

SRLP 4165 Sports for Persons with Special Needs (3,1,2) (C)

This course aims to provide students with knowledge to demonstrate, organize, and teach/coach a variety of alternate sports, such as floor hockey, floorball, sandshoe, goalball, bocce, gateball etc., for persons with special needs.

STAT 1131 Statistical Methods and Theory I (3,3,1) (E)

Prerequisite: A-Level Pure Mathematics, A-Level/AS-Level Applied Mathematics or AS-Level Mathematics and Statistics

This course deals with the statistical methods and theory. The emphasis is on what, how, when and why certain statistical methods can and cannot be applied. Topics include exploratory data analysis, estimation, hypothesis testing, analysis of variance, simple linear regression and nonparametric methods. Students are required to solve a variety of problems by using calculators and statistical packages such as SAS, MINITAB, SPSS, S-PLUS or R.

STAT 1132 Statistical Methods and Theory II (3,3,1) (E)

Prerequisite: STAT 1131 Statistical Methods and Theory I

This course deals with the elementary probability theory and the mathematical foundation of some commonly used statistical methods. First the rigorous mathematical frame of the probability theory based upon the concepts of random variables and probability distributions are introduced. The general procedures of statistical inference, such as parameter estimation, hypothesis test, analysis of variance are demonstrated with detailed discussion about their mathematical features. Students are required to comprehend the most commonly used probability distributions and their relations. Central Limit Theorem and related statistical application should be well understood. Several optimal schemes for the estimation accuracy and the hypothesis test power form another important part of the course.

STAT 1210 Probability and Statistics for Computer Science (3,3,0) (E)

Prerequisite: MATH 1000 Supplementary Mathematics (Calculus and Linear Algebra) or Grade D or above in AL Pure Mathematics

This course aims to provide an understanding of the basic concepts in probability and statistical analysis. Students will learn the fundamental theory of distribution random variables, the basic theory and techniques of parameter estimation and tests of hypotheses. After taking this course, students will be able to use calculators and table to perform simple statistical analyses for small samples and use popular statistics packages, such as SAS, SPSS, S-Plus, R or MATLAB, to perform simple and sophisticated analysis.

STAT 1620 Computer-aided Statistics (3,3,0) (E)

Antirequisite: BUS 1200 Statistics for Business, STAT 1210 Probability and Statistics or STAT 1131 Statistical Methods and Theory I

This course deals with the statistical analysis using commercial grade computer software. It provides statistical concepts and methods so that the students learn how to make correct statistical inference by using appropriate methods.

STAT 2110 Regression Analysis (3,3,0) (E)

Prerequisite: STAT 1131-2 Statistical Methods and Theory I & II and MATH 1120 Linear Algebra

This course aims to provide an understanding of the classical and modern regression analysis and techniques which are widely adopted in various areas such as business, finance, biology and medicine. There have been great developments in the past decades such as nonlinear regression, robust regression, nonparametric regression etc. With the help of a statistical package such as SAS, Matlab or R, students can analyse multivariate data by modern regression techniques without any difficulty.

STAT 2120 Categorical Data Analysis (3,3,0)

Prerequisite: STAT 1620 Computer-aided Statistics or STAT 2110 Regression Analysis

To equip students with statistical methods for analysing categorical data arisen from qualitative response variables which cannot be handled by methods dealing with quantitative response, such as regression and ANOVA. Some computing software, such as SAS, S-PLUS, R or MATLAB, will be used to implement the methods.

STAT 2710 Design and Analysis of Surveys (3,3,0) (E)

Prerequisite: STAT 1131 Statistical Methods and Theory I or STAT 1620 Computer-aided Statistics

To provide students with a good understanding of survey operations, survey sampling methods and the corresponding analyses of data. Important points in questionnaire design will also be addressed in the course. Students will form teams to do course projects. On completion of the course, students should be able to design, carry out, and write reports based on a professional survey.

STAT 2810 Design and Analysis of Experiments (3,3,0) (E)

Prerequisite: STAT 2110 Regression Analysis

To provide an understanding of various kinds of experimental designs involving factorial and uniform designs as well as design for computer experiments. The experimental design has a long history and has been widely used in industry, agriculture, quality control, natural sciences and computer experiments. They can be applied to survey design as well. Therefore, they are useful in business and social sciences. The statistical package, SAS and UD4.0 will be used to support the lecture.

STAT 3710 Multivariate Analysis and Data Mining (3,3,0) (E)

Prerequisite: STAT 2110 Regression Analysis

To provide an understanding of the classical multivariate analysis and modern techniques in data mining. Very often, observations in the social, life and natural sciences are multidimensional or very high dimensional. This kind of data sets can be analysed by techniques in multivariate analysis and/or data mining. With the help of statistical package, such as Matlab, students will learn how to treat real multivariate problems.

STAT 3820 Life Insurance and Life Contingencies (3,2,1) (E)

Prerequisite: (1) BUS 1150 Mathematics for Business and BUS 1160 Statistics for Business, or (2) STAT 1131-2 Statistical Methods and Theory I & II

To introduce the theory of life insurance and life contingencies with application to insurance problems. Students will learn some of the major issue in the field of actuaries.

STAT 3830 Times Series and Forecasting (3,3,0)

Prerequisite: STAT 2110 Regression Analysis

The course aims at providing students with an understanding of the statistical methods for time series data whose order of observation is crucially important in depicting the background dynamics of the related social, economical, and/or scientific phenomena. The students will learn to use various time series models and techniques such as exponential smoothing, ARIMA, etc. to model and make forecasts. Corresponding programming techniques to facilitate these practices will also be introduced within the platforms of MATLAB. Case studies will be provided to make the students acquainted with the elementary techniques.

STAT 3840 Survival Analysis (3,3,0) (E)

Prerequisite: STAT 1131-2 Statistical Methods and Theory I & II, STAT 2110 Regression Analysis and STAT 2120 Categorical Data Analysis

This course aims to provide students with a good understanding of techniques for the analysis of survival data, including methods for estimating survival probabilities, comparing survival probabilities across two or more groups, and assessing the effect