

IMEDM401 Introduction to Classical and Rasch Measurement Theories

ASM information

Code	IMEDM401
Title	Introduction to Classical and Rasch Measurement Theories
School	Medical School
Board Of Studies	Mathematical and Physical Sciences
Responsible Organisational Entity	Medical School
School Collaborations	{"School Collaborations" blank}
Coordinator	Prof David Andrich
First year of offer	2021
Professional Development Points	6
Total effort hours	150 hours
Duration of micro-credential	12 weeks

Area of interest

Area of interest
AOS70 Research skills
AOS40 Health and Biomedical Science
AOS65 Psychology
AOS30 Education
AOS75 Transferrable skills
AOS45 Humanities and Social Sciences

Academic information

Content	This course begins with an introduction to the historical development of test theory and how modern test theory has superseded traditional test theory in many applications, especially in large-scale assessments. In particular, students learn how Rasch measurement incorporates, elaborates and better achieves the goals of traditional test theory. The course includes lectures on the formalisation and calculation of traditional reliability and reliability in Rasch models, the concept of validity in both traditional and modern test theory, the concepts of invariance and sufficiency in Rasch measurement, diagnosing the fit of responses to the Rasch model, and the Rasch model for dichotomous items and for items with ordered response categories.
Short description (60 words)	The course begins with some traditional test theory because it is still relevant and also because of the history of the development in formal testing. Studying both theories enables students to better appreciate each theory and, in particular, how Rasch measurement incorporates, elaborates and better achieves the goals of traditional test theory.
Unit has indigenous content?	False

Field of Education

Broad Field of Education	01 - Natural and Physical Sciences
Narrow Field of Education	0101 - Mathematical Sciences
Detailed Field of Education	010103 - Statistics

Outcomes	Students are able to (1) explain the basic principles of Rasch measurement theory in the social sciences; (2) demonstrate an understanding of the principles of traditional test theory in terms of Rasch measurement theory; (3) assess the quality of items used in constructing assessment instruments of achievement, knowledge and attitude using a range of diagnostic tools; and (4) Analyse assessment data using the appropriate software.
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How outcomes will be assessed

#	Outcome	How outcome will be assessed
1	explain the basic principles of Rasch measurement theory in the social sciences	Assignments
2	demonstrate an understanding of the principles of traditional test theory in terms of Rasch measurement theory	Assignments
3	assess the quality of items used in constructing assessment instruments of achievement, knowledge and attitude using a range of diagnostic tools	Assignments
4	Analyse assessment data using the appropriate software	Assignments

Assessment items

Indicative assessments in this unit are as follows: assignments [assessment type:Application of multiple skills to complex problems]. Further information is available in the unit outline.

#	Assessment	Indicative weighting	AssessmentType
1	assignments	100%	Application of multiple skills to complex problems

Grading scheme

Graded

Teaching responsibilities

Teaching organisation	Notes	%
S00855 Medical School	Coordination and Teaching	100%

Availabilities

Teaching period	Location	Mode	Details
TS-MC-1H, 2022	Crawley	online timetabled	Expected class size: 10 Contact hours: n/a [Coordinators: David Andrich] [Teaching Staff: Ida Marais (00063546), Sonia Sappl] Start: 28-02-2022, End: 17-06-2022
TS-MC-3H, 2022	Crawley	online timetabled	Expected class size: 10 Contact hours: n/a [Coordinators: David Andrich] [Teaching Staff: Ida Marais (00063546), Sonia Sappl] Start: 25-07-2022, End: 11-11-2022

Fees and enrolment

Project grant	00855/63005007
Fees category	Non-standard
Justification, why the fee category is non-standard	Historically this is the fee charged and accepted by target market, fee includes GST.
Fees applied for this ASM	2650
Minimum enrolment required (if applicable)	1
Industry Endorsement	The University of Western Australia
Period of endorsement	0000-00-00
Discount	{"Discount" blank}

Marketing

Who should study this course

The course is suitable for people from many social research backgrounds.

However, four groups in particular have been seen to gain most benefit from enrolment.

Professionals in assessment and measurement of performance and attitude who know traditional test theory and are interested in learning the principles of modern test theory and Rasch measurement.

People in education, psychology, health care and health sciences who are concerned with outcome measurement.

People familiar with Rasch measurement and modern test theory (item response theory) who want to consolidate their understanding of first principles.

Students enrolled in higher degree studies and who require knowledge and evidence of studying educational and psychological measurement, especially an introduction to traditional and modern test theory.

Recommended prior study

Basic statistics

Why study this micro-credential

Students will be explain the basic principles of Rasch measurement theory in the social sciences; understand the principles of traditional test theory in terms of Rasch measurement theory; use a range of diagnostic tools in order to assess the quality of items in constructing assessment instruments of achievement, knowledge and attitude; and apply software in analysing assessment data.

Informal description of delivery mode, outcomes and assessments (for marketing purposes)

The course begins with some traditional test theory because it is still relevant and also because of the history of the development in formal testing. Studying both theories enables students to better appreciate each theory and, in particular, how Rasch measurement incorporates, elaborates and better achieves the goals of traditional test theory.

What the students will learn (3-5 dot points)



Students will be explain the basic principles of Rasch measurement theory in the social sciences; understand the principles of traditional test theory in terms of Rasch measurement theory; use a range of diagnostic tools in order to assess the quality of items in constructing assessment instruments of achievement, knowledge and attitude; and apply software in analysing assessment data..

Assessment comprises of nine assignments.

What's next after this course (pathways to future study or career outcomes)

Rasch models for measurement are used in large scale national and international assessments, not only to analyse test data after collection, but to use as criteria for design of test items and their administration. The Psychometric Laboratory undertakes research and development for application to the broad area of measurement and assessment in education and the social sciences including psychology, health and marketing. The Psychometric Laboratory does research in all areas of Rasch models for measurement, in particular epistemological, applied, and in software development. This is an opportunity to study with researchers who have made advancement in all these fields.

History and committee endorsements/approvals

Event	Date	Outcome
 Faculty	19-07-2021	Endorsed: R3-2021 Brendan McQuillan HoS Medical School and Helen Wilcox Director Doctor of Medicine. Approval reference: michael jenkins
 University Curriculum Committee	27-07-2021	Approved: Delegated Authority

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