



Psychology 407	Psychometrics	Winter 2020	
<b>Instructor:</b>	Kibeom Lee	<b>Lecture Location:</b>	Zoom
<b>Phone:</b>	403-471-7613 (cell)	<b>Lecture Days/Time:</b>	MWF 12:00 – 12:50
<b>Email:</b>	kibeom@ucalgary.ca	<b>TA</b>	Eden-Raye Lukacik eralukac@ucalgary.ca
<b>Office:</b>		<b>Labs</b>	Asynchronous
<b>Office Hours:</b>	By appointment		

**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.

**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 22 (60 minutes)
3. Format: **Open Book** (calculator needed)

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 12;
5. Students have the option to start their exam at a time that best suits their situation within the 24-hour time period.
6. Students will be given an additional 50% time extension (i.e., 30 minutes) to allow for any technological issues that may arise. That is, the 60-minute exam will be set up to allow 90 minutes to be completed, once it is started within the 24 hour period.

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

1. Weight: 25% 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
5. Students have the option to start their exam at a time that best suits their situation within the 24-hour time period. Students will be given an additional 50% time extension to allow for any technological issues that may arise.

### **Term paper**

1. Weight: 25% of final grade

2. Date: April 14 (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 (15%):**

Every student (mostly likely as a 2- to 4-person team) is required to deliver a synchronous 35 to 40 minute lecture on one of the topics relevant to psychological tests and related issues (we will discuss logistics of student presentations on January 22). Allow about 10 to 15 minutes for questions from the audience.

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), and (5) skills at answering questions and at encouraging students' participation.

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 form (to be posted on D2L). 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, which should be submitted by Friday of the week (by 11:59 pm). The assignments will be marked by the TA.

**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

Student presentations will be delivered live via Zoom during each scheduled class as per the course schedule below. As for the lectures, some of the lectures will be delivered live via Zoom during the course schedule below, while some lectures will be delivered by posting recorded lecture videos.

Date	Topic	
M Jan 11	Course Introduction	
W Jan 13	Basis statistics (Lecture notes)	
F Jan 15	Basic statistics (Lecture notes)	
M Jan 18	Basic statistics (Lecture notes)	
W Jan 20	Basic statistics (Lecture notes)	
F Jan 22	Instruction for Student Presentation	
M Jan 25	Reliability and Validity (Lecture notes)	
W Jan 27	Reliability and Validity (Lecture notes)	
F Jan 29	Reliability and Validity (Lecture notes)	
M Feb 1	Reliability and Validity (Lecture notes)	
W Feb 3	Reliability and Validity (Lecture notes)	
F Feb 5	Reliability and Validity (Lecture notes)	
M Feb 8	Factor Analysis (Lecture notes)	
W Feb 10	Factor Analysis (Lecture notes)	
F Feb 12	Factor Analysis / Exam Review and Exam Q&A	
M Feb 22	Open Book Exam (60 minutes plus tech difficulty 50% extension time)	
W Feb 24	Test Construction /Item Analysis (Burisch article)	
F Feb 26	Test Construction /Item Analysis (Burisch article)	
M Mar 1	Introduction to the Test Construction and Item Analysis Project	
W Mar 3	Structure and Measurement of Personality (McCrae & John; Ashton and Lee, 2007)	
F Mar 5	Structure and Measurement of Personality (McCrae & John; Ashton and Lee, 2007)	
M Mar 8	Structure and Measurement of Personality (McCrae & John; Ashton and Lee, 2007)	
W Mar 10	Response set & Response Style (Jackson et al. article)	
F Mar 12	Response set & Response Style (Jackson et al. article)	
M Mar 15	Response set & Response Style (Jackson et al. article)	
W Mar 17	Student Presentation	
F Mar 19	Student Presentation	
M Mar 22	Student Presentation	
W Mar 24	Student Presentation	
F Mar 26	Student Presentation	
M Mar 29	Student Presentation	
W Mar 31	Student Presentation	
W Apr 7	Student Presentation	
F Apr 9	Student Presentation	
M Apr 12	Student Presentation	
W Apr 14	Conclusion	Item Analysis Project due

## Tentative Lab Schedule

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

Date	Lab Content
Week 1: Jan 11	Lab Introduction
Week 2: Jan 18	SPSS Introduction
Week 3: Jan 25	Basic statistics assignment
Week 4: Feb 1	SPSS exercise: Reliabilities (and etc.)
Week 5: Feb 8	SPSS exercise: Factor Analysis
Week 6: Feb 22	No Lab (exam week)
Week 7: Mar 1	Lecture: APA 7 <sup>th</sup> edition
Week 8: Mar 8	Item analysis exercise
Week 9: Mar 15	Special Lecture: The design and use of asynchronous video interviews in personnel selection
Week 10: Mar 22	Help Desk for the Item Analysis Project
Week 11: Mar 29	Help Desk for the Item Analysis Project
Week 12: Apr 6	Help Desk for the Item Analysis Project
Week 13: Apr 12	Help Desk for the Item Analysis Project

## 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.

## 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).

**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, January 21, 2021**. Last day add/swap a course is **Friday, January 22, 2021**. The last day to withdraw from this course is **Thursday, April 15, 2021** <https://www.ucalgary.ca/pubs/calendar/current/academic-schedule.html>