

MASTER OF APPLIED STATISTIC



2026/2027

FACULTY OF BUSINESS AND ECONOMICS

**DEAN'S WELCOMING SPEECH
HANDBOOK 2026/2027**



Assalamualaikum and Warm Greetings,

Congratulations and welcome to the Faculty of Business and Economics (FBEC), Universiti Malaya!

You are joining one of Malaysia's leading centres for business and economics education, within the country's premier university. FBEC has a strong international standing, underpinned by AACSB and AMBA accreditations, with EQUIS accreditation currently being pursued. This is complemented by a long record of excellence in teaching, research and engagement with industry, government and the wider community.

We take this standing seriously. Our responsibility is to provide you with an education that is academically rigorous, relevant to the world beyond the University, and prepares you well for the opportunities and challenges ahead.

We developed your programme through international benchmarking and regular engagement with industry and other stakeholders. Alongside a strong foundation in your chosen field, you will learn through case studies, projects, research, discussion and practical engagement. Our programmes are reviewed regularly so that what we teach remains current and relevant.

I encourage you to make full use of your time at FBEC. Attend and participate actively in your classes, get to know your lecturers and fellow students, and take advantage of opportunities beyond the classroom. These may include industry talks, competitions, student activities, professional development programmes, community projects and international mobility.

University is also a place to test your ideas, discover new interests and learn from people with different backgrounds and perspectives. Some parts of the journey will be demanding. When you need guidance, speak to your academic advisor or seek support early. There are people and resources here to help you.

At FBEC, we place importance on integrity, responsible decision-making and an awareness of the wider consequences of what we do. These values matter in business, economics and public life, and I hope they will remain important to you well beyond your years at the University.

You are now part of the FBEC and Universiti Malaya community. I hope you will take pride in that, contribute to it, and make the most of the opportunities that come with it.

I am pleased to welcome you to FBEC and wish you every success in the years ahead.

PROFESSOR DR. NOOR ISMAWATI JAAFAR
Dean

MASTER OF APPLIED STATISTICS

ACADEMIC CALENDAR 2026/2027 ACADEMIC SESSION (MASTER AND DOCTORATE LEVEL) AMENDMENT					
SEMESTER I					
Orientation (<i>Week of Welcome</i>) - WOW	1	week	26.09.2026	-	04.10.2026
Lectures	8	weeks*	05.10.2026	-	29.11.2026
Mid Semester I Break	1	week	30.11.2026	-	06.12.2026
Lectures	6	weeks*	07.12.2026	-	17.01.2027
Revision Week	1	week*	18.01.2027	-	24.01.2027
Semester I Final Examination	2	weeks*	25.01.2027	-	04.02.2027
Semester I Break	3	weeks*	05.02.2027	-	28.02.2027
	22	weeks			
SEMESTER II					
Lectures	7	weeks*	01.03.2027	-	18.04.2027
Mid Semester II Break	1	week	19.04.2027	-	25.04.2027
Lectures	7	weeks*	26.04.2027	-	13.06.2027
UM iFest 2027	1	week	08.06.2027	-	11.06.2027
<i>(No teaching and learning (T&L) activities shall be conducted during this period. Participation is mandatory for all final-year students / students undertaking the Final Year Project (FYP).)</i>					
Revision Week	1	week	14.06.2027	-	20.06.2027
Semester II Final Examination	2	weeks	21.06.2027	-	04.07.2027
Semester II Break	3	weeks	05.07.2027	-	25.07.2027
	21	weeks			
SPECIAL SEMESTER					
Lectures	7	weeks*	19.07.2027	-	05.09.2027
Special Semester Final Examination	1	week	06.09.2027	-	12.09.2027
Special Semester Break	1	week*	13.09.2027	-	19.09.2027
	9	weeks			

Notes:

(1) The Module Registration and Examination Schedule can be referred to at <https://umsitsguide.um.edu.my>. All information is subject to change.

(*) The Academic Calendar has taken into account public and festive holidays and is subject to change:

Deepavali	08 November 2026 (Sunday)	*Hybrid Class on 6 November 2026 (Friday)
Christmas Day	25 December 2026 (Friday)	*Hybrid Class on 24 December 2026 (Thursday)
New Year	01 January 2027 (Friday)	
Thaipusam	22 January 2027 (Friday)	
Federal Territory Day	01 February 2027 (Monday)	
Chinese New Year	06 & 07 February 2027 (Saturday & Sunday)	
Nuzul Al-Quran	24 February 2027 (Wednesday)	
Eidul Fitri	10 & 11 March 2027 (Wednesday & Thursday)	*Hybrid Class on 1 - 12 March 2027 (Monday - Friday)
Labour Day	01 May 2027 (Saturday)	
Eidul Adha	17 May 2027 (Monday)	
Wesak Day	20 May 2027 (Thursday)	
Kaamatan Festival	30 May 2027 (Sunday)	*Hybrid Class on 31 May 2027 (Monday)
Gawai Day	01 June 2027 (Tuesday)	*Hybrid Class on 31 May 2027 (Monday)
Awal Muharram	06 June 2027 (Sunday)	

His Majesty the King's Birthday	07 June 2027 (Monday)
Prophet Muhammad's (Maulidur Rasul)	15 August 2027 (Sunday)
National Day	31 August 2027 (Tuesday)
Malaysia Day	16 September 2027 (Thursday)

(#) Academia Day	05 October 2026 (Monday)
International Week	19 – 23 October 2026 (Monday - Friday)
UM iFest 2027	08 – 11 June 2027 (Tuesday - Friday)

(No teaching and learning (T&L) activities shall be conducted during this period. Participation is mandatory for all final-year students / students undertaking the Final Year Project (FYP).)

*Senate July 22, 2026

For more details:

Academic Calendar for Postgraduate Program: <https://aasd.um.edu.my/academic-calendar>

2	Master and Doctorate Programme	Malay English
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PROGRAMME GOAL AND LEARNING OUTCOMES

PROGRAMME GOAL

To produce globally competitive, innovative, and critical thinkers equipped with advanced analytical skills to solve complex problems using applied statistics.

PROGRAMME EDUCATIONAL OBJECTIVES

- PEO 1: Graduates actively excel as professionals in the field of applied statistics across local and global sectors.
- PEO 2: Graduates drive decision-making and policy formulation through the competent, insightful, and ethical application of statistical methods.
- PEO 3: Graduates demonstrate a commitment to lifelong learning and continuous professional growth while collaborating effectively across interdisciplinary teams.

PROGRAMME LEARNING OUTCOMES

At the end of the programme, graduates will be able to:

- PLO 1: Relate core theories, concepts, and methodologies within the discipline to analyse complex statistical problems.
- PLO 2: Apply integrated statistical skills to solve real-world practical challenges and inform strategic decision-making.
- PLO 3: Construct, test, and validate statistical models using contemporary, evidence-based approaches.
- PLO 4: Practice collaborative skills in conducting statistical analysis of data in various disciplines.
- PLO 5: Communicate findings from statistical analysis of data in various disciplines effectively
- PLO 6: Use digital technologies and statistical software effectively for data management and analysis.
- PLO 7: Apply numeracy and statistical reasoning to analyse, interpret, and draw meaningful conclusions from data
- PLO 8: Exercise substantial responsibility in data collection, processing, management and storage to protect information confidentiality
- PLO 9: Gather information from various sources to support independent and sustained learning.
- PLO 10: Apply statistical knowledge to identify and address real-world problems and opportunities.
- PLO 11: Demonstrate adherence to ethical practice and professionalism in statistical analysis and dissemination of information.

ENTRY REQUIREMENTS

Applicants for the programme should possess:

- Bachelor's Degree with a **minimum CGPA of 3.00 out of 4.00**; or its equivalent, and possess sufficient knowledge in mathematics, statistics, or quantitative methods-related fields;
- A minimum score of Band 4.0 for **MUET OR IELTS** with a minimum overall score of Band 6.0 OR **TOEFL iBT (Centre-based)** score of 60 and **TOEFL Essentials (Online)** score of 8.5 (online) OR **PTE Academic** with a minimum score of 59 OR **B1 Preliminary, B2 First, C1 Advanced, C2 Proficiency** score of 169 OR **ELS CIEP Level 109** – For **International Applicants only**, and
- Pass the Interview by the Faculty.

STUDY PLAN

The general academic calendar at UM is structured as follows:

Semester (s)	Period
Semester 1	October to February
Semester 2	March to July
Special Semester	July to September

Each regular semester lasts 14 weeks and is divided into two blocks, separated by a 1-week mid-semester break. After the learning period, a 2-week examination period follows.

Please refer to the latest academic calendar issued by the Academic Service Department (ASD):

<https://aasd.um.edu.my/academiccalendar>

PROGRAMME STRUCTURE

The programme offers **weekday evening classes** from **6.00 pm to 9.00 pm**, with a strong emphasis on quality teaching and active student participation.

The minimum and maximum periods of candidature are **three (3)** and **eight (8) semesters**, respectively.

Courses are categorized into two (2) types:

- **Core courses**
- **Elective courses**

Additionally, students are required to undertake a **research project** in their area of interest.

Students must complete a total of **42 credit hours** as follows:

Courses	Credit Hours
Core Courses	16
Elective Courses	16
Research Project	10
Total	42

*Note: International candidates are required to **complete the Bahasa Malaysia course** to graduate (subject to Senate approval)*

PROGRAMME STRUCTURE

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.

TIMETABLE

SEMESTER I, SESSION 2026/2027

DAY	TIME	COURSE CODE	TITLE	LECTURER	VENUE
Monday	6.00 – 9.00 pm	AA0X7001 (Occ.1)	Research Methodology	Professor Dr Evelyn Shyamala Paul Devadason	DK 2, H11
		AA037013	Statistical Methods for Quality Management	Dr Muzalwana Abd Talib	Postgraduate Computer Lab, H12
Tuesday	6.00 – 9.00 pm	AA037005	Applied Econometrics	Dr Ahmad Farid Osman	Computer Lab G2/G3, H08
		AA037011	Operation Research Methods	Dr. Elayaraja Aruchunan	Postgraduate Computer Lab, H12
Wednesday	6.00 – 9.00 pm	AA037003	Principles of Statistics	Dr. Adilah Abdul Ghapor	DK 2, H11
		AA037012	Applied Financial Econometrics	Dr Soon Siew Voon	Postgraduate Computer Lab, H12
Thursday	6.00 – 9.00 pm	AA037004	Statistical Data Analysis	Dr Muhammad Ashraf Khalid	Postgraduate Computer Lab, H12
		AA037015	Data Analytics	Dr Diana Abdul Wahab	Utility Computer Lab, H08
Friday	6.00 – 9.00 pm	AA037002	Survey Techniques and Sampling Design	Dr Tey Nai Peng	Computer Lab G2/G3, H08
		AA037010	Applications of Demographic Techniques	Assoc. Prof. Dr Lai Siow Li	Utility Computer Lab, H08
		AA017015	International Finance	Dr Juita Mohamad	BSP 3-1, H12
AA037018 Research Project - No Lecture (Course Pre-requisite(s)/Minimum Requirement(s) - AA0X7001)					
AA037016 Industry Statistical Project - No Lecture (Course Pre-requisite(s)/Minimum Requirement(s) - AA037002, AA037003 and AA037004)					

SEMESTER 2, SESSION 2026/2027

DAY	TIME	COURSE CODE	TITLE	LECTURER	VENUE
Monday	6.00 – 9.00 pm	AA0X7001 (Occ.1)	Research Methodology	Professor Dr Evelyn Shyamala Paul Devadason	DK 2, H11
		AA037008	Experimental Design	Dr Ng Yin Mei	Computer Lab G2/G3, H08
Tuesday	6.00 – 9.00 pm	AA037007	Time-Series Analysis	Dr Ahmad Farid Osman	Computer Lab G2/G3, H08
		AA037009	Biostatistics	Dr Hannuun Eadiela Yaacob	Postgraduate Computer Lab, H12
Wednesday	6.00 – 9.00 pm	AA037003	Principles of Statistics	Dr. Adilah Abdul Ghapor	DK 2, H11
		AA037006	Further Econometrics	Dr Soon Siew Voon	Computer Lab G2/G3, H08
		AA0017019	Political Economy	Dr Zuhairan Yumni Yunan	BSP 3-1, H12
Thursday	6.00 – 9.00 pm	AA037004	Statistical Data Analysis	Dr Muhammad Ashraf Khalid	Computer Lab G2/G3, H08
		AA037017	Bayesian Statistics	Dr Hannuun Eadiela Yaacob	Postgraduate Computer Lab, H12
Friday	6.00 – 9.00 pm	AA037002	Survey Techniques and Sampling Design	Dr Tey Nai Peng	Computer Lab G2/G3, H08
		AA037014	Statistical Computing	Dr Diana Abdul Wahab	Postgraduate Computer Lab, H12
AA037018 Research Project - No Lecture (Course Pre-requisite(s)/Minimum Requirement(s) - AA0X7001)					
AA037016 Industry Statistical Project - No Lecture (Course Pre-requisite(s)/Minimum Requirement(s) - AA037002, AA037003 and AA037004)					

COURSE INFORMATION**AA0X7001**

4 Credits

Course Learning Outcomes**Synopsis of Course Contents****Assessment Weightage****Medium of Instruction****RESEARCH METHODOLOGY**

At the end of the course, students can:

- (1) Examine the logic of scientific discovery and the novelty in research.
- (2) Evaluate the use of inductive and deductive research.
- (3) Compare the different types of research methodologies.
- (4) Formulate a research proposal

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 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.

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.

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.

Equally, they will receive practical lessons on how to handle discipline-specific big data sets.

Lastly, they will receive hands-on training on complete research proposal development, applying creative and critical thinking using problem sets

Continuous Assessment: 100%
Final Examination: None

English

AA037018 10 Credits	RESEARCH PROJECT
Course Pre-requisite(s)/Minimum Requirement(s)	AA0X7001
Course Learning Outcomes	At the end of the course, students can: (1) Integrate information from the review of relevant literature; (2) Build and/or test and/or validate statistical models to be applied in the research. (3) Analyze information/data using the appropriate statistical techniques and software; (4) Adopt ethical practices in the conduct of research; (5) Write a research report articulately.
Synopsis of Course Contents	This capstone course trains Master of Applied Science (MAS) students to conduct independent empirical research, statistical simulations, or methodological innovations in applied statistics under faculty supervision. Before enrolling in AA037018 Research Project, students must complete AA0X7001 Research Methodology. The project spans two consecutive semesters - failing to finish within this window results in an F grade, requiring a full course retake and payment of full fees. Additionally, students collecting primary data must secure formal UMREC ethics approval before recruiting participants or starting any data collection, including pilot studies. The final deliverable is a written research report formatted in Journal Article Style, strictly between 8,500 and 10,000 words (inclusive of references, tables, and appendices). Assessment is 100% based on the written report, split equally between the Supervisor (50%) and an Internal Examiner (50%) according to UMBS rubrics. Upon examination, students are required to complete all recommended revisions from both evaluators to fulfil their degree requirements.
Assessment Weightage	Continuous Assessment:100% Final Examination: None
Medium of Instruction	English

AA037002

4 Credits

SURVEY TECHNIQUES AND SAMPLING DESIGN

Learning Outcomes

At the end of the course, students can:

- (1) Demonstrate a sound understanding of the research process and research methodology;
- (2) Collect primary data using appropriate data collection and sampling methods;
- (3) Analyze data and conclude; and
- (4) Demonstrate skills in effective writing and communication.

Synopsis of Course Contents

This course covers major issues related to the research process across 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%
Final Examination: 50%

Medium of Instruction

English

AA037003

4 Credits

Learning Outcomes

PRINCIPLES OF STATISTICS

At the end of the course, students can:

- (1) Apply the concepts of probability and inferential statistics;
- (2) Relate sampling distributions to estimation and hypothesis testing;
- (3) Formulate hypothesis tests;
- (4) Apply appropriate statistical techniques for drawing problems, drawing inference and making decisions in the fields of business, economics, finance and social science.
- (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 fields. The course begins with the concepts of probability, and this is followed by probability distributions of random variables, including joint, marginal and conditional distributions, 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 methods in the topics of estimation and hypothesis testing, including non-parametric methods.

Assessment Weightage

Continuous Assessment: 50%
Final Examination: 50%

Medium of Instruction

English

AA037004
4 Credits

STATISTICAL DATA ANALYSIS

Learning Outcomes

At the end of the course, students can:

- (1) Analyse quantitatively the structure in a set of data;
- (2) Adapt the appropriate statistical techniques given the aim of analysis in solving the related problems; and
- (3) Express the results arising from the application of these techniques to data in various fields.
- (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 the application of regression analysis, discriminant analysis, factor analysis, multidimensional scaling, conjoint analysis, structural equation modelling, and principal components analysis to data from various fields.

Assessment Weightage

Continuous Assessment: 50%
Final Examination: 50%

Medium of Instruction

English

AA037005
4 Credits

APPLIED ECONOMETRICS

Learning Outcomes

At the end of the course, students can:

- (1) Estimate regression analysis for quantifying economic relationships;
- (2) Specify models in a manner suitable for econometric testing;
- (3) Appraise the adequacy of regression models estimated using econometric software.
- (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 modelling. 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%
Final Examination: 40%

Medium of Instruction

English

AA037006

4 Credits

Learning Outcomes**FURTHER ECONOMETRICS**

At the end of the course, students can:

- (1) Specify econometric techniques that are appropriate for different types of data structure;
- (2) Evaluate appropriate panel data approaches to the analysis of panel data;
- (3) Identify econometric models based on economic theory; and
- (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 modelling. 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%
Final Examination: 40%

Medium of Instruction

English

AA037007

3 Credits

Learning Outcomes**TIME SERIES ANALYSIS**

At the end of the course, students can:

- (1) Examine time series patterns of data (graphically and quantitatively);
- (2) Construct forecasting models that incorporate correlated error structures;
- (3) Compare the forecasting performance of the different models developed for a given set of data; and
- (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%
Final Examination: 40%

Medium of Instruction

English

AA037008

3 Credits

Learning Outcomes

EXPERIMENTAL DESIGN

At the end of this course, students can:

- (1) Implement an appropriate experimental design
- (2) Design the experiment with ethical considerations
- (3) Present the results of experiments to facilitate the 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%
Final Examination: 40%

Medium of Instruction

English

AA037009

3 Credits

Learning Outcomes

At the end of this course, the students can:

- (1) Determine techniques that are appropriate for analysing categorical data;
- (2) Determine techniques that are appropriate for analysing the time to the occurrence of an event;
- (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%
Final Examination: 40%

Medium of Instruction

English

AA037010

3 Credits

Learning Outcomes

APPLICATIONS OF DEMOGRAPHIC TECHNIQUES

At the end of the course, students can:

- (1) Explain the importance and the basic concept of demography;
- (2) Analyse demographic and population-related socioeconomic indicators;
- (3) Apply demographic techniques in different fields; and
- (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.

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%
Final Examination: 40%

Medium of Instruction

English

AA037011
3 Credits

OPERATIONS RESEARCH METHODS

Learning Outcomes

At the end of the course, students can:

- (1) Formulate mathematical expressions to reflect real-life optimisation problems
- (2) Apply appropriate methods for solving operations research problems; and
- (3) Interpret the results to facilitate the 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%
Final Examination: 40%

Medium of Instruction

English

AA037012

3 Credits

APPLIED FINANCIAL ECONOMETRICS**Learning Outcomes**

At the end of this course, the students can:

- (1) Analyse returns to financial assets and construct indices as measures of stock market performance;
- (2) Estimate financial models including time-varying volatility models using appropriate software;
- (3) Determine the adequacy of estimated econometric time-series models in the area of finance; and
- (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 to analyse the ability of market timing and stock selection. 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 is discussed. Lastly, various Multivariate GARCH models are discussed

Assessment Weightage

Continuous Assessment: 60%
Final Examination: 40%

Medium of Instruction

English

AA037013

3 Credits

Learning Outcomes

At the end of the course, students can:

- (1) Explain the role of statistical methodology, tools and techniques for quality management in the field of social science.
- (2) Apply the appropriate statistical tools, techniques and software applications in describing quality characteristics.
- (3) Analyse statistical results in solving quality-related problems.
- (4) Construct various forms of results to effectively communicate 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 Charts, Hotelling's T² Control Chart, Multivariate Methods for Quality Improvement, Acceptance Sampling.

Assessment Weightage

Continuous Assessment: 60%
Final Examination: 40%

Medium of Instruction

English

AA037014

3 Credits

STATISTICAL COMPUTING**Learning Outcomes**

At the end of the course, students can:

- (1) Develop statistical function codes in R;
- (2) Apply the functionality of R by using add-on packages;
- (3) Evaluate modelling assumptions using simulation; and
- (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 statistical software language as an ideal computing environment. The goal of this course is to introduce students to the R programming environment and related ecosystem 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 modelling the data, and communicating the results. This course prepares students to take up analytics and data science courses in the future. No previous programming experience is assumed.

Assessment Weightage

Continuous Assessment: 60%
Final Examination: 40%

Medium of Instruction

English

AA037015

3 Credits

Learning Outcomes

At the end of the course, students can:

- (1) Discuss the emerging trends and future impacts of business analytics;
- (2) Construct analytical techniques or tools to solve real-world problems; and
- (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 analytical modelling 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 an understanding of predictive analytics using statistical and machine learning techniques to understand future outcomes. The analytical abilities to be acquired by students in this course are to reliably select analytic techniques or methods and specify steps involved in the analysis process and to interpret analytically the results obtained from data analytics techniques or tools.

Assessment Weightage

Continuous Assessment: 60%
Final Examination: 40%

Medium of Instruction

English

AA037016

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 can:

- (1) Relate application of statistics in the industry to statistical theories and methods;
- (2) Develop practitioner skills through experiential learning;
- (3) Build working relations with the industry;
- (4) Adopt ethical practices in the conduct of statistical projects;
- (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 civil society. The students will conduct a project grounded in the application of statistical methods involving input from practitioners in a chosen company/firm/organization. The application of statistics should be synthesised in the form of:

- (a) statistical consulting,
- (b) organisational 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%
Final Examination: None%

Medium of Instruction

English

AA037017
4 Credits

BAYESIAN STATISTICS

Learning Outcomes

At the end of the course, students can:

- (1) Develop models based on the foundations of Bayesian statistics;
- (2) Determine different approaches to the choice of prior distribution;
- (3) Adapt to the computational implementation of Bayesian analysis;
- (4) Use the Bayesian approach in solving real-world problems.

Synopsis of Course Contents

This course exposes students to the Bayesian approach to statistical inference. Topics covered include the foundation of Bayesian statistics, determining prior distribution, Bayesian inference, Bayesian decision theory and computational tools for inference. Students will learn statistical software for Bayesian analysis and apply the Bayesian approach to real-world problems.

Assessment Weightage

Continuous Assessment: 60%
Final Examination: 40%

Medium of Instruction

English

AA017015

3 Credits

INTERNATIONAL FINANCE**Learning Outcomes**

At the end of the course, students can:

- (1) Explain the basic concepts and theories in international finance and open-economy macroeconomics;
- (2) Evaluate the issues in international finance;
- (3) Specify the issues in international finance by using relevant theories.

Synopsis of Course Contents

This course discusses concepts and theories in several topics such as balance of payments, foreign exchange market and risks, exchange rate determination, price and income adjustment mechanisms with flexible and fixed exchange rates, open macroeconomics theories and policies and international monetary systems.

Assessment Weightage

Continuous Assessment: 50%
Final Examination: 50%

Medium of Instruction

English

AA017019
3 Credits

POLITICAL ECONOMY

Learning Outcomes

At the end of this course, the students can:

- (1) Analyse the concept of political economics.
- (2) Apply the theoretical concept in political economics analysis.
- (3) Value the empirical evidence and its economic implications.

Synopsis of Course Contents

This course provides an in-depth discussion of political economics and discussion based on the purpose and structure of economic analysis. Particular emphasise on the political discussion and its implications for the economy.

Assessment Weightage

Continuous Assessment: 60%
Final Examination: 40%

Medium of Instruction

English

**PROPOSED STUDY PLAN
MASTER OF APPLIED STATISTICS**

COMPONENT	1 st Semester		2 nd Semester		3 rd Semester		TOTAL CREDIT
	SUBJECT	CREDIT	SUBJECT	CREDIT	SUBJECT	CREDIT	
Core Course	Choose three (3) core courses	12	Choose one (1) core course	4	Research Project (P2)	5	26
			Research Project (P1)	5			
Elective 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 Application (Approval for Appoinment of Supervisor)

- Prepare the Research Proposal
- Submit to the UMBS, FBEC **before the 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 Application (Approval for Title, Field of Research and Appoinment of Internal Examiner)

- Get the Approval form the Supervisor
- Submit to the UMBS, FBEC **before the 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 Research Project for Examination

- Get approval from the Supervisor before submission. Your supervisor must sign off on the submission.
- Submit the Research Project to the UMBS, FBEC **before the deadline**

3

Examination procees

4

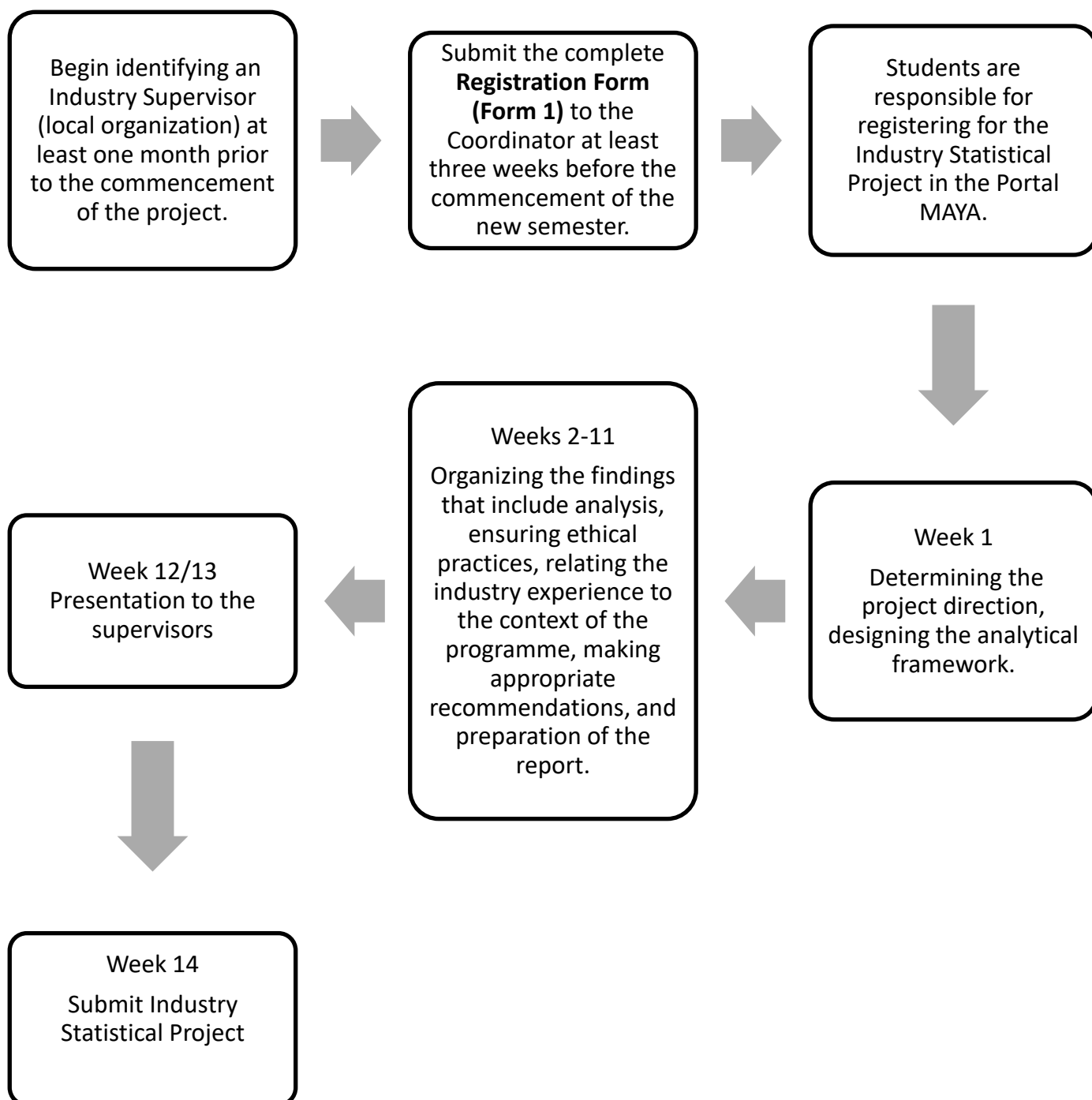
Submission of Correction and Final Submission for Research Project

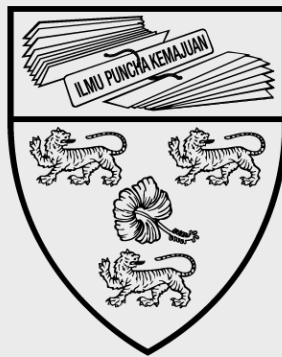
- Get approval from the supervisor
- Submission of Final Research Project to the UMBS, FBEC **before the deadline**

5

Board of Examiner - Actual Grade

STEPS FOR REGISTRATION AND FLOWCHART FOR INDUSTRIAL STATISTICAL PROJECT (AA037016)





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FACULTY OF BUSINESS AND ECONOMICS