



Psychology 407	Psychometrics	Winter 2022	
<b>Instructor:</b>	Kibeom Lee	<b>Lecture Location:</b>	SH274
<b>Phone:</b>	403-471-7613 (cell)	<b>Lecture Days/Time:</b>	TuTh 9:30 – 10:45 AM
<b>Email:</b>	kibeom@ucalgary.ca	<b>TA</b>	Lorena Solis lorena.solis@ucalgary.ca
<b>Office:</b>	AD 220	<b>Labs</b>	Lab 1: W 10:00 – 11:50 Lab 2: M 17:00 – 18:50
<b>Office Hours:</b>	By appointment	<b>Lab Location</b>	SS018

**Course Description and Goals**

An introduction to the theory and practice of psychological measurement. Topics include the following: the evaluation of reliability and validity in psychological tests; factor analysis; psychometric principles of test construction; commonly used tests of personality, mental abilities, and interests; contemporary issues related to the use and usefulness of psychological tests.

**Course Format**

This is an in-person class held on campus.

**Prerequisite**

PSYC 300 and 301 (PSYC 312) - Experimental Design and Quantitative Methods for Psychology I & II

**Course Learning Outcomes**

The Department of Psychology is committed to student knowledge and skill development. The table below lists the key learning outcomes for this course, the program-learning outcomes they facilitate (see <https://live-arts.ucalgary.ca/psychology/about#program-learning-outcomes>), and the expected level of achievement.

Course Learning Outcomes	Assessment Methods	PLO(s)	Level(s)
Acquire knowledge of psychometrics (theory and methods)	Exams	2	A

Learning advanced statistical analyses	Exams	3	A
Understand the advantages and limitations of different research methods, including decolonizing methodologies	Exams, term papers	3	A
Locate, interpret, evaluate, and communicate psychological information and findings	Term papers	3,4,5	C
Use statistical software to analyze data and solve data analysis problems	Terms papers, labs, exams	3	C
Communicate research findings effectively using figures, graphs, and tables	Term papers, presentations	4	C
Write correct, clear, concise, and convincing research reports and papers using bias-free language	Term papers	4	C
Communicate and contribute in group activities and in discussions to facilitate goals	presentation	4	C

Notes. PLOs = Program-Learning Outcomes: 1 = demonstrate knowledge of psychological sciences, 2 = think critically and solve problems, 3 = conduct research and analyze data, 4 = communicate effectively, 5 = demonstrate information literacy, 6 = understand and implement ethical principles in a diverse world, 7 = apply psychological knowledge and skills, 8 = Demonstrate multicultural competence and awareness of issues related to equity, diversity,\* and inclusion. Level of PLO achievement facilitated by this course: I = introductory, C = competency, A = advanced.

### Textbook

See the required reading list appended in this course outline. A pdf copy of the readings is available from the U of Calgary library.

### Mid Term Open Book Exam:

1. Weight: 25% of final grade
2. Date: February 8 (75 minutes plus 50% technical extension time)
3. Format: Short-answer questions **Open Book** (calculator needed)

**This** timed assessment will be available on D2L at the beginning of class on February 8, at 9:30 AM and will be available for 24 hours. When you access the assessment, you will have 113 **minutes** (75 + 38 minutes) to complete and submit it. This assessment will consist of short-answer questions. If you experience an issue that affects your ability to complete the assessment, which can include (but is not limited to) issues with technology, caregiving responsibilities, or distractions within your test-taking environment, you will need to contact your instructor as soon as possible to arrange an alternate or (in the case of technical issues) extended time to write the assessment.

An open book exam means that the use of class notes and the textbook is permitted. The use of

online resources and calculators is permitted. However, students may NOT communicate with others about course material or the exam either in person or electronically during exams.

NOTE: The Make-up exam format may be different (e.g., could be short- or long-answer questions)

4. Material to be covered: lecture notes and readings covered from January 11 to February 3;

#### **Final Closed-Book Exam:**

1. Weight: 30% of final grade
2. Date: Arranged by registrar (exam duration TBA)
3. Format: Short- and long-answer questions (**Closed book**)

The use of resources, including class notes, the textbook, online resources, and calculators is **prohibited** during the exams in this course. Students may not communicate with others about course material or the exam either in person or electronically during exams.

NOTE: The make-up exam format may be different (e.g., could be short- or long-answer questions)

4. Material to be covered: All the assigned readings and lecture materials including those covered **before** the mid-term exam

#### **Term paper**

1. Weight: 25% of final grade
2. Date: April 12 (by 11:59 pm)
3. Each student will write a report on a lab project titled "Test Construction and Item Analysis". Students will be given a dataset which can be used to develop their own personality scales. Students will analyze the data further to psychometrically evaluate the scales that they will develop. Students will write a 6-page long report about this project.
4. Detailed instructions of the project will be provided via the relevant materials which will be posted on D2L by March 1. The report will be evaluated in terms of how well students develop their own scales and how well they draft a report evaluating the psychometric properties of those scales. Writing quality and style will also be taken into account. **The term papers will be graded by the TA, who will also provide some guidance for students in developing the personality scales.**
5. Method of submission: D2L dropbox.
6. Without instructor approval, late assignments will be penalized 10% per day, including weekends.

#### **Group Presentation**

1. Weight: 10% of final grade
2. Every student (mostly likely as a 2- to 4-person team) is required to deliver a 45 to 50-minute lecture on one of the topics relevant to psychological tests and related issues (plus 15 to 20 minutes for questions from the audience). We will discuss logistics of student presentations on January 18. Everybody **MUST** attend this class).
3. In designing your presentation, pay attention to the following components.

- (1) style of presentation (composure, speed, enthusiasm, etc.)
  - (2) clarity of presentation (organization, intelligibility)
  - (3) completeness of presentation (literature review, implications)
  - (4) interests of presentation (use of PPT/blackboard, and anything that makes your presentation entertaining)
  - (5) skills at answering questions and at encouraging students 'participation.
4. Late or missed presentations will not be accepted without instructor approval.

### **Lab Assignments (5%) and Presentation Critiques (5 %):**

In order to engage the audience during the student presentations and to learn how to give and receive constructive feedback, students will complete short assessments of the individual presentations using a feedback/rating online form. These assessments will be marked by the instructor in terms of the quality of feedback and the number of feedback forms submitted.

In addition, for some weeks, there will be lab assignments (4 assignments, equally weighted), which should be submitted to D2L Dropbox by Friday of the week (by 11:59 pm). The assignments will be marked by the TA.

Students must pass the lab to pass the course.

### **University of Calgary Academic Integrity Policy**

Academic integrity is the foundation of the development and acquisition of knowledge and is based on values of honesty, trust, responsibility, and respect. We expect members of our community to act with integrity.

Research integrity, ethics, and principles of conduct are key to academic integrity. Members of our campus community are required to abide by our institutional code of conduct and promote academic integrity in upholding the University of Calgary's reputation of excellence. It is your responsibility to ensure that you have read and are familiar with the student academic misconduct policy:

<https://www.ucalgary.ca/policies/files/policies/student-academic-misconduct-policy.pdf>.

### **Department of Psychology Criteria for Letter Grades**

Psychology course instructors use the following criteria when assigning letter grades:

**A+ grade: *Exceptional Performance.*** An A+ grade indicates near perfect performance on multiple choice and short answer exams. For research papers/essays/course projects/presentations, an A+ grade is awarded for exceptional work deserving of special recognition and is therefore not a common grade.

**A, A- Range: *Excellent Performance.*** Superior understanding of course material. Written work is very strong in terms of critical and original thinking, content, organization, and the expression of ideas, and demonstrates student's thorough knowledge of subject matter.

**B Range: *Good Performance.*** Above average understanding of course material. Written work shows evidence of critical thinking and attention to organization and editing but could be improved in form and/or content.

**C Range: *Satisfactory Performance.*** Adequate understanding of course material. Knowledge of basic concepts and terminology is demonstrated. Written work is satisfactory and meets essential requirements but could be improved significantly in form and content. Note: All prerequisites for courses offered by the Faculty of Arts must be met with a minimum grade of C-.

**D range: *Marginally meets standards.*** Minimal understanding of subject matter. Written work is marginally acceptable and meets basic requirements but requires substantial improvements in form and

content. Student has not mastered course material at a level sufficient for advancement into more senior courses in the same or related subjects.

F grade: *Course standards not met.* Inadequate understanding of subject matter. Written work does not meet basic requirements. Student has not demonstrated knowledge of course material at a level sufficient for course credit.

**Grading Scale**

A+	96-100%	B+	80-84%	C+	67-71%	D+	54-58%
A	90-95%	B	76-79%	C	63-66%	D	50-53%
A-	85-89%	B-	72-75%	C-	59-62%	F	0-49%

As stated in the University Calendar, it is at the instructor's discretion to round off either upward or downward to determine a final grade when the average of term work and final examinations is between two letter grades. To determine final letter grades, final percentage grades will be rounded up or down to the nearest whole percentage (e.g., 89.5% will be rounded up to 90% = A but 89.4% will be rounded down to 89% = A-).

## Tentative Lecture Schedule

Date	Topic/Activity/Readings/Due Date	
T Jan 11	Course Introduction/ Basis statistics	Lecture notes
R Jan 13	Basic statistics	Lecture notes
T Jan 18	Basis statistics / Instruction for Student Presentation	<b>Everybody MUST attend</b>
R Jan 20	Reliability and Validity	Lecture notes
T Jan 25	Reliability and Validity	Lecture notes
R Jan 27	Reliability and Validity/ Factor Analysis	Lecture notes
T Feb 1	Factor Analysis	Lecture notes
R Feb 3	Factor Analysis / Exam Review and Exam Q&A	
T Feb 8	<b>Open Book Exam (75 minutes)</b>	<b>In class</b>
R Feb 10	Test Construction /Item Analysis	(Lecture notes; Burisch article)
T Feb 15	Test Construction /Item Analysis / Introduction to the Test Construction and Item Analysis Project	(Lecture notes; Burisch article)
R Feb 17	Structure and Measurement of Personality	(Lecture notes; McCrae & John; Ashton and Lee, 2007)
Feb 22-26	Term Break No Classes	
T Mar 1	Structure and Measurement of Personality / Response set & Response Style (Jackson et al. article)	(Lecture notes; McCrae & John; Ashton and Lee, 2007; Jackson et al. article)
R Mar 3	Response set & Response Style (Jackson et al. article)	(Lecture notes; Jackson et al. article)
T Mar 8	Response set & Response Style (Jackson et al. article)	(Lecture notes; Jackson et al. article)
R Mar 10	Student Presentation	
T Mar 15	Student Presentation	
R Mar 17	Student Presentation	
T Mar 22	Student Presentation	
R Mar 24	Student Presentation	
T Mar 29	Student Presentation	

R Mar 31	Student Presentation	
T Apr 5	Student Presentation	
R Apr 7	Student Presentation	
T Apr 12	Student Presentation/Conclusion	<b>Item Analysis Project due</b>

### **Lab Schedule (Details to be announced later)**

The Lab will run asynchronously. Assignment materials and the corresponding instructions will be posted on Mondays. Details about the lab will be discussed in Week 1.

### **Readings**

Burisch, M. (1984). Approaches to personality inventory construction: a comparison of merits. *American Psychologist*, *39*, 214-227.

McCrae, R. R., & John, O. P. (1992). An introduction to the Five-Factor Model and its applications. *Journal of Personality*, *60*, 175-215.

Ashton, M. C., & Lee, K. (2007). Empirical, theoretical, and practical advantages of the HEXACO model of personality structure. *Personality and Social Psychology Review*, *11*, 150-166.

Lee, K., & Ashton, M. C. (2018). Psychometric properties of the HEXACO-100. *Assessment*, *25*(5), 543-

Jackson, D. N., Wroblewski, V. R., & Ashton, M. C. (2000). The impact of faking on employment tests: Does forced-choice offer a solution? *Human Performance*, *13*, 371-388.

**Extra Research Participation Course Credit is Not Offered for this Course.**

### **Supporting Documentation**

Students may be asked to provide supporting documentation for an exemption/special request. This may include, but is not limited to, a prolonged absence from a course where participation is required, a missed course assessment, a deferred examination, or an appeal. Students are encouraged to submit documentation that will support their situation. Supporting documentation may be dependent on the reason noted in their personal statement/explanation provided to explain their situation. This could be medical certificate/documentation, references, police reports, invitation letter, or a statutory declaration, etc. The decision to provide supporting documentation that best suits the situation is at the discretion of the student. Students cannot be required to provide specific supporting documentation, such as a medical note.

Students can make a Statutory Declaration as their supporting documentation (available at [ucalgary.ca/registrar](http://ucalgary.ca/registrar)). This requires students to make a declaration in the presence of a Commissioner



for Oaths. It demonstrates the importance of honest and accurate information provided and is a legally binding declaration. Several registered Commissioners for Oaths are available to students at no charge, on campus, please see [ucalgary.ca/registrar](http://ucalgary.ca/registrar).

Falsification of any supporting documentation will be taken very seriously and may result in disciplinary action through the Academic Discipline regulations or the Student Non-Academic Misconduct policy.

### **Absence From A Test/Exam**

Makeup tests/exams are **NOT** an option without the approval of the instructor. Students who miss a test/exam have up to 48 hours to contact the instructor to ask for a makeup test/exam. It's the instructor's discretion if they will allow a make-up exam. Students who do not schedule a makeup test/exam with the instructor within this 48-hour period forfeit the right to a makeup test/exam. At the instructor's discretion, a makeup test/exam may differ significantly (in form and/or content) from a regularly scheduled test/exam. **Once approved by the instructor a makeup test/exam must be written within 2 weeks of the missed test/exam on a day/time scheduled by the instructor. If a student cannot write their final exam on the date assigned by the Registrar's Office, they need to apply for a deferred exam** <https://www.ucalgary.ca/registrar/exams/deferred-exams>.

### **Travel During Exams**

Consistent with University regulations, students are expected to be available to write scheduled exams at any time during the official December and April examination periods. Requests to write a make-up exam because of conflicting travel plans (e.g., flight bookings) will NOT be considered by the department. Students are advised to wait until the final examination schedule is posted before making any travel arrangements. If a student cannot write their final exam on the date assigned by the Registrar's Office, they need to apply for a deferred exam <https://www.ucalgary.ca/registrar/exams/deferred-exams>. Students with an exceptional extenuating circumstance (e.g., a family emergency) should contact the Department of Psychology ([psyugrd@ucalgary.ca](mailto:psyugrd@ucalgary.ca)).

**Reappraisal of Graded Term Work** <http://www.ucalgary.ca/pubs/calendar/current/i-2.html>

**Reappraisal of Final Grade** <http://www.ucalgary.ca/pubs/calendar/current/i-3.html>

### **Academic Accommodations**

Students seeking an accommodation based on disability or medical concerns should contact Student Accessibility Services; SAS will process the request and issue letters of accommodation to instructors. For additional information on support services and accommodations for students with disabilities, visit [www.ucalgary.ca/access/](http://www.ucalgary.ca/access/). Students who require an accommodation in relation to their coursework based on a protected ground other than disability should communicate this need in writing to their Instructor. The full policy on Student Accommodations is available at <http://www.ucalgary.ca/policies/files/policies/student-accommodation-policy.pdf>.

### **Academic Misconduct**

For information on academic misconduct and its consequences, please see the University of Calgary Calendar at <http://www.ucalgary.ca/pubs/calendar/current/k.html>

### **Instructor Intellectual Property**

Course materials created by professor(s) (including course outlines, presentations and posted notes, labs, case studies, assignments and exams) remain the intellectual property of the professor(s). These materials may NOT be reproduced, redistributed or copied without the explicit consent of the professor. The posting of course materials to third party websites such as note-sharing sites without permission is prohibited. Sharing of extracts of these course materials with other students enrolled in the course at the same time may be allowed under fair dealing.

### **Copyright Legislation**

All students are required to read the University of Calgary policy on Acceptable Use of Material Protected by Copyright ([www.ucalgary.ca/policies/files/policies/acceptable-use-of-material-protected-by-copyright.pdf](http://www.ucalgary.ca/policies/files/policies/acceptable-use-of-material-protected-by-copyright.pdf)) and requirements of the copyright act (<https://laws-lois.justice.gc.ca/eng/acts/C-42/index.html>) to ensure they are aware of the consequences of unauthorized sharing of course materials (including instructor notes, electronic versions of textbooks etc.). Students who use material protected by copyright in violation of this policy may be disciplined under the Non-Academic Misconduct Policy.

### **Freedom OF Information and Protection of Privacy**

Student information will be collected in accordance with typical (or usual) classroom practice. Students' assignments will be accessible only by the authorized course faculty. Private information related to the individual student is treated with the utmost regard by the faculty at the University of Calgary

### **Student Support and Resources**

<https://www.ucalgary.ca/registrar/registration/course-outlines>

### **Important Dates**

The last day to drop this course with no "W" notation and **still receive a tuition fee refund** is **Thursday, Thursday, January 20, 2022**. Last day add/swap a course is **Friday, January 21, 2022**. The last day to withdraw from this course is **Tuesday, April 12, 2022**.

<https://www.ucalgary.ca/pubs/calendar/current/academic-schedule.html>