Alliance Manchester Business School

PGR Course unit outline 2022/23

Unit code:	**BMAN80121**
Title:	Introduction to Quantitative Reseach Methods
Credit value:	15 Credits
Semester:	Semester 1
Course Coordinator contact details:	Dr. Masakatsu (Bob) Ono Room 7.012 AMBS Email: masakatsu.ono@manchester.ac.uk Office hours: TBD
Other staff involved contact details:	Dr. Wing Lam Room 7.018 AMBS Email: wing.lam@manchester.ac.uk Office hours: TBD
Pre-requisites **Co-requisites** **Dependent course units** **Restrictions**	n/a n/a This course is limited to AMBS PhD students

Course unit overview

This course provides the foundational knowledge and skills for conducting quantitative research. By covering the basic statistical techniques and the steps for hypothesis testing, the course prepares students for learning more advanced statistical techniques.

Aims

This unit aims to:
- Introduce students to quantitative research methods
- Provide an overall framework for the conduct of quantitative analyses
- Introduce students to basic statistical methods and hypothesis testing

Objectives (Learning outcomes)

On completion of this unit successful students will be able to:
- understand different types of variables and their implications for analyses
- understand the concepts and techniques of descriptive statistics
- understand the concepts and use the basic theory of probability
- conduct hypothesis testing
- analyse, interpret and extrapolate from data
- conduct correlation, analysis of variance, and multiple regression analysis (with a single outcome variable)

Syllabus content

The contents of this unit include:
- The importance of statistics in organisational research
- Probability theory and central limit theorem (CLT)
- Sampling

- Descriptive statistics
- Null hypothesis significance testing (NHST)
- Confidence intervals
- Introduction to effect size and power
- *t*-tests and correlation
- Analysis of variance (ANOVA) and covariance (ANCOVA)
- Introduction to multiple regression analyses

The relevant teaching materials for the sessions will be available on BlackBoard pages. We will also have synchronous interactive sessions for learning statistical software for each analytical technique (scheduled on Tuesdays from 10:00 to 12:50).

Week	Date	Topic	Tutor
1	September 27th	Introduction to Quantitative Research Methods, Measurements & Sampling	MO
2	October 4th	Descriptive Statistics, Probability Theory & SPSS Overview	MO
3	October 11th	Null Hypothesis Significant Testing & Simple Tests (*t*-test, correlation)	MO
4	October 18st	Analysis of Variance & Covariance	WL
5	October 25th	Introduction to Regression	WL
6	November 1st	Revision Lecture	WL

Note. Week numbers are based on the academic calendar counts.

Methods of delivery

Lectures	3 hours per week for 6 weeks (18 hours)
Seminar/Tutorial/Workshop/Lab Hours	N/A; Within the contact hours, there will be substantial component of computing, so the students needs to be at home with a SPSS-equipped computer or in a computing lab on campus.
Independent Study	72 hours
Total Study Hours	90 hours

Reading List

The following reading list is designed to offer you additional information on each topic area. It is **not compulsory** to read all of the material on this list, but it is suggested that you read a minimum of one general textbook chapter, and one general review paper for each topic.

Core Text:

Coolidge, F. (2012). Statistics: A Gentle Introduction, 3/E, SAGE Publications, Inc. Paperback ISBN: 9781412991711.

Supplementary Text:

On SPSS

Field, A. (2013). Discovering Statistics using IBM SPSS for Windows, Sage Publications.

Multivariate Statistics

Tabachnick, B. G., & Fidell, L. S. (2012). Using multivariate statistics, 6th Edition. Pearson.

The book contains the chapters relevant to this course unit: multiple regression analyses and analyses of covariance.

Mediation & Moderation

Hayes A. F. (2013). Introduction to mediation, moderation and conditional process analysis. New York, NY: Guilford Press.

APA REPORT STYLE

American Psychological Association (2010). *Publication Manual of the American Psychological Association* (6th ed.). Washington, DC: American Psychological Association.

This is the definitive bible of how to write articles for all leading psychology journals. Although this manual is intended for psychologists, it is nevertheless the most comprehensive guide to writing journal articles for social science journals. Please note that individual journals often have their own house style, which must be followed.

Assessment

Suggested mode of Assessment	Length required
Examination: Two-hour, closed-book, written examination administered online during the exam week. The exam include 50% multiple choice and 50% statistical problems. Full details of the exam will be provided during the first lecture. The overall pass mark for the module is 60%.	2 hours
Resits: The resit assessment consists of an exam to be completed during the resit examination period.	2 hours

Feedback methods

analytical demonstrations and general question and answer exercises during the lectures. If you wish to discuss progress, course content or any other relevant issues, contact the lecturers in person, by email or by telephone.

Methods of Feedback from Students/Course Unit Survey

Students are encouraged to give constructive feedback throughout the course directly to the course coordinator, Dr. Ono, or via the class student representatives to the Programme Committee. The course will be evaluated by means of an online feedback questionnaire completed by students on completion of the course.

Social Responsibility

AMBS aims for our graduates to develop not only academic and professional skills, but also a sense of social, ethical and environmental responsibility towards the societies of which they are part. Please give details of how social responsibility is addressed in your course unit by highlighting any knowledge or skills that support students' social and ethical understanding and conduct.

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The course will address social responsibility by discussing the issue of transparent reporting of quantitative research. In other words, we will be discussing socially responsible practices in conducting research (especially with respect to statistical analyses) to facilitate the advancement of the scientific community and beyond.

Please indicate by ticking the box(es) below, which specific aspect of SR your module is linked to:

☐ A UN SDGs*   ☐ Environmental Sustainability

☐ Other (please specify)

* If a UN SDG, please note which one by reviewing the list here

For additional support on how embed SR into your module, please review the resources here:
https://documents.manchester.ac.uk/DocuInfo.aspx?DocID=51837
https://documents.manchester.ac.uk/DocuInfo.aspx?DocID=47017