offered by College of Business
with effect from Semester B 2024/25

Part I   Course Overview

Course Title: Statistical Methods for Business Research

Course Code: FB8916

Course Duration: 1 Semester

Credit Units: 3

Level: R8

Medium of
Instruction: English

Medium of
Assessment: English

Prerequisites:
(Course Code and Title)   NIL

Precursors: Students must have taken at least one statistics course at
(Course Code and Title)   undergraduate/postgraduate level

Equivalent Courses: Nil
(Course Code and Title)

Exclusive Courses: Nil
(Course Code and Title)

Part II   Course Details

1. **Abstract**

    This course introduces the statistical concepts and methodology of linear and logistic regression models and structural equation modelling. The curriculum emphasizes the use of these techniques in business research. The course aims to develop students' analytic ability to integrate and apply the knowledge and quantitative skills gained in the course to conduct business research. It also provides students the opportunity to develop their skills in presenting the findings of their own project and explaining the results in written reports.

2. **Course Intended Learning Outcomes (CILOs)**

No.	CILOs	Weighting (if applicable)	Discovery-enriched curriculum related learning outcomes		
			A1	*A2*	*A3*
1.	Evaluate critically the use of regression and structural equation modeling methods in business research and assess their appropriateness, accuracy and limitations.	40%	✓	✓	✓
2.	Formulate business research problems using regression methods and structural equation models and interpret the results of their analyses.	30%	✓	✓	✓
3.	Demonstrate competence in using popular statistical software packages to analyze business data with regression and structural equation modeling methods.	20%		✓	✓
4…	Communicate and present the results effectively in written, oral and electronic formats.	10%		✓	✓
		100%			

A1:   Attitude
Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.
A2:   Ability
Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to real-life problems.
A3:   *Accomplishments*
Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

3. Learning and Teaching Activities (LTAs)

LTA	Brief Description	CILO No. 1	2	3	4	Hours/week (if applicable)
Lecture	Concepts and specific subject knowledge are explained	✓	✓			2.0
Class Discussion	Research problems and research papers are given in class for discussion. Students will be asked to explore possible solutions to these problems and evaluate methods employed in the papers.		✓	✓		0.5
Computer Laboratory Sessions	Computer laboratory sessions provide demonstration and hand-on experience of using statistical packages to analyse datasets. Students have to formulate the research problems into a statistics model and analyze the data with the support of the statistical packages.	✓	✓	✓		0.5
Project	Research problems with data are assigned to the class. Students, who can work as group, have to integrate the techniques learned in the course to analyze the dataset... Interpretations of the results have to be presented in written or oral format.	✓	✓	✓	✓	N.A.

4. Assessment Tasks/Activities (ATs)

Assessment Tasks/Activities	CILO No. 1	2	3	4	Weighting	Remarks
Continuous Assessment: 60 %						
Group Project	✓	✓	✓	✓	30%	To assess students' understanding of the course material, their teamwork and collaborative skills and their ability to effectively communicate their results to others.
In-class participation (computer laboratory sessions)	✓	✓	✓		10%	Attendance of laboratory sessions and successful execution of lab exercises
Individual assignment	✓	✓	✓		20%	To assess students' understanding of concepts, and their ability to put the material learnt into practice and interpret the results.
Examination: 40 % (duration: 3 hours)						
					100%	

5. Assessment Rubrics

Applicable to students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C, C-)	Marginal (D)	Failure (F)
1. Group project	Evidence of original thinking, organisation, ability to analyse, and grasp of knowledge.	Strong evidence of original thinking; good organization, capacity to analyse and synthesize; superior grasp of subject matter; evidence of extensive knowledge base.	Sufficient evidence of original thinking, some evidence of critical capacity and analytic ability; reasonable understanding of issues; evidence of familiarity with course materials.	Some evidence of original thinking, little evidence of critical capacity and analytic ability; reasonable understanding of course materials.	Little evidence of original thinking, little evidence of critical capacity and analytic ability; reasonable understanding of course materials.	No evidence of familiarity with the subject matter; weakness in critical and analytic skills; limited or irrelevant use of course materials.
2. In-class participation	Understanding of key concepts and definitions, willingness to participate.	Strong evidence of showing understanding of key concepts and definitions; clearly and correctly state most critical points and important contributions of the assigned questions or problems; high participation and excellent presentation skills.	Sufficient evidence of showing understanding of key concepts and definitions; clearly and correctly state some critical points and contributions of the assigned questions or problems; high participation and good presentation skills.	Evidence of showing some understanding of the subject; demonstrate some ability to develop solutions to simple and basic problems in the assigned questions and problems.	State a few critical points and marginal contributions of the assigned questions and problems.	Do not show any participation
3. Individual assignment	Evidence of original thinking, organisation, ability to analyse, and grasp of knowledge.	Strong evidence of original thinking; good organization, capacity to analyse and synthesize; superior grasp of	Sufficient evidence of original thinking, sufficient evidence of critical capacity and analytic	Some evidence of original thinking; some understanding of the subject; some evidence of	Little evidence of original thinking; little understanding of the subject; some evidence of	Little evidence of familiarity with the subject matter; weakness in critical and analytic skills;

		subject matter; evidence of extensive knowledge base.	ability; reasonable understanding of issues; evidence of familiarity with methods learned.	familiarity with methods learned.	familiarity with methods learned.	limited or irrelevant use of methods learned.
4. Examination	Evidence of original thinking, organisation, ability to analyse, and grasp of knowledge.	Strong evidence of original thinking; good organization, capacity to analyse and synthesize; superior grasp of subject matter; evidence of extensive knowledge base.	Sufficient evidence of original thinking; sufficient evidence of critical capacity and analytic ability; reasonable understanding of issues; evidence of familiarity with course materials.	Some evidence of original thinking; some evidence of critical capacity and analytic ability; some understanding of issues; some evidence of familiarity with course materials.	Little evidence of original thinking; little evidence of critical capacity and analytic ability; some understanding of issues; some evidence of familiarity with course content.	Little evidence of familiarity with the subject matter; weakness in critical and analytic skills; limited or irrelevant use of course materials.

Applicable to students admitted from Semester A 2022/23 to Summer Term 2024

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B)	Marginal (B-, C+, C)	Failure (F)
1. Group project	Evidence of original thinking, organisation, ability to analyse, and grasp of knowledge.	Strong evidence of original thinking; good organization, capacity to analyse and synthesize; superior grasp of subject matter; evidence of extensive knowledge base.	Sufficient evidence of original thinking, some evidence of critical capacity and analytic ability; reasonable understanding of issues; evidence of familiarity with course materials.	Some to little evidence of original thinking, little evidence of critical capacity and analytic ability; reasonable understanding of course materials.	No evidence of familiarity with the subject matter; weakness in critical and analytic skills; limited or irrelevant use of course materials.
2. In-class participation	Understanding of key concepts and definitions, willingness to participate.	Strong evidence of showing understanding of key concepts and definitions; clearly and correctly state most critical points and important contributions of the assigned	Sufficient evidence of showing understanding of key concepts and definitions; clearly and correctly state some critical points and contributions of the assigned questions or	Evidence of showing some understanding of the subject; demonstrate some ability to develop solutions to simple and basic problems in the assigned questions and problems. Some may	Do not show any participation

		questions or problems; high participation and excellent presentation skills.	problems; high participation and good presentation skills.	only state a few critical points and marginal contributions of the assigned questions and problems.	
3. Individual assignment	Evidence of original thinking, organisation, ability to analyse, and grasp of knowledge.	Strong evidence of original thinking; good organization, capacity to analyse and synthesize; superior grasp of subject matter; evidence of extensive knowledge base.	Sufficient evidence of original thinking, sufficient evidence of critical capacity and analytic ability; reasonable understanding of issues; evidence of familiarity with methods learned.	Some to little evidence of original thinking; some to little understanding of the subject; some evidence of familiarity with methods learned.	Little evidence of familiarity with the subject matter; weakness in critical and analytic skills; limited or irrelevant use of methods learned.
4. Examination	Evidence of original thinking, organisation, ability to analyse, and grasp of knowledge.	Strong evidence of original thinking; good organization, capacity to analyse and synthesize; superior grasp of subject matter; evidence of extensive knowledge base.	Sufficient evidence of original thinking; sufficient evidence of critical capacity and analytic ability; reasonable understanding of issues; evidence of familiarity with course materials.	Some to little evidence of original thinking; some to little evidence of critical capacity and analytic ability; some understanding of issues; some evidence of familiarity with course materials.	Little evidence of familiarity with the subject matter; weakness in critical and analytic skills; limited or irrelevant use of course materials.

Part III   Other Information

1.   Keyword Syllabus

1.   Introduction
Review of basic knowledge on statistics.   Overview of the concepts of regression analysis and structural equation modelling.
2.   Linear regression model
Formulation and assumptions of a multiple linear regression model. Inference of regression parameters. Goodness of fit measures. Hypothesis testing.   Use of dummy variables.   Sequential testing, Cp, forward, general-to-specific modelling.
3.   Logistic regression model
Binary logit.   Odds versus probability. Likelihood ratio test. Unordered and ordered multinomial logit. Latent variable.   Assumption of independence of irrelevant alternative (IIA).
4.   Path analysis
Endogenous and exogenous variables. Manifest and latent variables.   Simple path diagrams, Recursive and non-recursive models.
5.   Measurement models
Exploratory versus confirmatory factor analysis. Second order factor analysis, Model identification, estimation, testing and modification.
6.   Structural models
Identification, Measures of fit, Model re-specification, Mediation, Moderation

2.   Reading List
2.1   Compulsory Readings

1.	Dielman, T.E. (2004), Applied Regression Analysis, 4th edition, Brooks/Cole.
2.	Menard, S. (2001), Applied Logistic Regression Analysis, 2nd edition, SAGE Publications Inc.
3.	Raykov, T. and Marcoulides, G.A. (2006), A First Course in Structural Equation Modelling, 2nd edition, Taylor and Francis.
4	Rex B. Kline (2011). Principles and Practice of Structural Equation Modeling, 3rd edition, The Guilford Press.

2.2   Additional Readings

1.	Nil