hypothesis Testing and Confidence Intervals. More Probability Distributions. Bayes Theorem on Inference. Conjugate distributions and conjugate analysis. Binomial model, Poisson model and the normal model. An introduction to loss functions and Bayesian decision rule.

STAT5002 - SURVEY METHODS AND SURVEY DATA ANALYSIS

Issues in data collection. Probability sampling and sampling error. Objectives of sample design. Simple random sampling. Stratified sampling. Cluster sampling without and with subsampling. PPS sampling. Systematic sampling. Questionnaire administration. Non sampling errors. Pretests. Interview Technique. Coding and Data Processing.

STAT5003 - QUALITATIVE SOCIAL ENQUIRY & ANALYSIS

The nature of qualitative social enquiry; techniques of qualitative data collection, such as ethnography, interviews, focus groups, etc; ethical issues in qualitative social research; qualitative research design and process.

Uses of qualitative data, capturing and recording qualitative data, types of qualitative data analysis, qualitative data analysis using Atlas-ti as a computer aided qualitative data analysis software; presentation and publication of qualitative research.

STAT5004 - PERSPECTIVES OF DEVELOPMENT ECONOMICS

This module is about the study of development in low-income countries and addresses both conventional as well as new horizons in the discipline. The detailed syllabus is as follows: Overview of Development: Measurement and Conceptual Issues, Characteristics and Structural Features – Economic Growth Theories; Role of Human capital, Technological Progress, Convergence, Institutional Quality and Geography – Inequality and Development Linkages: Measurement Issues, Growth and Inequality, Role of Savings and Human Capital and Aspects of Poverty – Demography and Development: Population Dynamics, Rural and Urban Interaction and Aspects of Migration – Financial Institutions: The Role of Credit and Insurance, Informal Markets and Microfinance – Trade Policy: Trade Liberalisation, Regionalisation and Policy Discussion.

SCDV5101 - PERSPECTIVES ON SOCIAL DEVELOPMENT

Concepts: Social Evolution and Change. Under-development and Development; Causes and consequences of under-development and development. Obstacles to development. Dimensions and indicators: Social, economic and human development. Major theories of economic growth and Development. Capitalist, Market, Mixed and Socialist form of economies. State and Social Welfare. Social Planning: National, Sectoral and Decentralised planning. Governance, People and Development: Participation, Capacity Building and Empowerment.

STAT6001 - APPLIED MULTIVARIATE METHODS

Bivariate data and correlations. Multivariate data structure. Partial and multiple correlation. Normal distribution and Multivariate normal dist. Principal components analysis – geometrical approach. Factor analysis. Discriminant analysis. ANOVA & MANOVA. Cluster analysis. Application using SPSS.

STAT6002 - LINEAR MODELS IN SOCIAL RESEARCH

The Modelling Process in general. The standard linear model. Estimation and testing model coefficients. Testing assumptions. Measuring goodness of fit. Breakdown of assumptions and corrective procedures. Extensions of the simple linear model. Limitations of the standard linear model. The generalised linear model. Logit and probit analysis. Poisson regression. Analysis of multidimensional contingency tables.

STAT6003 - QUESTIONNAIRE DESIGN

Definition of objective and target population. Questionnaire coverage. Mode of administration. Questionnaire structuring and layout. Open ended and precoded questions. Prompted v/s Unprompted response. Question phrasing. Multiple response questions. Attitude scaling. Constructs validity and

Cronbach alpha. Randomised response and Treatment of sensitive issues. Pretesting of questionnaire.

STAT6004 - DATA SOURCES AND SOCIAL INDICATORS

Sources of social and economic data. The collection of social data. Problems of collection and interpretation. Censuses and surveys as sources of data uses for economic and social planning. Types of social indicators. Framework for the construction of indicators. Uses for monitoring, planning and forecasting. Problems of interpretation.

STAT6005 - DEMOGRAPHIC METHODS

What is demography? Sources of demo data: sample survey and census. Demographic measurements: Rates, Ratios proportions fertility. Gender, Ageing, Educational data. Comparison: Standardisation. Population pyramids, Life table analysis. Population projection.

STAT6006 - EXPERIMENTS AND QUASI EXPERIMENTS IN SOCIAL RESEARCH

Controlled experiments and the importance of randomisation. Fixed and random effects models. Control of error. Multifactorial experiments. Ethical issues in experimentation. Situations where randomisation is not feasible. Quasi experimental designs and threats to validity.

STAT6007 - MODELS FOR SOCIAL PROCESSES

Introduction: social data and selection of models. Common probability models. Goodness of fit. Modelling dependence. Markov chains in studies of mobility: social class. Education. Applications of branching processes to social phenomena.

STAT6008 - MULTILEVEL MODELLING

Review of OLS regression. Multilevel data structures and random effects. Random intercept model. Random intercept and slope. Inference for fixed and random effects. Assumptions and model evaluation. Three level models. Applications to: Panel data, Gender studies, Education, Organisational Comparisons. Multilevel logistic regression. Bayesian hierarchical approach. Applications using the R Statistical Language and Winbugs.

STAT6009 - DYNAMIC MODELS AND FORECASTING

This is a module on dynamic modelling using Bayesian methods. Dynamic Linear Model. Dynamic linear regression. The case of known and unknown variance. Observability. Model superposition and decomposition. Forecasting. Possible applications in social modelling.

STAT6010 - STRUCTURAL EQUATIONS MODELLING

Path Analysis and Confirmatory Factor Analysis and SEM. Latent variables. Measurement model. Null and Structural model. Structural coefficients. Parameter estimation. Inference in SEM. Reliability. Goodness of fit, GFI, AGFI, RMSR. Centrality Index. Model comparison. AMOS in SPSS. Applications in psychological and sociological measurements.

STAT 6000 - DISSERTATION

The dissertation will consist of a supervised research project that demonstrates mastery of a specific topic area covered by the MSc. The dissertation should be between 15,000 – 20,000 words in length. A project supervisor will be identified by the Programme Coordinator and the title of the project approved by the Department of Economics and Statistics.