



School of Statistics
University of the Philippines Diliman
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The School of Statistics was established in December 1953 under a bilateral agreement between the Philippine Government and the United Nations. It has since grown into a degree-granting institution whose mission is to advance the development and maintenance of a high level of efficiency in statistical activities in the country and in the Asia-Pacific Region through its academic programs, research and extension services. At present, it is the only CHED Center of Excellence in Statistics in the country. It has produced numerous distinguished statisticians in various sectors, both here and abroad. Alumni hold key positions in the Asia-Pacific Region.

UNDERGRADUATE PROGRAM

The B.S. (Statistics) program is a 4-year course that provides students with a sound understanding of statistical methods - their underlying theories and their applications. It aims to prepare the students for immediate work as statisticians in the industry, research institutions, and the government. The program also aims to provide students with a good foundation to pursue graduate studies in statistics or other fields.

The program equips students with the necessary skills to design studies, analyze data, manage and process data using a variety of software packages, and communicate the results of the study to the end-users. This provides the graduates of the program with professional flexibility and exciting opportunities for rewarding careers in different fields such as business analytics, biostatistics, market research, econometrics, official statistics, development studies, statistical computing, and programming.

The program includes the following broad classes of courses:

- General Education - 42 units
- Statistics - 58 units
- Mathematics - 18 units
- Mathematics/Statistics Elective - 9 units
- Free elective - 6 units
- Others - 6 units
- **TOTAL 139 Units**

GRADUATE PROGRAMS IN STATISTICS

The School offers graduate programs leading to the following:

- **Master of Statistics (MOS)** – aimed to produce practitioners who are knowledgeable with statistical methodologies and capable of the practice of general statistics and in some key areas.
- **Master of Science (MS Statistics)** – prepares its graduates for advanced level work in the profession as well as provides them the necessary foundation for high quality PhD work both in the theoretical and practical aspects.
- **Doctor of Philosophy (PhD Statistics)** – provides students with advanced background in statistics to enable them to participate in the development of statistical methods. Emphasis is placed on training in basic research.

The MOS program aims to prepare the students to meet the needs of industry and government for statistical personnel at the supervisory level. The students are provided with a sound understanding of statistical concepts and methods and their applications. The MS and the PhD programs aim to improve the quality of graduates and prepare them for jobs not only in the academe and in research but also in one or more of the following areas: business, economics, industry, social science, natural sciences, among others.

Areas of Electives

The following areas of electives can be pursued by both the MOS and MS students.

- **Computational Statistics** –the emergence of computational statistics was stimulated by the availability of very large data sets. These data are often generated by heterogeneous mechanisms, from unknown process, or from non-random mechanism. The availability of powerful computing facilities and efficient algorithms simplified the analysis of these data. Oftentimes, the methods used are iterative in nature, thus, exact sampling distributions are not mathematically tractable. Computational statistics is a venue where statistical theory evolves from a dominantly nonparametric framework and uses computing technology.
- **Industrial Statistics** – there is a wide range of applications of statistics in the industry. Quality assurance, quality improvement, product development, etc. are some of the areas where statistics can be very useful.
- **Mathematical Statistics** – many statistical theories were developed with the aid of mathematical tools. Large sample properties, approximations, exact distributions, are some of the important results of mathematical statistics. This area may help prepare the students for more advanced work in statistical theory.
- **Risk Assessment Methods** – financial systems are vulnerable to random shocks that can easily topple old institutions. Many statistical methods can be tailor-fitted to address the concern of the financial sector, specifically, for risk management. The area of focus aims to produce students with quantitative skills they can use in effective risk management especially in the finance sector.

- **Social Statistics** – the generation of official statistics by the government requires statistical methods that are commonly used in social and economic applications. This area targets students working/intends to work for the government and those who eventually wish to pursue further studies in the social sciences or in economics.
- **Statistical Methods for Market Research and Business Intelligence** - from data collected through face-to-face interviews, focused group discussions, product testing, etc., the paradigm of market research is gradually changing. Data is now generated from actual usage/purchase history of consumers, cases where streaming data is generated from continuous consumer activities. While the data collection does not really follow some probabilistic methods, their volume is huge enough to treat it as approximating the population. This area incorporates both the 'traditional' and modern methods of market research leading towards business intelligence.

Master of Statistics (MOS) Program

The student will be required to take a validation examination in the areas of Calculus, Matrix Algebra, and Introductory Statistics. If the student failed the examination, one or two of Stat 100, Stat 195, or Stat 117 will be taken during the summer/term prior to admission to the MOS/MS program.

To facilitate monitoring of progress of students, they will be required to submit a concept paper of possible research topic as part of the application requirement.

The student will be considered candidate for graduation upon completion of all required and elective courses with a weighted average of "2.0" or better and submission and successful defense of a Special Problem (MOS).

For the MOS Special Problem, the student should demonstrate capability of statistical analysis through the application of more recent statistical methods in solving real-life problems or the novel application of statistical methods in solving real-life problems.

The course work for the MOS program follows:

Core Courses

- Stat 221 Introductory Probability
- Stat 222 Introduction to Statistical Inference
- Stat 223 Applied Regression Analysis
- Stat 250 Sampling Designs
- Stat 251 Survey Operations

Other Courses

- Stat 298 Special Problem
- 2 units of Stat 290 Statistical Consulting
- 15 units of Electives

Master of Science (MS Statistics) Program

The student should have a strong foundation in mathematics (calculus) and mathematical statistics.

To facilitate monitoring of progress of students, they will be required to submit a concept paper of possible research topic as part of the application requirement.

The student will be considered candidate for graduation upon completion of all required and elective courses with a weighted average of "2.0" or better and submission and successful defense of a Thesis.

For the MS Thesis, the student should be able to demonstrate capability of conducting basic research in statistics. The work should contribute in the body of knowledge in the statistical science. The new knowledge generated from the thesis can be derived analytically or computationally (simulations).

The course work for the MS program follows:

Core Courses

- Stat 231 Probability Theory
- Stat 232 Parametric Inference
- Stat 233 Linear Models
- Stat 234 Multivariate Analysis
- Stat 250 Sampling Designs

Other Courses

- Stat 230 Special Topics in Math for Statistics
- Stat 300 Thesis
- 2 units of Stat 290 Statistical Consulting
- 12 units of Electives.

Doctor of Philosophy (PhD Statistics) Program

Applicants with a bachelor's or master's degree or equivalent degree or title from any recognized institution of higher learning and who satisfy the University rules on admission to a graduate program may be admitted to the Ph.D. program subject to the following conditions:

- An applicant with a bachelor's or master's degree other than in statistics may be required to take additional mathematics and statistics courses before admission to the Ph.D. program.
- Additional requirements shall be determined by the Graduate Committee of the School.
- A student must obtain a grade of 2.0 or better in the qualifying examination based on the core courses of the MS (Statistics) program of the School before being allowed to continue in the doctoral program. Graduates of MS (Statistics) of the School are exempted from taking the qualifying examination.

The course work for the PhD program follows:

Core courses:

- Stat 301 Theory of Probability I
- Stat 302 Theory of Probability II
- Stat 303 Stochastic Processes
- Stat 311 Theory of Statistical Inference I
- Stat 312 Theory of Statistical Inference II

Other courses:

- At least 6 units of electives
- At least 6 units of reading course (Stat 390)
- At least 1 unit of seminar course (Stat 396).
- Dissertation (Stat 400) – 12 units

Total Doctoral Units = 40

For bachelor's degree holders, all courses (38 units) in the M.S. (Statistics) program of the School will have to be taken in addition to the above course work.

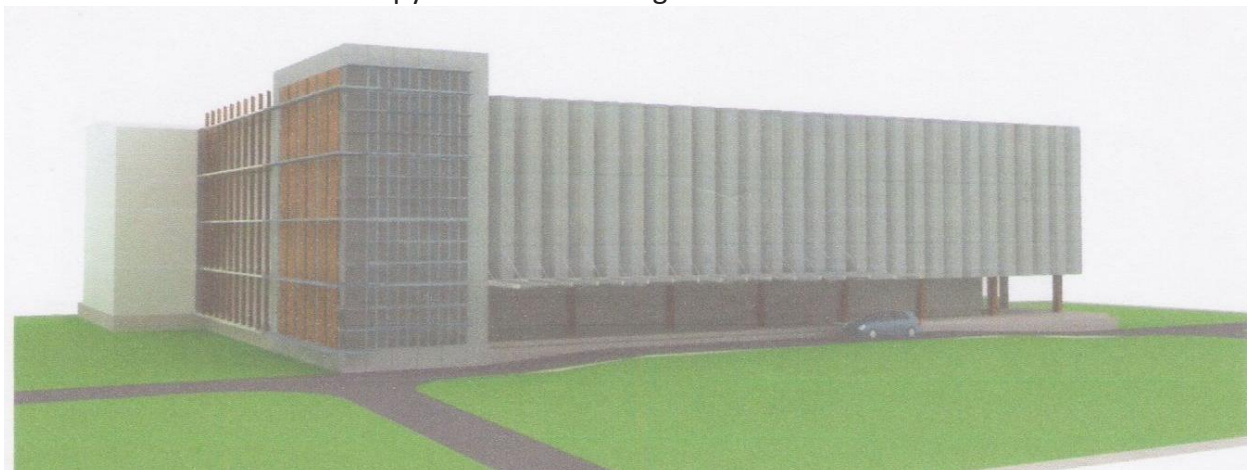
Advancement to Candidacy

- A student is qualified to take the candidacy examination based on the PhD core courses (Stat 301, Stat 302, Stat 303, Stat 311 and Stat 312), provided that his weighted average in these courses is 1.75 or better.
- After passing the candidacy examination with a grade of 1.75 or better, a student is considered advanced to candidacy for the degree.
- Failure at a second try shall bar the student permanently from the PhD program.

FACILITIES & SERVICES

The School maintains one of the best statistics libraries in the country, with new titles continuously being added to its already sizable collection. It subscribes to 25 titles of foreign statistical journals, including the on-line version of databases of journal compilations the University subscribe to. Its Statistical Computing Laboratory (SCL) houses powerful computers equipped with the latest statistical software like SAS, SPSS, Stata, Eviews, and Minitab.

The School of Statistics will soon occupy their new building.



CAREERS IN STATISTICS

Statistics is defined as the science and art of uncertainty. It requires both the rigors of the scientific process and creativity of the arts to extract information from the data.

Statisticians work to answer the following questions in some of the industries they usually engage with:

Financial Sector

- Is the investment safe?
- Will another crisis likely to happen again?
- Who are worthy of the credit programs?
- Based on customer profile of activities, what is the most profitable product?

Market Research

- What programs will attract customer loyalty?
- How does the consumer behave?
- What insights do the data give use to develop strategic approaches?
- Who are the potential market segments?

Telecommunications

- How to optimize customer usage?
- What does the usage data tell us about the customer? Their behavior?

Manufacturing

- How to set up quality control procedures?
- What is the most acceptable product design for the consumers?
- How much demand can be expected?
- Is the product safe? Reliable?

Health and Medicine

- What drug can best cure a disease? What are the side effects? Dosage?
- What is the shelf life?
- How does the disease spread?

Social Sciences

- How to measure emotional stability?
- How is achievement related to the peer factor?
- What explains this behavior?

In the academe, we develop new methods, teach statistics, and contribute in the continuous growth of knowledge on the statistical sciences.

FACULTY PROFILE

The School of Statistics generates its strength from the excellent profile of the faculty with advanced degrees in the discipline. The current roster of faculty includes:

PROFESSOR

Erniel B. Barrios (*PhD Statistics, 1990*)

Research Areas: computational statistics, nonparametric methods, survey sampling

Lisa Grace S. Bersales (*PhD Statistics, 1989*)

Research Areas: time series analysis, econometrics

Reynaldo Romualdo M. Rey (*PhD Mathematics, 1993*)

Research Areas: stochastic finance, mathematical finance, probability theory

Ana Maria L. Tabunda (*PhD Statistics, 1989*)

Research Areas: multivariate analysis, mathematical statistics

ASSOCIATE PROFESSOR

Joselito C. Magadia (*PhD Statistics, 2000*)

Research Areas: multivariate analysis, statistical inference, risk management

Claire Dennis S. Mapa (*PhD Economics, 2008*)

Research Areas: econometrics, time series analysis and forecasting, empirical economic growth analysis, poverty analysis

Genelyn Ma F. Sarte (*PhD Statistics, on going*)

Research Areas: multivariate analysis, time series analysis, rural development

Jeffry J. Tejada (*PhD Statistics, 2008*)

Research Areas: spatial statistics, mathematical statistics, statistical computing

ASSISTANT PROFESSOR

Josefina V. Almeda (*PhD Education, on going*)

Research Areas: statistics education, teaching experiments, programming

Wendell Q. Campano (*PhD Statistics, on going*), *On Study Leave*

Research Areas: robust methods, computational statistics, data mining

Therese Ann G. Capistrano (*MS Statistics, 1993*)

Research Areas: mathematical statistics

John Carlo P. Daquis (*PhD Statistics, on going*)

Research Areas: computational statistics, nonparametric statistics, programming

Francisco N. De Los Reyes (*MS Statistics, 1993*)

Research Areas: multivariate analysis, survey operations, statistical quality control, quantitative media research

Maureen Dinna D. Giron (*MS Statistics, 2010*)

Research Areas: computational statistics, categorical data analysis, nonparametric methods

Mark Anthony U. Javellosa (*MS Statistics, 2006*)

Research Areas: Biostatistics

Charlie S. Labina (*PhD Statistics, on going*)

Research Areas: mathematical statistics, survey sampling, survey operations

Joseph Ryan G. Lansangan (*PhD Statistics, on going*), *On Study Leave*

Research Areas: computational statistics, multivariate analysis, data mining

Angela D. Nalica (*MS Statistics, 2000*)

Research Areas: nonparametric statistics, regression analysis, market research

Welfredo R. Patungan (*PhD Statistics, 2003*)

Research Areas: mathematical statistics, experimental designs

Joyce Raymond B. Punzalan (*MS Statistics, 1997*)

Research Areas: statistical modeling

Kevin Carl P. Santos (*MS Statistics, 2011*)

Research Areas: regression analysis, multivariate analysis

Cristina Remedion L. Sotto (*PhD Biostatistics, 2009*), *Post-Doctoral Study Leave*

Research Areas: biostatistics, longitudinal data analysis, missing data

INSTRUCTOR

Manuel Leonard F. Albis (*MS Statistics, on going*)

Research Areas: econometrics, robust statistics, multivariate analysis

Peter Julian A. Cayton (*MS Statistics, on going*)

Research Areas: time series analysis, econometric methods, quantitative risk management.

Ivy Iris Gauran (*MS Statistics, on going*)

Research Areas: nonparametric models, customer behavior modeling

Michael Daniel Lucagbo (*MS Statistics, on going*)

Research Areas: clustered data, nonparametric models

Jovel Nabia (*MS Statistics, on going*)

Research Areas:

Ma. Regina Pauline Yap (*MS Statistics, on going*)

Research Areas: