

UNIVERSITY OF THE PHILIPPINES LOS BAÑOS  
**INSTITUTE OF STATISTICS**  
**BS Statistics - Course Description**

COURSE	COURSE TITLE	UNITS	NO. OF HOURS	PREREQUISITES	DESCRIPTION
<b>STATISTICS</b>					
STAT 1	Elementary Statistics	3	1,2,S	MATH 11 or MATH 17	Basic statistical concepts, frequency tables, summary measures, probability, sampling, estimation, testing of hypothesis, analysis of variance, regression and correlation, goodness-of-fit-tests and test of independence
STAT 101	Statistical Methods	3	5 hrs (2 Lec, 3 Lab)	STAT 1	Analysis of measurements and discrete data; some nonparametric methods; simple linear regression and correlation analysis; analysis of variance and covariance
STAT 135	Logic and Matrix Algebra in Statistics	3	3 hrs(2 Lec, 1 Rec)z	STAT 101 and MATH 37	Basic concepts and methods in logic and matrix algebra useful in Statistics
STAT 144	Introductory Statistical Theory I	3		STAT 1 and MATH 38	Probability models, operations on probability, random variables and random vectors; mathematical expectations; sampling from a probability distribution; statistical inference
STAT 145	Introductory Statistical Theory II	3	3 hrs(2 Lec, 1 Rec)	STAT 144	Discrete and Continuous Probability Models; Generating Functions; Functions of Random Variables and Random Vectors; Sampling from Normal Populations; Large- sample Theory
STAT 146	Introductory Statistical Theory III	3	3 hrs(2 Lec, 1 Recit)	STAT 145	Estimation; Testing of hypothesis and common parametric tests
STAT 147	Introduction to the Theory of Nonparametric Statistics	3	3 hrs(2 Lec, 1 Rec)	STAT 145	Development of point and interval estimates and formulation of tests of hypothesis based on distribution-free statistics
STAT 151	Applied Regression and Correlation	3	5 hrs (2 Lec, 3 Lab)	STAT 135 or COI	Linear regression; correlation analysis; methods of model selection
STAT 156	Introductory Time Series Analysis	3	5 hrs (2 Lec, 3 Lab)	STAT 135 or COI	Approaches to time series analysis; autocovariance and autocorrelation functions; linear stationary and non-stationary processes; forecasting,

					modelling and diagnostic checking; seasonal time series.
STAT 162	Experimental Designs I	3	5 hrs (2 Lec, 3 Lab)	STAT 1 or COI	Principles of experimental design; analysis of completely randomized design; randomized complete block design, latin square design, factorial experiments, split-plot design, treatment comparisons and analysis of covariance.
STAT 163	Survey Designs	3	3 hrs (2 hr Lec, 1 Rec)	STAT 144	Introduction to sampling methods: simple random, stratified, unequal probability and multi-stage sampling, methods of estimation
STAT 164	Statistics for the Biological Sciences	3	5 hrs (2 Lec, 3 Lab)	STAT 1	Statistical modelling of biological data; parametric and nonparametric tests for comparing means; analysis of relationships among variables; probit analysis; linear discriminant analysis; cluster analysis; analysis of categorical data
STAT 165	Categorical Data Analysis	3	5 hrs (2 Lec, 3 Lab)	STAT 1 or COI	Analysis of proportions and percentages; measures and models of independence and associations; log-linear, logit, logistic and probit models for nominal and ordinal, binary and multinomial response data; analysis of repeated measures categorical response data; simple and multiple correspondence analysis
STAT 166	Statistics for the Social Sciences	3	5 hrs (2 Lec, 3 Lab)	STAT 1	Sampling and survey operations; tests of hypothesis; nonparametric tests; analysis of one-way and two-way classification data; measures of associations and relationships; quantitative text analysis.
STAT 167	Statistical Quality Control	3	5 hrs (2 Lec, 3 Lab)	STAT 1	Types of variables, frequency distribution, descriptive measures of a distribution, control charts, process capability, introduction to designed experiments for process improvement, acceptance sampling
STAT 172	Experimental designs II	3	5 hrs (2 Lec, 3 Lab)	STAT 162	Analysis of Nested Experiments; Symmetric Factorials; Confounding; Response Surface Analysis; Experiments with Mixtures; Incomplete Block Designs and Lattices; Repeated Measures and Crossover Designs; Analysis of Similar Experiments

STAT 173	Survey Operations	3	5 hrs ( 2 Lec, 3 Lab)	STAT 163	Planning, execution and analysis of surveys
STAT 175	Analysis of Multivariate Data	3	5 hrs (2 hrs lecture, 3 hrs lab)	STAT 1/COI	Analysis of data from multivariate normal populations; profile analysis; multivariate analysis of variance; multivariate regression analysis; correlations; canonical correlation analysis; path analysis; discriminant analysis; principal component analysis; factor analysis; cluster analysis
STAT 181	Statistical Computing	3	5 hrs (2 Lec, 3 Lab)	COI	
STAT 182	Statistical Packages	3	5 hrs (2 Lec, 3 Lab)	STAT 101 or COI	Statistical packages in data processing and analysis
STAT 190	Special Problem	3			
STAT 191	Special Topics	3	3 hrs	COI	Topics: <ul style="list-style-type: none"> <li>• Small-area Estimation</li> <li>• Study Designs in Biostatistics and Epidemiology</li> <li>• Environmental Risk Analysis</li> </ul>
STAT 198	Practicum	3		COI	
STAT 199	Undergraduate Seminar	1	1 hr	COI	

### MATHEMATICS

MATH 17	Algebra and Trigonometry	5	5 hrs	None	Sets and numbers; the algebra of numbers as a logical system; inequalities; absolute values and coordinate systems, functions and graphs, circular, linear, polynomial and quadratic functions; exponential and logarithmic functions; application of the circular function; angles.
MATH 36	Mathematical Analysis I	5	5 hrs	MATH 14 or MATH 17	The real number system; plane analytic geometry and conic sections, limits and continuity, differentiation and integration of algebraic functions
MATH 37	Mathematical Analysis I	5	5 hrs	MATH 36	Derivatives and integrals of transcendental functions; parametric equations; polar coordinates, techniques of integration and applications; vectors in two or three dimensions; loci in space
MATH 38	Mathematical Analysis I	3	3 hrs	MATH 37	Theories, techniques and applications of partial differentiation and multiple integration, vector differential and

					integral calculus; elements of infinite series
<b>PHYSICS</b>					
PHY 1	Introductory Physics	3	5 hrs (2 Lec, 3 Lab)		An elementary survey of the concepts and laws of physics, covering mechanics, heat, electricity, magnetism, optics, relativity, atomic and nuclear physics with emphasis on unifying principles .
<b>COMPUTER SCIENCE</b>					
CMSC 11	Introduction to computer science	3	5 hrs (2 Lec, 3 Lab)	MATH 11 or MATH 17	Introduction to the major areas of computer science; software systems and methodology; computer theory; computer organization and architecture.
CMSC 21	Fundamentals of Programming	3	5 hrs (2 Lec, 3 Lab)	CMSC 11	Introduction to computer-programming using a general purpose, structured, procedural high-level language; program design, testing and debugging.
CMSC 22	Object-oriented programming	3	5 hrs (2 Lec, 3 Lab)	CMSC 11	Design and implementation of object-oriented programs.
<b>HUMANITIES</b>					
ENG 1	College English	3	3 hrs		English-language structure, style and use in various context
ENG 2	College writing in English	3	3 hrs		Critical reading and style in writing expository academic papers
ENG 10	Writing of scientific papers	3	3 hrs		Principles underlying the preparation and writing of scientific papers
SPCM 1	Speech Communication	3	3		Theories and principles of speaking and listening and their effective and ethical applications in various situations
<b>CHEMISTRY</b>					
CHEM 15	Fundamentals of Chemistry	5	9 hrs (3 Lec, 6 Lab)		Basic principles of chemistry, atomic, molecular structure, chemical bonding, quantitative relationship; descriptive organic chemistry and survey of biomolecules.
<b>BIOLOGY</b>					
BIO 1	General Biology I	3	5 hrs (2 Lec, 3 Lab)	None	Principles of biology with emphasis on the molecular , cellular, tissue-organ, and organismic levels of organization of life

BIO 2	General Biology II	3	5 hrs (2 Lec, 3 Lab)	None	Principles of biology with emphasis on the organismic, population and community levels of organization of life, the biosphere in perspective levels of organization of life
BIO 30	Genetics	3	5 hrs (2 Lec, 3 Lab)		Mechanism of heredity and variation, cytogenetics, mutation, nature of genes, population genetics and evolution genetics; biometrical procedures
<b>SOCIAL SCIENCES</b>					
PI 10	The Life and Works of Jose Rizal	3	3 hrs	Junior Standing	Significance of the life and writings of Rizal in the life of the Filipino people.
<b>ECONOMICS</b>					
ECON 11	General Economics	3	3 hrs		Introduction to economic analysis with special application to the Philippines
<b>GE Courses</b>					
Arts and Humanities		9 (3 courses)			
Social Science and philosophy		6 (2 courses)			
Mathematics, Science and Technology		9 (3 courses)			
<b>Other Courses</b>					
Physical Education		(8) 4 courses			
NSTP		(4.5) 3 courses			