Mathematics Department
De La Salle University

Master of Science in Statistics

The Master of Science in Statistics (MS-STAT) program prepares students for research and for advanced level work by providing them the necessary foundation for doctoral studies. It aims to develop future statisticians for the academe, for government service, and for industry.

Program Requirements, Course Tracking, and Classification of Courses:

Core Courses	12 units
Major Courses/Practicum	12 units
Special Topics	6 units
Graduate Seminar	1 unit
Thesis	6 units
Bridging Courses	(12 units)
Written Comprehensive Examination (WCE)	-
Total	**37 units**

Bridging Courses:
Applicants with deficiencies in undergraduate mathematics/statistics courses may be required to enroll in the following bridging courses without credits towards the program proper.

Introduction to Statistical Theory 1	(3 units)
Introduction to Statistical Theory 2	(3 units)
Statistical Methods	(6 units)

Core Courses:
These are the courses that the students need to take in the written comprehensive examination (WCE).

Introduction to Probability Theory	3 units
Theory of Statistical Inference	3 units
Introduction to the Theory of Linear Models	3 units
Survey Sampling Theory and Methods	3 units

Major Courses/Practicum:

Stochastic Processes	3 units
Multivariate Analysis	3 units
Time Series Analysis	3 units
Statistical Consulting 1	1 unit
Statistical Consulting 2	1 unit
Statistical Consulting 3	1 unit

Special Topics:

Special Topics 1	3 units
Special Topics 2	3 units

Graduate Seminar and Masteral Thesis:

Graduate Seminar	1 unit
Masteral Thesis	6 units

Written Comprehensive Examination (WCE):

Students who have taken and passed all the required coursework may take the written comprehensive examination (WCE) pursuant to Section 3.1 (page 128) of the University's Student Handbook for 2012-2015. As a general rule, passing the WCE is a pre-requisite to thesis writing. Section 8.5 states: "Students who fail the WCE may apply for a re-test in the area(s) where they failed. Students who fail a second time must audit the courses for which they did not pass the WCE. After auditing, they may take the WCE for the third time. A student who fails a third time in any of the areas of the WCE is rendered ineligible to continue in the program."

Course Tracking for Master of Science in Statistics:

Year	Term 1	Term 2	Term 3
1	*Bridging Program*: • Introduction to Statistical Theory 1 • Introduction to Statistical Theory 2 • Statistical Methods	▪ Introduction to Probability Theory ▪ Introduction to the Theory of Linear Models ▪ Statistical Consulting 1	▪ Theory of Statistical Inference ▪ Stochastic Processes ▪ Statistical Consulting 2
2	▪ Survey Sampling Theory and Methods ▪ Special Topics 1 ▪ Statistical Consulting 3	▪ Multivariate Analysis ▪ Time Series Analysis ▪ Special Topics 2 ▪ Graduate Seminar	▪ Thesis Proposal & Writing
	▪ Thesis Writing & Defense		

The minimum academic preparation would be differential and integral calculus, and linear algebra. Students who lack courses on statistical theory and methods at the undergraduate level will be required to attend and complete a **bridging program** for one term upon admission.

The said bridging program consists of three modular courses in the following areas: (i) Distribution Theory, (ii) Theory of Inference, and (iii) statistical methods (*e.g.,* regression, time series analysis, design of experiments, and multivariate statistical methods).

Please visit http://www.dlsu.edu.ph/admissions/graduate/checklist-local.asp for the checklist of application requirements.

Description of Courses:

Introduction to Statistical Theory 1
3 units
A modular course on the theory of probability.

Introduction to Statistical Theory 2
3 units
A modular course on the theory of inference.

Statistical Methods
6 units
A course on regression, time series analysis, design of experiments, and introductory multivariate statistical methods.

Introduction to Probability Theory
3 units
A course on the fundamentals of probability space, random variables, expectation, independence, characteristic functions, convergence concepts, conditioning and law of large numbers.
(Requires knowledge of differential and integral calculus.)

Theory of Statistical Inference
3 units
Theory of estimation and hypothesis testing.
Prerequisite: Introduction to Probability Theory

Introduction to the Theory of Linear Models
3 units
A course on linear models, estimation and test of hypothesis in both the full and less than full rank models.

(Requires knowledge of linear algebra.)

Survey Sampling Theory and Methods
3 units
A course on simple random sampling, stratified random sampling, systematic random sampling, systematic and cluster sampling, ratio estimates and cost minimization.

Prerequisite: Theory of Statistical Inference

Stochastic Processes
3 units
A course on Poisson process, Markov chains, continuous time Markov chains, renewal theory, and martingales.
Prerequisite: Introduction to Probability Theory

Multivariate Analysis
3 units
This course aims to present an overview of the theory and application of multivariate methods. Specifically, this course deals with principal component analysis, factor analysis, cluster analysis, multi-dimensional scaling, multivariate analysis of variance, discriminant analysis, canonical correlation analysis., and other multivariate techniques.
Prerequisites:
Theory of Statistical Inference Introduction to the Theory of Linear Models

Time Series Analysis
3 units
A course on linear extrapolation, exponential smoothing, ARMA and ARIMA processes, unit root testing, transfer functions and applications, and GARCH models.
Prerequisite: Introduction to the Theory of Linear Models

Statistical Consulting 1
Statistical Consulting 2
Statistical Consulting 3
1 unit x 3 = 3 units
Practicum course for MS Statistics students. This course is spread over three terms. **Statistical Consulting 1** taken first will discuss basic principles of statistical consulting and discuss case studies faced in actual consulting work. The second series, **Statistical Consulting 2** will be supervised consulting for 14 hours in the term and **Statistical Consulting 3** will be 14 hours of independent consulting.
Prerequisite for Statistical Consulting 2: Statistical Consulting 1
Prerequisite for Statistical Consulting 3: Statistical Consulting 2

Special Topics 1
Special Topics 2
3 units x 2 = 6 units
Selected topics on recent developments in statistical theory and methods.
Prerequisite: Consent of Instructor

Graduate Seminar in Statistics
1 unit
A course on the fundamentals of research, preparation of a thesis proposal, thesis writing procedure, statistics topics for research, and a selection of topics on statistical theory and methods.
Prerequisite: Must have taken and passed all the core and major courses

Masteral Thesis
6 units
Conduct of an independent research under the supervision of a thesis mentor. Students who have already passed the all academic courses are qualified to enroll in this course. Students are expected to contribute to improve statistical methodology and/or theory. Furthermore, as a requirement of the University, the quality of the thesis should allow the student to publish at least one article in a refereed journal.
Prerequisite: Must have taken and passed the WCE