

PSYC*4290, Course Outline: Fall 2024

General Information

This course is offered using the Face-to-Face format. The course has a set day, time, and location of class.

Course Title: Psychological Measurement

Course Description:

This course is an introduction to the theory of psychological measurement and measurement procedures presently used in psychology. Coverage will include such topics as reliability, validity, factor analysis and test construction, and the measurement of ability, personality, and achievement. You will learn not only how to evaluate psychological tests and measures, but also construct and refine your own. This knowledge is essential for both future practitioners and researchers in the area of psychology.

Credit Weight: 0.50

Academic Department (or campus): Psychology

Semester Offering: F24

Class Schedule and Location: MWF 10:30AM-11:20AM MCKN 031

Instructor Information

Instructor Name: Dr. Jeffrey Spence

Instructor Email: spencejr@uoguelph.ca

Office location and office hours: Mackinnon Extension 4006, Tuesdays 10:00AM-11:00AM

GTA Information

GTA Name: Connor Hill

Email: chill13@uoguelph.ca

Office Hours: Friday 3:00pm Blackwood Hall

Course Content

Specific Learning Outcomes:

2 Literacy, Facet 2. Methodological Literacy: The ability to understand, evaluate, and design appropriate methodologies for rigorous psychological science

2 Literacy, Facet 3. Quantitative Literacy: Includes numeracy, and competence in working with numerical data

2 Literacy, Facet 4 Technological Literacy: The ability to select and use appropriate technology

2 Literacy, Facet 5 Visual Literacy: The ability to effectively find, interpret, evaluate, use, and create images and visual media and content (graphs, tables, figures).

4 Communicating, Facet 2 Written Communication: The ability to express one's ideas and summarize data and results through writing responses to assignment questions.

Lecture Content:

Below, is an overview of the main topics that will be covered in lectures. Lectures will cover content that is crucial for assignments, midterms, and final exam.

1. Introduction to psychometrics
2. Scale creation
3. Scaling
4. Variance, covariance, correlations
5. Interpreting test scores
6. History of Measurement
7. Classical test theory and reliability
8. Reliability estimates
9. Reliability in practice
10. Factor analysis
11. Validity concepts
12. Validity estimates

Course Assignments and Tests:

In terms of tests, exams, and assignments you are responsible for all material presented in lectures and the textbook.

It is important to view lectures to ensure you receive announcements (relevant to grading and other course aspects) as well, material that is not covered in the textbook.

1. Midterms and Final Exam (75%)

Midterm 1 (25%): In-class multiple choice test. Monday September 30th during class time.

Midterm 2 (25%): In-class multiple choice test. Monday October 28th during class time.

Final exam (25%): In-person exam scheduled in exam period. WebAdvisor date: December 5, 2024, 8:30am, location TBD.

Final exam regulation are detailed at: [Examination Regulations](#)

2. Assignments (25%)

There will be two assignments throughout the term to get practical experience with some important course content.

Assignment 1 (15%): Construct definition, scale creation. Due October 4th.

Assignment 2 (10%): Psychometric analyses using R (R Studio). Due November 22nd.

Assignments need to be submitted electronically, via Courselink “Dropbox” tab.

Summary Table With Due Dates

Assignment or Test	Due Date	Contribution to Final Mark (%)	Learning Outcomes Assessed
Midterm I	Sept 30th	25%	2 Literacy, Facet 2, 3, 4, 5
Midterm II	October 28th	25%	2 Literacy, Facet 2, 3, 4, 5
Final Exam	December 5th	25%	2 Literacy, Facet 2, 3, 4, 5
Assignment 1	Oct 4th (midnight)	15	2 Literacy, Facet 2, 3, 4, 5; 4 Communicating, Facet 2
Assignment 2	Nov 22nd (midnight)	10	2 Literacy, Facet 2, 3, 4, 5; 4 Communicating, Facet 2

Schedule of Content and Due dates

Notes:

***The content and assigned readings may be subject to change based on progress through the material and student comprehension. Students will be notified of changes in lectures and on Courselink.**

****More specific directions regarding readings may be provided week to week.**

Week	Date	Lecture	Reading	Due / Comments
0	Sept. 6	Introduction to course	Course outline	
1	Sept. 9	Introduction to psychometrics	Chapter 1: Psychometrics and the importance of psychological measurement	
1	Sept. 11	Latent models and construct definitions	Chapter 1: Psychometrics and the importance of psychological measurement	Assignment 1 overview and review
1	Sept. 13	Construct definition	Chapter 1: Psychometrics and the importance of psychological measurement	
2	Sept. 16	Scaling	Chapter 2: Scaling	
2	Sept. 18	Scaling and item creation	Chapter 2: Scaling	
2	Sept. 20	Scaling and item creation	Chapter 2: Scaling	
3	Sept. 23	Variance, covariance, correlations	Chapter 3: Differences, consistency, and meaning of test scores	
3	Sept. 25	Interpreting test scores	Chapter 3: Differences, consistency, and meaning of test scores	

3	Sept. 27	History of measurement	Chapter 1: Psychometrics and the importance of psychological measurement Section to read: pp. 11-13 "A Brief History of Psychometrics" section	
4	Sept. 30	Midterm I	Covering Chapters 1-3 and all lecture material.	
4	Oct. 2	Classical Test Theory and reliability	Chapter 5: Reliability: Conceptual basis	
4	Oct. 4	Classical Test Theory and reliability	Chapter 5: Reliability: Conceptual basis	Assignment 1 Due
5	Oct. 7	Classical Test Theory Assumption violations	Chapter 5: Reliability: Conceptual basis	
5	Oct. 9	Introduction to Reliability/ Estimating reliability	Chapter 6: Empirical estimates of reliability	
5	Oct. 11	Estimating Reliability II	Chapter 6: Empirical estimates of reliability	
6	Oct. 14	Holiday (no class scheduled)	Holiday (no class scheduled)	
6	Oct. 16	Exploratory Factor analysis	Chapter 4: Test dimensionality and factor analysis	
6	Oct. 18	Exploratory Factor analysis	Chapter 4: Test dimensionality and factor analysis	
7	Oct. 21	Exploratory Factor analysis	Chapter 4: Test dimensionality and factor analysis	

7	Oct. 23	Exploratory Factor Analysis in R	Chapter 4: Test dimensionality and factor analysis	
7	Oct. 25	Exploratory Factor Analysis in R	Chapter 4: Test dimensionality and factor analysis	
8	Oct. 28	Midterm II	Covering Chapters 4, 5, & 6 and all lecture material	
8	Oct. 30	Confirmatory factor analysis	Chapter 12: Confirmatory Factor Analysis (pp. 491-511)	Assignment 2 overview and review
8	Nov. 1	Confirmatory factor analysis	Chapter 12: Confirmatory Factor Analysis (pp. 491-511)	
9	Nov. 4	Confirmatory factor analysis	Chapter 12: Confirmatory Factor Analysis (pp. 491-511)	
9	Nov. 6	Confirmatory Factor Analysis in R		
9	Nov. 8	Confirmatory Factor Analysis in R		
10	Nov. 11	Interpreting Test scores	Chapter 7: The importance of reliability	
10	Nov. 13	Interpreting Test scores	Chapter 7: The importance of reliability	
10	Nov. 15	Interpreting Test scores	Chapter 7: The importance of reliability	
11	Nov. 18	Dichotomous decisions	Chapter 9: Estimating and evaluating convergent and discriminant validity evidence pp.373-376	
11	Nov. 20	Dichotomous decisions	Chapter 9: Estimating and evaluating convergent and discriminant validity evidence pp.373-376	

11	Nov. 22	Dichotomous decisions	Chapter 9: Estimating and evaluating convergent and discriminant validity evidence pp.373-376	Assignment 2 due
12	Nov 25	Validity Conceptual	Chapter 8: Validity: Conceptual basis Chapter 9: Estimating and evaluating convergent and discriminant validity evidence	
12	Nov. 27	Validity Conceptual	Chapter 8: Validity: Conceptual basis Chapter 9: Estimating and evaluating convergent and discriminant validity evidence	
12	Nov. 29	Validity Conceptual	Chapter 8: Validity: Conceptual basis Chapter 9: Estimating and evaluating convergent and discriminant validity evidence	

Course Resources

Required Texts:

Furr, M. R. (2022). *Psychometrics: An introduction (4th edition)*. Los Angeles, CA: Sage.

180 Day eBook:

<https://www.campusebookstore.com/integration/AccessCodes/default.aspx?permalinkId=8002F8D1-CEDB-497A-A6EA-CFE0E5A5E92F&frame=YES&t=permalink>

Perpetual PDF:

<https://www.campusebookstore.com/integration/AccessCodes/default.aspx?permalinkId=9E4BA0D7-2F36-4D07-8FC3-72252F189D38&frame=YES&t=permalink>

Required Software for Assignment 2:

Students will also need to download R and R studio (this software is freely available and can be used on mac, PC, and in a cloud-based format).

Course Policies

Grading Policies

All midterms and final exam are completed in person. Assignment 1 and 2 need to be submitted via Dropbox on Courselink before the due date and time. Late assignments will be accepted, but

will receive a 5% penalty each day it is late. Requests of changes to the above policy will be considered only in exceptional circumstances.

Undergraduate Grading Procedures

Please note that these policies are binding unless academic consideration is given to an individual student.

Course Policy regarding use of electronic devices and recording of lectures:

Electronic recording of classes is expressly forbidden without consent of the instructor. When recordings are permitted, they are solely for the use of the authorized student and may not be reproduced, or transmitted to others, without the express written consent of the instructor. Similarly, any material created by the course instructor is intended for those enrolled in this course solely. Under no circumstances are you allowed to disseminate course materials to external parties.

Re-Grading of Assignments Policy

Where a student is of the belief that an assignment has not been accurately graded, they are to pursue a 2-step course policy: 1) as soon as possible, meet with the original TA that graded the assignment, and if a student remains dis-satisfied, 2) they can request from the instructor that another TA re-grade the assignment. Note that the student will be required to accept the re-grade, whether it be higher or lower.

University Policies

Disclaimer

Please note that the ongoing COVID-19 pandemic may necessitate a revision of the format of course offerings, changes in classroom protocols, and academic schedules. Any such changes will be announced via CourseLink and/or class email. This includes on-campus scheduling during the semester, mid-terms and final examination schedules. All University-wide decisions will be posted on the COVID-19 website (<https://news.uoguelph.ca/2019-novel-coronavirus-information/>) and circulated by email.

Academic Consideration

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course instructor in writing, with your name, id#, and e-mail contact. See the academic calendar for information on regulations and procedures for

Medical notes will not normally be required for singular instances of academic consideration, although students may be required to provide supporting documentation for multiple missed assessments or when involving a large part of a course (e.g., final exam or major assignment).

Academic Consideration:

[Academic Consideration, Appeals and Petitions](#)

Academic Misconduct

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community, faculty, staff, and students to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring.

University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection. Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

The Academic Misconduct Policy is detailed in the Undergraduate Calendar:

[Academic Misconduct Policy](#)

Illness

Medical notes will not normally be required for singular instances of academic consideration, although students may be required to provide supporting documentation for multiple missed assessments or when involving a large part of a course (e.g., final exam or major assignment).

Accessibility

The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact [Student Accessibility Services](#) as soon as possible.

For more information, contact SAS at 519-824-4120 ext. 54335 or email accessibility@uoguelph.ca or the [Student Accessibility Services Website](#)

Student Feedback Questionnaire

These questionnaires (formerly course evaluations) will be available to students during the last 2 weeks of the semester. Students will receive an email directly from the Student Feedback Administration system which will include a direct link to the questionnaire for this course. During this time, when a student goes to login to CourseLink, a reminder will pop-up when a task is available to complete.

[Student Feedback Questionnaire](#)

Drop date

The last date to drop one-semester courses, without academic penalty, is Friday November 29, 2024. For regulations and procedures for Dropping Courses, see the [Schedule of Dates in the Academic Calendar](#)

Instructors must provide [meaningful and constructive feedback, at minimum 20% of the final course grade, prior to the 40th class day](#). For courses which are of shorter duration, 20% of the final grade must be provided two-thirds of the way through the course.

Additional Course Information

Course instructors are allowed to use software to help in detecting plagiarism or unauthorized copying of student assignments. Plagiarism is one of the most common types of academic misconduct on our campus. Plagiarism involves students using the work, ideas and/or the exact wording of other people or sources without giving proper credit to others for the work, ideas and/or words in their papers. Students can unintentionally commit misconduct because they do not know how to reference outside sources properly or because they don't check their work carefully enough before handing it in. Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.