



BUSINESS SCHOOL

Course Outline 2019

INFOSYS 750: RESEARCH METHODS-QUANTITATIVE (15 POINTS)

Semester 1 (1193)

Course prescription

A comprehensive review of the methodological issues in Information systems research, including detailed coverage of univariate and multivariate data analysis

Course advice

Prerequisite: Any Stage II Statistics or equivalent Univariate Statistics course (consult the relevant Graduate Adviser in the Faculty of Business and Economics)

Goals of the course

This course is an introduction to a particular set of research methods applicable to students intending to pursue research in information systems and/or operations management. The course is one of a two-part sequence on research methodology (the other being INFOSYS 751). Specifically, in this course, we will focus on the application of univariate and multivariate statistical techniques for the analysis of data that has been gathered in the context of a research problem.

Learning outcomes (LO)

| # | Learning outcome | Graduate profile capability* |
|-----|--|---|
| LO1 | Formulate a problem and conceptualise a solution strategy rooted in multivariate statistical analysis | 1. Disciplinary knowledge and practice 4c. Engagement 5a. Independence |
| LO2 | Select an appropriate set of statistical tests to apply in a given situation. | 1. Disciplinary knowledge and practice 2. Critical thinking 6a. Social responsibilities |
| LO3 | Read the research literature and understand the use of statistical methods as applied to management research | 1. Disciplinary knowledge and practice 2. Critical thinking 3. Solution seeking |
| LO4 | Achieve a reasonable level of competence in the use of statistical software | 1. Disciplinary knowledge and practice 4c. Engagement 4b. Communication (Written) |

* See the graduate profile this course belongs to at the end of this course outline.

Content outline

| Week / Module | Topic | Relevant learning resources/activities | Assessment due this period |
|----------------------------------|--|---|----------------------------|
| Week 1 March 4 th | Introduction to the course, facilities, software; review of basic statistical inference | - Chapter 1, 2 Multivariate Data Analysis Relevant articles and reading materials will be posted on Canvas. | |
| Week 2 March 11 th | Hypotheses Testing | Lecture Notes Relevant articles and reading materials will be posted on Canvas. | |
| Week 3 March 18 th | Analysis of Variance (ANOVA) | - Chapter 7 Multivariate Data Analysis - Noeteberg, Anna, Ellen Christiaanse and Philip Wallage, "The Role of Trust and Assurance Services in Electronic Channels: An Exploratory Study," International Conference on Information Systems, 1999. | |
| Week 4 March 25 th | Multiple Regression Analysis | Lecture Notes Relevant articles and reading materials will be posted on Canvas. - Chapter 4 Multivariate Data Analysis - Krishnamurthy, S. and Arvind Tripathi, "Monetary Donations to an Open Source Software Platform," <i>Research Policy</i> , (38), 2009, pp. 404-414. | |
| Week 5 April 1 st | Predictive Analysis- Logistic Regression | - Chapter 6 Multivariate Data Analysis - Goes, Paulo. B., Gilbert G. Karuga and Arvind Tripathi, "Bidding Behaviour Evolution in Sequential Auctions: Characterization and Analysis," <i>MIS Quarterly</i> , (36:4), 2012, pp. 1021-1042. | Assignment 1 is due. |
| Week 6 April 8 th | Test 1 | | |
| Week 7 April 29 th | Multiple Analysis of Variance (MANOVA) | - Chapter 7 Multivariate Data Analysis | |
| Week 8 May 6 th | Introduction to Longitudinal Data Analysis (Fixed effects and Random effects model) Exploring Longitudinal Data | Chapter 1, 2 Applied Longitudinal Data Analysis | |
| Week 9 May 13 th | Introducing Multilevel Model for Change | Chapter 3, Applied Longitudinal Data Analysis Relevant articles and reading materials will be posted on Canvas. - Goes, Paulo. B., Gilbert G. Karuga and Arvind Tripathi, "Understanding Willingness-to-Pay Formation of Repeat Bidders in Sequential Online Auctions: Characterization and | |

| Week / Module | Topic | Relevant learning resources/activities | Assessment due this period |
|---------------------------------|--|--|----------------------------|
| | | Analysis," Information Systems Research, (21:4), 2010. | |
| Week 10 May 20 th | Data Analysis for Multilevel Model for Change Applying Multilevel model to Complex Datasets | Chapter 4, 5 Applied Longitudinal Data Analysis Relevant articles and reading materials will be posted on Canvas. - Goes, Paulo. B., Gilbert G. Karuga and Arvind Tripathi, "Understanding Willingness-to-Pay Formation of Repeat Bidders in Sequential Online Auctions: Characterization and Analysis," Information Systems Research, (21:4), 2010. | |
| Week 11 May 27 th | Discontinuous and Non-Linear Models Examining the Multilevel Model's Error Covariance Structure | Chapter 6 & 7, Applied Longitudinal Data Analysis Relevant articles and reading materials will be posted on Canvas. | Assignment 2 is due |
| Week 12 June 3 rd | Holiday | | |

Learning and teaching

Class meetings will be devoted primarily to the discussion of assigned reading for the day (see Content Outline). The student must come to the lectures having read the assigned material and be prepared to participate in the discussion in a meaningful manner. Occasionally we will also read published articles from the research literature to learn about the application of various techniques. These articles will be made available to you during the semester.

Workload:

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|---|------------|
| Contact hours (including and class presentations) | 36 |
| Preparatory reading | 24 |
| Self-study | 90 |
| Total | 150 |

Teaching staff

Associate Professor Arvind Tripathi

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Learning resources

The primary resources for the course are:

- Hair, J. F., R. E. Anderson, B. J. Babin, and W. C. Black, *Multivariate Data Analysis*, Prentice- Hall, New York, 7th edition. This is a recommended text book for this course.
- Singer, Judith D. and John. B. Willet, *Applied Longitudinal Data Analysis: Modeling Change and Event Occurrence*, Oxford University Press, 1st edition, 2003. This is a recommended text book for this course.
- Journal articles on various topics – specific articles will be indicated during the course.
- Software: The primary software package that we will use in this course is SPSS. You are required to use this package to do your assignments. The software will be available on the network. There are several excellent online tutorials that will help you get started with using SPSS. You should use those extensively. You should also look for books about using SPSS in the library.
- Tutorials: Tutorials will be scheduled to help you work with the software. You may also consult the tutor for help with the use of the software.
- Books in the University Library that cover topics on univariate statistics, may help those who need support in basic statistical hypothesis testing, correlation & regression, analysis of variance and other areas. You should use this facility extensively to refresh your knowledge on this topic.
- Canvas: The primary method, by which you will receive course information, handouts, assignments, etc., will be through the use of the Canvas system.

Assessment information

| Assessment task | Weight % | Group and/or individual | Submission |
|---------------------|----------|-------------------------|----------------------|
| Assignment 1 | 15% | Individual | Submission on canvas |
| Assignment 2 | 15% | Individual | Submission on canvas |
| Class Participation | 5% | Individual | Submission on canvas |
| Test 1 | 30% | Individual | Submission on canvas |
| Test 2 | 35% | Individual | Submission on canvas |

Pass requirements

Students need to pass in each assessment category (Assignments and Tests) in order to pass the course.

Description of assessment tasks

| Assessment task | Learning outcome to be assessed |
|---|---------------------------------|
| Assignment and Class Participation: Assignment 1, 2 and class participation aim to test students' understanding of the course material and ability to use software discussed in computer lab sessions. | LO1, LO2, LO3 and LO4 |
| Tests: Both Test 1 and 2 will be based on material discussed in class and on assignments. . | LO1, LO2, LO3 and LO4 |

Inclusive learning

Students are urged to discuss privately any impairment-related requirements face-to-face and/or in written form with the courses convenor/lecturer and/or tutor.

Academic integrity

The University of Auckland will not tolerate cheating, or assisting others to cheat, and views cheating in coursework as a serious academic offence. The work that a student submits for grading must be the student's own work, reflecting his or her learning. Where work from other sources is used, it must be properly acknowledged and referenced. This requirement also applies to sources on the worldwide web. A student's assessed work may be reviewed against electronic source material using computerised detection to provide an electronic version of their work for computerised review.

Student feedback

- Students will be asked to complete formative fast feedback early in the semester, and course and teaching evaluations at the end of the course. In addition, each course will seek volunteers to serve as class reps.

In the event of an unexpected disruption

We undertake to maintain the continuity and standard of teaching and learning in all your courses throughout the year. If there are unexpected disruptions, the University has contingency plans to ensure that access to your course continues and your assessment is fair, and not compromised. Some adjustments may need to be made in emergencies, In the event of a disruption, the University and your course coordinators will make every effort to provide you with up to date information via Canvas and the University website.

Graduate profile for

The following six themes represent the capabilities that the Business School seeks to foster in all of its graduates. The development of these capabilities does not come all at once, but rather is expected to build

from year to year. Each course is not expected to contribute to all capabilities, but each course will have its own goals and learning outcomes that relate to the overall development of this profile.

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|---|
| <p>1. Disciplinary knowledge and practice</p> <p>Graduates will be able to demonstrate an advanced understanding of theory and practice and apply this in the context of sourcing information technology and business processes in the global environment.</p> |
| <p>2. Critical thinking</p> <p>Graduates will be able to synthesise and critically evaluate ideas and information from multiple sources to develop coherent and evidence-based arguments.</p> |
| <p>3. Solution seeking</p> <p>Graduates will be able to creatively and systematically address complex business and management issues and develop practical and innovative solutions.</p> |
| <p>4. Communication and engagement</p> <p>Graduates will be able to work effectively in teams and engage diverse audiences by communicating professionally using multiple formats.</p> |
| <p>5. Independence and integrity</p> <p>Graduates will be able to work professionally and ethically as well as demonstrate self-management in complex situations.</p> |
| <p>6. Social and environmental responsibility</p> <p>Graduates will be able to demonstrate respect for the principles underpinning the Treaty of Waitangi, as well as diversity, equity and sustainability, when operating in a global business environment.</p> |