# MASTER OF APPLIED STATISTICS

2024/2025

FACULTY OF
BUSINESS AND ECONOMICS

# MASTER OF APPLIED STATISTICS

# PROGRAMME GOAL AND LEARNING OUTCOMES

**Programme Goal**

To produce graduates who are global, innovative, critical thinking with analytical skills in applying statistics for problem solving.

**Programme Educational Objectives**

(1) Graduates are professionally involved in the field of applied statistics, locally or globally.
(2) Graduates demonstrate active involvement in the process of decision or policy making based on competent and ethical use of applied statistics.
(3) Graduates demonstrate a commitment to sustained learning in the changing field of applied statistics, while working with others from interdisciplinary backgrounds.

**Programme Learning Outcomes**

At the end of the programme, graduates are able to:

(1) Relate theories, concepts, and methods in the discipline for analysis of statistical problems.
(2) Apply skills in applied statistics integratively to solve practical problems for decision making.
(3) Build, test and validate statistical models guided by recent approaches in the discipline.
(4) Practice collaborative learning and communicate the findings from statistical analysis of data in various disciplines effectively.
(5) Use digital technologies and numeracy skills competently in statistical analysis.
(6) Exercise substantial responsibility in data collection, processing, management and storage to protect information confidentiality.
(7) Gather information from various sources to analyze real-world problems for sustained learning.
(8) Demonstrate adherence to ethical practice and professionalism in statistical analysis and dissemination of information.

# STRUCTURE OF PROGRAMME OF STUDY

| Code | Course | Credit | Duration of Examination | Distribution of Marks % | |
|---|---|---|---|---|---|
| | | | | Continuous Assessments | Final Examination |
| **CORE COURSES** | | | | | |
| AA0X7001 | Research Methodology | 4 | - | 100 | - |
| AA037018 | Research Project | 10 | - | 100 | - |
| AA037002 | Survey Techniques and Sampling Design | 4 | 3 hours | 50 | 50 |
| AA037003 | Principles of Statistics | 4 | 3 hours | 50 | 50 |
| AA037004 | Statistical Data Analysis | 4 | 3 hours | 50 | 50 |

**And at least sixteen (16) credit hours of the following optional courses:**

**OPTIONAL COURSES**

| | | | | | |
|---|---|---|---|---|---|
| AA037005 | Applied Econometrics | 4 | 2 hours | 60 | 40 |
| AA037006 | Further Econometrics | 4 | 2 hours | 60 | 40 |
| AA037007 | Time Series Analysis | 3 | 2 hours | 60 | 40 |
| AA037008 | Experimental Design | 3 | 2 hours | 60 | 40 |
| AA037009 | Biostatistics | 3 | 2 hours | 60 | 40 |
| AA037010 | Applications of Demographic Techniques | 3 | 2 hours | 60 | 40 |
| AA037011 | Operations Research Methods | 3 | 2 hours | 60 | 40 |
| AA037012 | Applied Financial Econometrics | 3 | 2 hours | 60 | 40 |
| AA037013 | Statistical Methods for Quality Management | 3 | 2 hours | 60 | 40 |
| AA037014 | Statistical Computing | 3 | 2 hours | 60 | 40 |
| AA037015 | Data Analytics | 3 | 2 hours | 60 | 40 |
| AA037016 | Industry Statistical Project | 4 | - | 100 | - |
| AA037017 | Bayesian Statistics | 3 | 2 hours | 60 | 40 |
| AA017015 | International Finance | 3 | 2 hours | 50 | 50 |
| AA017019 | Political Economy | 3 | 2 hours | 60 | 40 |

*Optional courses offered in each semester may vary from semester to semester.

**MASTER OF APPLIED STATISTICS**
**TIMETABLE**

**SEMESTER I, 2024/2025 SESSION**

| DAY | TIME | COURSE CODE | TITLE | LECTURER | VENUE |
|---|---|---|---|---|---|
| Monday | 6.00 – 9.00 pm | AA0X7001 (Occ.1) | Research Methodology | Profesor Dr. Evelyn Shyamala Paul Devadason | DK2, H11 |
| | | AA037011 | Operation Research Methods | Dr. Elayaraja Aruchunan | Makmal G2/G3 |
| | | AA037013 | Statistical Methods for Quality Management | Dr. Muzalwana Abd Talib | Postgraduate Computer Lab |
| Tuesday | 6.00 – 9.00 pm | AA037005 | Applied Econometrics | Dr. Ahmad Farid Osman | Makmal G2/G3 |
| | | AA037010 | Applications of Demographic Techniques | Assoc. Prof. Dr. Lai Siow Li | Makmal Utiliti |
| Wednesday | 6.00 – 9.00 pm | AA037003 | Principles of Statistics | Dr. Adilah Abdul Ghapor | DK 2 |
| | | AA037012 | Applied Financial Econometrics | Dr. Soon Siew Voon | Makmal G2/G3 |
| Thursday | 6.00 – 9.00 pm | AA017015 | International Finance | Dr. Goh Lim Thye | BSP 1-5 |
| | | AA037004 (Occ. 1) | Statistical Data Analysis | Dr. Muhammad Ashraf Khalid | Makmal G2/G3 |
| | | AA037015 | Data Analytics | Dr. Diana Abdul Wahab | Postgraduate Computer Lab |
| Friday | 6.00 – 9.00 pm | AA037002 (Occ. 1) | Survey Techniques and Sampling Design | Dr. Tey Nai Peng | Makmal G2/G3 |
| | | AA037002 (Occ.2) | Survey Techniques and Sampling Design | Assoc. Prof. Dr. Lai Siow Li | Makmal Utiliti |
| Saturday | 9.00 am – 12.00 pm | AA037004 (Occ.2) | Statistical Data Analysis | Dr. Rohana Jani | Postgraduate Computer Lab |
| **AA037018 Research Project**<br>No Lecture<br>(Course Pre-requisite(s)/Minimum Requirement(s) - AA0X7001) | | | | | |
| **AA037016 Industry Statistical Project**<br>No Lecture<br>(Course Pre-requisite(s)/Minimum Requirement(s) - AA037002, AA037003 and AA037004) | | | | | |

**SEMESTER 2, 2024/2025 SESSION**

| DAY | TIME | COURSE CODE | TITLE | LECTURER | VENUE |
|---|---|---|---|---|---|
| Monday | 6.00 – 9.00 pm | AA0X7001 (Occ. 1 ) | Research Methodology | Prof. Dr. Yong Chen Chen | DK 2, H11 |
| | | AA037008 | Experimental Design | Dr. Ng Yin Mei | Lab G2/G3 |
| Tuesday | 6.00 – 9.00 pm | AA037007 | Time Series Analysis | Dr. Ahmad Farid Osman | Lab G2/G3 |
| | | AA037009 | Biostatistics | Dr. Hannuun Eadiela Yaacob | Postgraduate Computer Lab |
| Wednesday | 6.00 – 9.00 pm | AA037003 | Principles of Statistics | Dr. Adilah Abdul Ghapor | DK4 |
| | | AA037006 | Further Econometrics | Dr. Soon Siew Voon | Lab G2/G3 |
| | | AA037014 | Statistical Computing | Dr. Diana Abdul Wahab | Postgraduate Computer Lab |
| | | AA017019 | Political Economy | Dr Zuhairan Yumni Yunan | BSP 1-2 |
| Thursday | 6.00 – 9.00 pm | AA037004 (Occ. 1) | Statistical Data Analysis | Dr. Muhammad Ashraf Khalid | Lab G2/G3 |
| | | AA037004 (Occ. 2) | Statistical Data Analysis | Dr. Rohana Jani (Pakar) | Postgraduate Computer Lab |
| | | AA037017 | Bayesian Statistics | Dr. Hannuun Eadiela Yaacob | Utility Lab |
| Friday | 6.00 – 9.00 pm | AA037002 (Occ.1) | Survey Techniques and Sampling Design | Dr. Tey Nai Peng | Lab G2/G3 |
| | | AA037002 / (Occ.2) | Survey Techniques and Sampling Design | Assoc. Prof. Dr. Lai Siow Li | Utility Lab |
| **AA037018 Research Project**<br>No Lecture<br>(Course Pre-requisite(s)/Minimum Requirement(s) - AA0X7001) | | | | | |
| **AA037016 Industry Statistical Project**<br>No Lecture<br>(Course Pre-requisite(s)/Minimum Requirement(s) - AA037002, AA037003 and AA037004) | | | | | |

## COURSE INFORMATION

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|---|---|
| **AA0X7001**<br>4 Credits | **RESEARCH METHODOLOGY** |
| Learning Outcomes | At the end of the course, students are able to:<br><br>(1) Examine the logic of scientific discovery and the novelty in research.<br>(2) Evaluate the usage of inductive and deductive research.<br>(3) Compare the different types of research methodologies.<br>(4) Formulate a research proposal |
| Synopsis of Course Contents | Using examples from past research and methodologies across 4 disciplines (economics, applied statistics, development studies and politics), this course seeks to examine in its entirety the philosophy and methodology of research so as to help equip students with a better understanding of how to undertake research, analyse data, and write scholarly and policy papers. Following a sequential exposition of the philosophical underpinnings of research and methodology, and the procedures of data collection, estimation and interpretation, the course introduces all the main current methodologies as well as qualitative and quantitative tools of data analysis.<br><br>Lectures will be supplemented with a critical examination of the methodological frameworks used in selected leading publications and by leading scholars from inter/disciplinary fields.<br><br>In class lessons will be revisited towards the end of the course through a careful selection of case studies from multiple disciplines (tier 1 journal publications from economics, applied statistics, dev studies and politics). This way, students will have a broad introduction to various ways in which data, methodologies, software and methods are combined in academic research. The emphasis will be on methodological debates and diversity within social sciences.<br><br>Equally, they will receive practical lessons on how to handle discipline-specific big data sets.<br><br>Lastly, they will receive hands-on training on complete research proposal developments applying creative and critical thinking using problem sets |
| Assessment Weightage | Continuous Assessment: 100%<br>Final Examination: None |
| Medium of Instruction | English |

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|---|---|
| **AA037018**<br>10 Credits | **RESEARCH PROJECT** |
| Course Pre-requisite(s)/Minimum Requirement(s) | **AA0X7001** |
| Learning Outcomes | At the end of the course, students are able to:<br>(1) Integrate information from the review of relevant literature;<br>(2) Build and/or test and/or validate statistical models to be applied in the research.<br>(3) Analyze information/data using the appropriate statistical techniques and software;<br>(4) Adopt ethical practices in the conduct of research;<br>(5) Write a research report articulately. |
| Synopsis of Course Contents | This course is designed as a capstone project to train students in conducting research in applied statistics. Students will write a report for the project (15, 000 to 30, 000 words) that is carried out. Besides conducting an empirical research that involves application of statistics, they can also run simulations, experiments, or propose methodological innovations in applied statistics. Supervision by at least one lecturer will begin from the initial stage of research project development to report preparation. The other research stages that are supervised include identifying research questions, designing research framework, reviewing the literature (analysis, synthesis and critical review of theoretical and empirical literature from recent research), collecting information/data, conduct analysis using appropriate statistical methods, ensuring ethical practices, relating findings to answer the research questions, and making appropriate conclusions. |
| Assessment Weightage | Continuous Assessment:100%<br>Final Examination: None |
| Medium of Instruction | English |

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|---|---|
| **AA037002**<br>4 Credits | **SURVEY TECHNIQUES AND SAMPLING DESIGN** |
| Learning Outcomes | At the end of the course, students are able to:<br>(1) Demonstrate a sound understanding of the research process and research methodology;<br>(2) Collect primary data using appropriate data collection and sampling methods;<br>(3) Analyze data and draw conclusion; and<br>(4) Demonstrate skills in effective writing and communication. |
| Synopsis of Course Contents | This course covers major issues connected with the research process in various fields. The course is designed to equip students with a sound understanding of theory building and the research process, with emphasis on quantitative applications of research methods. Students will learn the techniques of sampling, data collection and analysis for report writing. The course will also train students on critical analysis of published research and equip them with communication skills. |
| Assessment Weightage | Continuous Assessment: 50%<br>Final Examination: 50% |
| Medium of Instruction | English |

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|---|---|
| **AA037003**<br>4 Credits | **PRINCIPLES OF STATISTICS** |
| Learning Outcomes | At the end of the course, students are able to:<br>(1) Apply the concepts of probability and inferential statistics;<br>(2) Relate sampling distributions to estimation and hypothesis testing;<br>(3) Formulate hypothesis tests;<br>(4) Apply appropriate statistical techniques for drawing problems, drawing inference and making decisions in the fields of business, economics, finance and social science.<br>(5) Communicate the findings effectively |
| Synopsis of Course Contents | The course deals with the fundamentals of statistics with emphasis on applications in business, economics, finance and social science field. The course begins with the concepts of probability and this is followed by probability distributions of random variables, including joint, marginal and conditional distributions and leading into the introduction of sampling distributions. These topics are taught to set the foundation for inferential statistics. Attention is devoted to the conceptual and quantitative method in the topics of estimation and hypothesis testing, including non-parametric methods. |
| Assessment Weightage | Continuous Assessment : 50%<br>Final Examination : 50% |
| Medium of Instruction | English |

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|---|---|
| **AA037004**<br>4 Credits | **STATISTICAL DATA ANALYSIS** |
| Learning Outcomes | At the end of the course, students are able to:<br>(1) Analyse quantitatively the structure in a set of data;<br>(2) Adapt the appropriate statistical techniques given the aim of analysis in solving the related problems; and<br>(3) Express the results arising from the application of these techniques to data in various fields.<br>(4) Adopt ethical practices in the conduct of research. |
| Synopsis of Course Contents | This course exposes students to the analysis of univariate and multivariate data. Students learn to examine variation in data; assess the need for transformation; evaluate patterns; summarize the information; and apply various statistical techniques for analysis. Students learn to use statistical software in application of regression analysis, discriminant analysis, factor analysis, multidimensional scaling, conjoint analysis, structural equation model and principal components analysis to data from various field. |
| Assessment Weightage | Continuous Assessment: 50%<br>Final Examination: 50% |
| Medium of Instruction | English |

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|---|---|
| **AA037005**<br>4 Credits | **APPLIED ECONOMETRICS** |
| Learning Outcomes | At the end of the course, students are able to:<br>(1) Estimate regression analysis for quantifying economic relationships;<br>(2) Specify models in a manner suitable for econometric testing;<br>(3) Appraise the adequacy of regression models estimated using econometric software.<br>(4) Propose valid conclusions from the results of estimation and hypothesis-testing. |
| Synopsis of Course Contents | The course is designed to equip students with econometric tools of analysis for research work. Computer software is used for the purposes of estimation, prediction, and basic modeling. Single-equation models in the classical context are given emphasis. Diagnostic tests and problems of estimation (multicollinearity, autocorrelation, heteroscedasticity, model specification errors) are discussed. Extensions to single-equation models covered include qualitative choice models, dummy variable regression models, and autoregressive and distributed lag models. Introduction to simultaneous-equation models is given. |
| Assessment Weightage | Continuous Assessment : 60%<br>Final Examination : 40% |
| Medium of Instruction | English |

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|---|---|
| **AA037006**<br>4 Credits | **FURTHER ECONOMETRICS** |
| Learning Outcomes | At the end of the course, students are able to:<br>(1) Specify econometric techniques that are appropriate for different types of data structure;<br>(2) Evaluate appropriate panel data approaches to the analysis of panel data;<br>(3) Identify econometric models based on economic theory; and<br>(4) Appraise findings of econometric techniques applied to real-world data. |
| Synopsis of Course Contents | This course is designed to train students in advanced econometric applications with a focus on autoregressive distributed lag (ARDL) models, cointegration, and panel data modeling. Students will be exposed to several econometric methods, and are required to read journal articles in the relevant areas on applications of these methods. Topics such as short- and long-term multipliers, short- and long-run relationships, fixed and random effects panels, panel unit root tests, non-stationarity panel, and diagnostic tests are covered in the course. Students will learn to communicate the findings from applications of the techniques to real-world data. |
| Assessment Weightage | Continuous Assessment: 60%<br>Final Examination: 40% |
| Medium of Instruction | English |

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| **AA037007**<br>3 Credits | **TIME SERIES ANALYSIS** |
| Learning Outcomes | At the end of the course, students are able to:<br>(1) Examine time series patterns of data (graphically and quantitatively);<br>(2) Construct forecasting models that incorporate correlated error structures;<br>(3) Compare the forecasting performance of the different models developed for a given set of data; and<br>(4) Explain the results arising from the application of time series analysis in various fields. |
| Synopsis of Course Contents | This course exposes students to the study of time series data. It focuses on the use of statistical models (such as classical decomposition, exponential smoothing, least squares, ARIMA) for forecasting. Students learn to assess and select an appropriate model from among different possible models for a given set of data. The use of statistical software to analyse data ensures that the students learn the nuances of modelling correlated error structures. |
| Assessment Weightage | Continuous Assessment: 60%<br>Final Examination: 40% |
| Medium of Instruction | English |

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| **AA037008**<br>3 Credits | **EXPERIMENTAL DESIGN** |
| Learning Outcomes | At the end of this course, students are able to:<br>(1) Implement an appropriate experimental design<br>(2) Design the experiment with ethical consideration<br>(3) Present the results of experiments to facilitate decision making process |
| Synopsis of Course Contents | This course equips students with the necessary skills for designing various experiments and analyzing the results of such experiments. The topics covered include Principles of Experimental Design, Multiple Comparison Methods, Orthogonality, Two-factor Cross-Classification Designs, Nested Designs, Latin-Square, Two-level Factorial Designs, Confounding/Blocking, Fractional-Factorial Designs, Designs with Factors at Three Levels, with their applications in various industries. |
| Assessment Weightage | Continuous Assessment: 60%<br>Final Examination: 40% |
| Medium of Instruction | English |

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|---|---|
| **AA037009**<br>3 Credits | **BIOSTATISTICS** |
| Learning Outcomes | At the end of this course, the students are able to:<br>(1) Determine techniques that are appropriate for analysing categorical data;<br>(2) Determine techniques that are appropriate for analysing the time to the occurrence of an event;<br>(3) Use the results arising from the application of these techniques in medicine and social science. |
| Synopsis of Course Contents | This course covers the applications of statistical methods to problems in medicine and social science. Topics covered include analysis of categorical data, logistic regression and survival analysis. |
| Assessment Weightage | Continuous Assessment : 60%<br>Final Examination: 40% |
| Medium of Instruction | English |

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|---|---|
| **AA037010**<br>3 Credits | **APPLICATIONS OF DEMOGRAPHIC TECHNIQUES** |
| Learning Outcomes | At the end of the course, students are able to:<br>(1) Explain the importance and basic concepts of demography;<br>(2) Analyse demographic and population-related socioeconomic indicators;<br>(3) Apply demographic techniques in different fields; and<br>(4) Evaluate the inter-relationships between population dynamics and socioeconomic development. |
| Synopsis of Course Contents | This course is designed to introduce students to the importance of population studies, basic demographic concepts, sources of population data, trends and demographic structures, and factors influencing population change.<br><br>This course covers demographic techniques, including the collection and compilation of secondary data from various sources, data analysis, calculation and interpretation of various demographic measurements, application of life tables and population projections. The use of demographic data in various sectors, such as employment, education, health, housing, business, and politics will be shown. |
| Assessment Weightage | Continuous Assessment: 60%<br>Final Examination: 40% |
| Medium of Instruction | English |

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|---|---|
| **AA037011**<br>3 Credits | **OPERATIONS RESEARCH METHODS** |
| Learning Outcomes | At the end of the course, students are able to:<br>(1) Formulate mathematical expressions to reflect real life optimization problems<br>(2) Apply appropriate methods for solving operation research problems; and<br>(3) Interpret the results to facilitate decision making process |
| Synopsis of Course Contents | Operations Research, also referred to as Management Science, is a practical and scientific approach to problem solving utilizing quantitative techniques. This course covers several analytical methods including network analysis, linear programming, Data Envelopment Analysis, game theory, integer programming, project scheduling, decision analysis and queuing theory. These methods can be used to analyse complex problems and improve decision making processes in industry, business and the public sector. |
| Assessment Weightage | Continuous Assessment: 60%<br>Final Examination: 40% |
| Medium of Instruction | English |

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|---|---|
| **AA037012**<br>3 Credits | **APPLIED FINANCIAL ECONOMETRICS** |
| Learning Outcomes | At the end of this course, the students are able to:<br>(1) Analyse returns to financial assets and construct indices as measures of stock market performance;<br>(2) Estimate financial models including time-varying volatility models using appropriate software;<br>(3) Determine the adequacy of estimated econometric-time series models in the area of finance; and<br>(4) Construct valid conclusions from the results of estimation and hypothesis testing. |
| Synopsis of Course Contents | The course introduces the methods of construction of stock market indices, computation of returns with adjustment for capital changes and estimation of betas. Tests of market efficiency and estimation of selected financial models are discussed. The capital asset pricing model is applied for analyzing the ability of market timing and stock selectivity. Calendar anomalies and methods for modelling volatility in financial data, such as ARCH & GARCH, are discussed. Subsequently, the estimation of Value-at-Risk for portfolio and stock returns and Risk metrics are discussed. Lastly, various Multivariate GARCH models are discussed |
| Assessment Weightage | Continuous Assessment : 60%<br>Final Examination: 40% |
| Medium of Instruction | English |

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| **AA037013**<br>3 Credits | **STATISTICAL METHODS FOR QUALITY MANAGEMENT** |
| Learning Outcomes | At the end of the course, students are able to:<br>(1) Explain the role of statistical methodology, tools and techniques for quality management in the field of social science.<br>(2) Apply the appropriate statistical tools, techniques and software applications in describing quality characteristics.<br>(3) Analyse statistical results in solving quality related problems.<br>(4) Construct various forms of results to effectively communicate on findings about quality |
| Synopsis of Course Contents | This course exposes students to basic concepts of quality and the roles of statistical methods in understanding and managing quality of processes and products. Statistical software is utilized in understanding the process and product quality characteristics. The topics covered include Statistical Thinking in Quality Improvement, Statistical Process Control, Variable and Attribute Control Chart, Hotelling's T2 Control Chart, Multivariate Methods for Quality Improvement, Acceptance sampling. |
| Assessment Weightage | Continuous Assessment: 60%<br>Final Examination: 40% |
| Medium of Instruction | English |

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|---|---|
| **AA037014**<br>3 Credits | **STATISTICAL COMPUTING** |
| Learning Outcomes | At the end of the course, students are able to:<br>(1) Develop statistical function codes in R;<br>(2) apply the functionality of R by using add-on packages;<br>(3) evaluate modeling assumptions using simulation; and<br>(4) integrate the prose, codes and results for communication. |
| Synopsis of Course Contents | Computational data analysis is an essential part of modern statistics. This experiential work-based learning course employs computational, graphical, and numerical approaches to solve statistical problems. The course focuses on an open source software statistical language as an ideal computing environment. The goal of this course is to introduce students to the R programming environment and related eco-system and thus provide them with an in-demand skill-set, in both the research and business environments. This course provides guidance to students through the steps of importing, wrangling, exploring, and modeling the data, and communicating the results. This course prepares students to take up analytic and data science courses in the future. No previous programming experience is assumed. |
| Assessment Weightage | Continuous Assessment: 60%<br>Final Examination: 40% |
| Medium of Instruction | English |

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|---|---|
| **AA037015**<br>3 Credits | **DATA ANALYTICS** |
| Learning Outcomes | At the end of the course, students are able to:<br>(1) Discuss the emerging trends and future impacts of business analytics;<br>(2) Construct analytical techniques or tools to solve real world problems; and<br>(3) Propose recommendations through analytical interpretations of results. |
| Synopsis of Course Contents | Analytics has become the technology driver of this decade. This course provides students with the theoretical knowledge and practical skills to drive decision making. The course emphasizes a hands-on approach to extensively use the analytical modeling and statistical analysis in the examination of data or content to discover deeper insights, make predictions, or generate recommendations using sophisticated techniques and tools on real world problems. Students will also acquire understanding of predictive analytics using statistical and machine learning techniques to understand future outcome. The analytical abilities to be acquired by students in this course are to reliably select analytic techniques or method and specify steps involve in the analysis process and to interpret analytically the results obtained from data analytics techniques or tools. |
| Assessment Weightage | Continuous Assessment: 60%<br>Final Examination: 40% |
| Medium of Instruction | English |

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|---|---|
| **AA037016**<br>4 Credits | **INDUSTRY STATISTICAL PROJECT** |
| Course Pre-requisite(s)/Minimum Requirement(s) | **AA037002, AA037003 and AA037004** |
| Learning Outcomes | At the end of this course, the students are able to:<br>(1) Relate application of statistics in the industry to statistical theories and methods;<br>(2) Develop practitioner skills through experiential learning;<br>(3) Build working relations with the industry;<br>(4) Adopt ethical practices in the conduct of statistical projects;<br>(5) Prepare a practitioner-oriented report. |
| Synopsis of Course Contents | This course enables the students to gain industry experience through exposure to the use of statistics in the private and public sectors as well as the civil society. The students will conduct a project grounded on the application of statistical methods involving input from practitioners in a chosen company/firm/organization. The application of statistics should be synthesized in the form of (a) statistical consulting, (b) organizational statistical problem solving, (c) implementation of new statistical systems, or (d) review of existing statistical systems in the organization. At the end of the project, the students shall write a report of no more than 10,000 words. The report should be practitioner-oriented and contain a reflection to relate the industry experience to the context of the programme of study. The supervision of students will involve lecturers from the department and staff from the chosen company/firm/organization, starting from conception of the project to project completion. The stages covered are identifying an organization, determining the project direction, designing the analytical framework, organizing the findings that include analysis, ensuring ethical practices, relating the industry experience to the context of the programme, making appropriate recommendations, and preparation of the report. |
| Assessment Weightage | Continuous Assessment: 100%<br>Final Examination: None% |
| Medium of Instruction | English |

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|---|---|
| **AA037017**<br>4 Credits | **BAYESIAN STATISTICS** |
| Learning Outcomes | At the end of the course, students are able to:<br>(1) Develop models based on the foundations of Bayesian statistics;<br>(2) Determine different approaches to the choice of prior distribution;<br>(3) Adapt to the computational implementation of Bayesian analysis;<br>(4) Use the Bayesian approach in solving real world problems. |
| Synopsis of Course Contents | This course expose students to Bayesian approach to statistical inference. Topics covered includes the foundation of Bayesian statistics, determining prior distribution, Bayesian inference, Bayesian decision theory and computational tools for inferences. Students will learn statistical software for Bayesian analysis and apply the Bayesian approach to real world problems. |
| Assessment Weightage | Continuous Assessment : 60%<br>Final Examination: 40% |
| Medium of Instruction | English |

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|---|---|
| **AA017015**<br>3 Credits | **INTERNATIONAL FINANCE** |
| Learning Outcomes | At the end of the course, students are able to:<br><br>(1) Explain the basic concepts and theories in international finance and open-economy macroeconomics;<br>(2) Evaluate the issues in international finance;<br>(3) Specify the issues in international finance by using relevant theories. |
| Synopsis of Course Contents | This course discuss concepts and theories in several topics such as balance of payment, foreign exchange market and risks, exchange rate determination, price and income adjustment mechanisms with flexible and fixed exchange rate, open macroeconomics theories and policies and international monetary systems. |
| Assessment Weightage | Continuous Assessment : 50%<br>Final Examination: 50% |
| Medium of Instruction | English |

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|---|---|
| **AA017019**<br>3 Credits | **POLITICAL ECONOMY** |
| Learning Outcomes | At the end of this course, the students are able to:<br>(1) Analyse the concept of political economics.<br>(2) Apply the theoretical concept in political economics analysis.<br>(3) Valuing the empirical evidence and its economic implication. |
| Synopsis of Course Contents | This course provides an in-depth discussion of political economics and discussion based on the purpose and structure in economic analysis. Particular emphasise on the political discussion and its implication to the economy. |
| Assessment Weightage | Continuous Assessment : 60%<br>Final Examination: 40% |
| Medium of Instruction | English |

**PROPOSED STUDY PLAN**
**MASTER OF APPLIED STATISTICS**

| COMPONENT | SEMESTER 1 | | SEMESTER 2 | | SPECIAL SEMESTER | | TOTAL CREDIT |
|---|---|---|---|---|---|---|---|
| | SUBJECT | CREDIT | SUBJECT | CREDIT | SUBJECT | CREDIT | |
| **Core Course** | Choose three (3) core courses | 12 | Choose one (1) core courses | 4 | Research Project (P2) | 5 | 26 |
| | | | Research Project (P1) | 5 | | | |
| **Optional Course** | Choose any two (2) courses | 6 | Choose any three (3) courses | 10 | | | 16 |
| **Total Credit** | | **18** | | **19** | | **5** | **42** |

**TOTAL CREDIT: 42 CREDITS**

# GRADING SCHEME

| Marks | Grade | Grade Point | Meaning |
|---|---|---|---|
| 90.00 - 100 | A+ | 4.0 | High Distinction |
| 80.00 - 89.99 | A | 4.0 | Distinction |
| 75.00 - 79.99 | A- | 3.7 | |
| 70.00 - 74.99 | B+ | 3.3 | Pass |
| 65.00 - 69.99 | B | 3.0 | |
| 60.00 - 64.99 | B- | 2.7 | Fail |
| 55.00 - 59.99 | C+ | 2.3 | |
| 50.00 - 54.99 | C | 2.0 | |
| 45.00 - 49.99 | C- | 1.7 | |
| 40.00 - 44.99 | D+ | 1.5 | |
| 35.00 - 39.99 | D | 1.0 | |
| 0.00 - 34.99 | F | 0.0 | |

# STEP FOR REGISTRATION FOR RESEARCH PROJECT (AA037018)

## FIRST STEP

**Submission of Pink Form (Approval for the Field of Research and Supervisor)**
- Prepare the Research Proposal
- Get the Approval from potential Supervisor
- Submit to the Postgraduate Unit, FPE **before deadline**

1

**Register 5credit Research Project (P1) at maya.um.edu.my**
**and make the CONFIRMATION of the courses in the add and drop courses week**

2

**Student can start the Research Project once the Approval is obtained from Faculty**

3

**Board of Examiner - Grade P1**
**(Procced Continue Register P2)**

## SECOND STEP

**Submission of Blue Form (Approval for Title and Appoinment of Internal Examiner)**
- Get the Approval form the Supervisor
- Submit to the Postgraduate Unit, FPE **before deadline**

1

**Register 5 credit Research Project (P2) at**
**and make the CONFIRMATION of the courses in the add and drop courses week**

2

**Submission of Yellow Form (Submission Research Project for Examination)**
- Get the approval from the Supervisor before submission. Your supervisor must sign off the submission.
- Submit the Research Project to the Postgraduate Unit, FEA **before deadline**

3

**Examination procees**

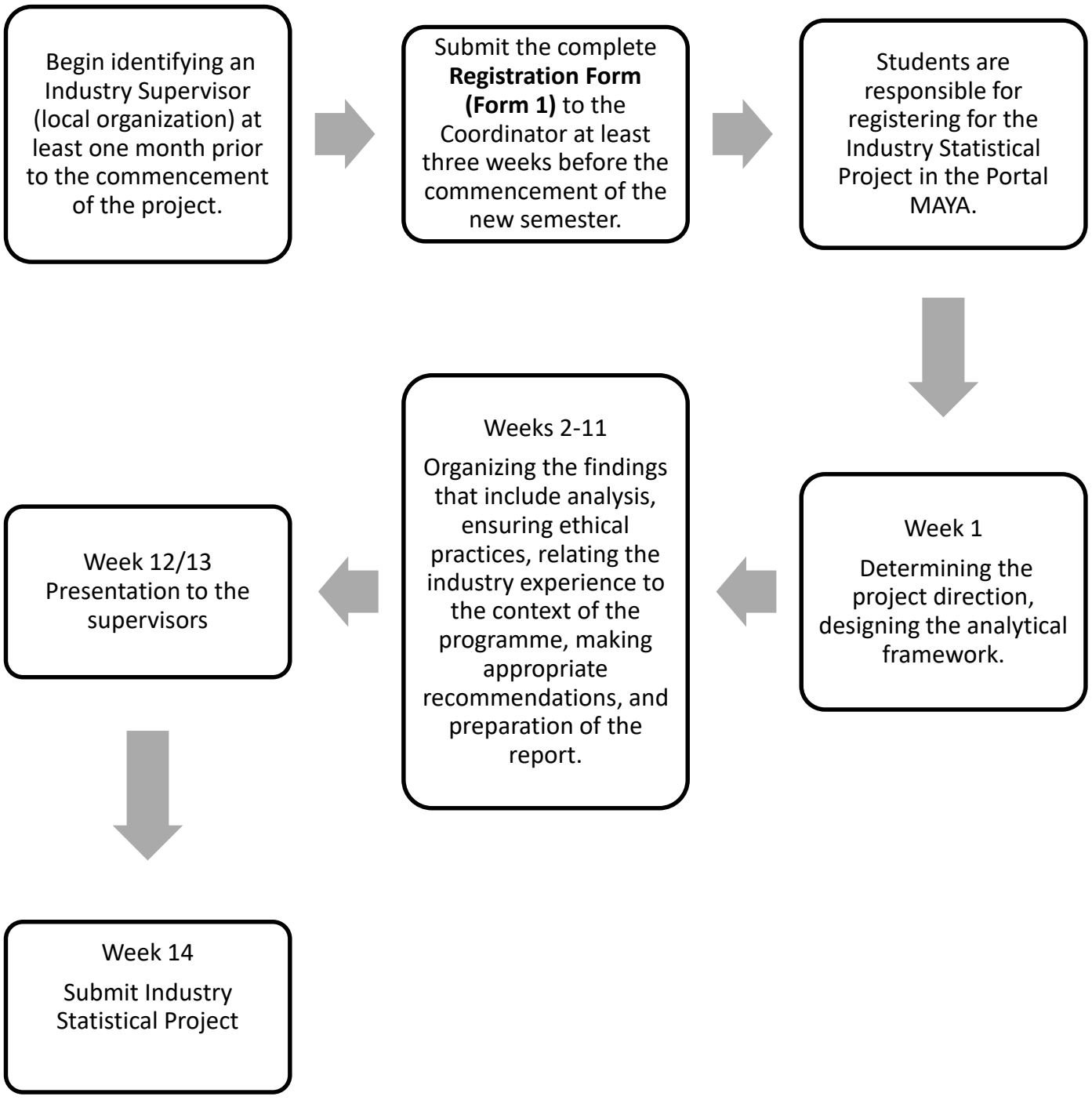
4

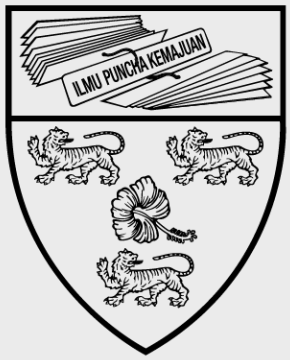
**Submission of Green Form (Correction and Final Submission for Research Project)**
-Get the Approval from the supervisor
-Submission of Final Research Project to the Postgraduate Unit, FEA **before deadline**

5

**Board of Examiner - Actual Grade**

# STEP FOR REGISTRATION AND FLOWCHART FOR INDUSTRIAL STATISTICAL PROJECT (AA037016)



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