



UNIVERSITY OF  
CALGARY

**Department of Psychology**  
**Psychology 407 (L01) – Psychometrics**  
**Winter 2011 – Course Outline**

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<b>Instructor:</b>	Dr. Theresa Kline	<b>Lecture Location:</b>	A253
<b>Phone:</b>	220-3469	<b>Lecture Days/Time:</b>	T/Th 9:00-10:15 am
<b>Email:</b>	Babbitt@ucalgary.ca		
<b>Office:</b>	Administration 135B		
<b>Office Hours:</b>	To Be Announced		

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### **Course Description and Goals**

Theory and application of methodological and statistical issues in psychological assessment. Topics include: theories of psychological measurement, scale development, item analysis, item bias, reliability, validity, and test fairness.

#### Aims of Psychology 407

- A. Introduce psychometric concepts and emphasize their importance in testing and evaluation.
- B. Familiarize students with types of tests.
- C. Understand how to accurately assess the psychometric properties of particular tests.
- D. Be confident in using statistical software in establishing some of the psychometric properties of tests.

#### Learning Goals

1. Understand the use of psychological tests and measures.
2. Know major societal events that influence the testing industry.
3. Know the protocol for test item design.
4. Know when to use different response options.
5. Understand the importance of sampling and generalizability.
6. Assess items on a test for various characteristics.
7. Assess items for bias.
8. Know the types and how to conduct the appropriate analyses for test reliability.
9. Evaluate the reliability of a test.
10. Know the types and how to conduct the appropriate analyses for test validity.
11. Evaluate the validity of a test.
12. Articulate the major professional and societal issues and concerns over psychological testing.

#### **Required Materials**

Kline, T.J.B. (2005). *Psychological Testing: A Practical Approach to Design and Evaluation*. Thousand Oaks, CA: Sage

A required package of notes for this course are available at the Department of Psychology.

## Evaluation

The course grade will be based on four quizzes, a paper, and five laboratory assignments. Students must achieve a passing grade on both the class and lab components to pass this course. The paper will count for **20%** of your grade. Papers are due **April 21<sup>st</sup>, 2011 by 4:00 p.m.** and must be in hard copy form. They can be turned in at the Department of Psychology Office in Administration 275. Papers received after the due date will be reduced 10 points (out of 100) for each day they are late. There are NO exceptions to this. The document should conform to APA style and be 10 pages in length. A marking scheme is attached to let you know how the paper grading will be handled. Quizzes will cover material in the text as well as lecture material that is NOT covered explicitly in the text. Laboratory assignments and expectations will be covered in your first lab.

### Distribution of Credit for Final Grade:

First quiz:	15%
Second quiz:	15%
Third quiz:	15%
Fourth quiz:	10%
Paper	20%
Lab Assignments:	25% (grade will be based on five assignments)

Quizzes are multiple-choice format and NON-Cumulative. Calculators are permitted during quizzes. Paper assignment is formal APA format. Laboratory assignment format is covered in the lab outline.

### Tentative Lecture Schedule

Date	Topic	Chapter
T Jan 11	The Testing Enterprise	1
Th Jan 13	Review of Correlation & Regression	1
T Jan 18	Designing and Writing Items and Responses	2 & 3
Th Jan 20	Designing and Writing Items and Responses	2 & 3
F Jan 21	Last day to drop a course with no W grade and tuition refund.	
M Jan 24	Last day for registration/change of registration.	
T Jan 25	Collecting Data: Samples and Sampling Issues	4
Th Jan 27	Collecting Data: Samples and Sampling Issues	4
T Feb 1	Classical Test Theory	5
Th Feb 3	Classical Test Theory	5
T Feb 8	<b>Quiz 1</b>	
Th Feb 10	Modern Test Theory (dichotomous data)	6
T Feb 15	Modern Test Theory (dichotomous data)	6
Th Feb 17	Modern Test Theory (polytomous data)	6
T Feb 22	Reading Days – no lecture	
Th Feb 24	Reading Days – no lecture	
T Mar 1	Reliability (tests & items)	7
Th Mar 3	Reliability (tests & items)	7
T Mar 8	Reliability (raters)	8
Th Mar 10	<b>Quiz 2</b>	
T Mar 15	Content and Criterion-Related Validity Approaches	10

Th Mar 17	Content and Criterion-Related Validity Approaches	10
T Mar 22	Content and Criterion-Related Validity Approaches	10
Th Mar 24	Internal Structure Validity Approaches	11
T Mar 29	Internal Structure Validity Approaches	11
Th Mar 31	<b>Quiz 3</b>	
T Apr 5	Ethics and Professional Issues	11
Th Apr 7	Ethics and Professional Issues	11
T Apr 12	Test Reviews	12
Th Apr 14	<b>Quiz 4</b>	
Th Apr 14	Lecture ends. Last day to participate in research and allocate research credits.	
F Apr 15	Last day to withdraw.	

### Laboratory Topics

1. Correlation & Regression (marked for credit)
2. Designing and Writing Items
3. Collecting Data: Samples and Sampling Issues
4. Item Analysis (marked for credit)
5. Modern Test Theory (dichotomous data)
6. Modern Test Theory (polytomous data) and Classical Test Theory
7. Reliability (tests)
8. Reliability (raters) (marked for credit)
9. Criterion-Related Validity
10. Factor Analysis (marked for credit)
11. Item Bias (marked for 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 to the nearest whole percentage (e.g., 89.4% will be rounded up to 90%).

### University of Calgary Curriculum Objectives

Based on the structure and content of this course, the following **Core Competencies** are addressed:

1. Critical and creative thinking through the scholarly critique of a commercially-available test.
2. Effective oral and written communication through completing a class paper and five laboratory assignments.
3. Gathering and organizing information through the completing an assessment of a commercially-available test
4. Logical calculation through the statistical content covered in the course.

5. Interpretive and assessment skills through data analysis and interpretation in the class and laboratory.

### **Reappraisal of Grades**

A student who feels that a piece of graded term work (e.g., term paper, essay, test) has been unfairly graded, may have the work re-graded as follows. The student shall discuss the work with the instructor within 15 days of being notified about the mark or of the item's return to the class. If not satisfied, the student shall immediately take the matter to the Head of the department offering the course, who will arrange for a reassessment of the work within the next 15 days. The reappraisal of term work may cause the grade to be raised, lowered, or to remain the same. If the student is not satisfied with the decision and wishes to appeal, the student shall address a letter of appeal to the Dean of the faculty offering the course within 15 days of the unfavourable decision. In the letter, the student must clearly and fully state the decision being appealed, the grounds for appeal, and the remedies being sought, along with any special circumstances that warrant an appeal of the reappraisal. The student should include as much written documentation as possible.

### **Plagiarism and Other Academic Misconduct**

Intellectual honesty is the cornerstone of the development and acquisition of knowledge and requires that the contribution of others be acknowledged. Consequently, plagiarism or cheating on any assignment is regarded as an extremely serious academic offense. Plagiarism involves submitting or presenting work in a course as if it were the student's own work done expressly for that particular course when, in fact, it is not. Students should examine sections of the University Calendar that present a Statement of Intellectual honesty and definitions and penalties associated with Plagiarism/Cheating/Other Academic Misconduct.

### **Academic Accommodation**

It is the student's responsibility to request academic accommodations. If you are a student with a documented disability who may require academic accommodation and have not registered with the Disability Resource Centre, please contact their office at 403-220-8237. Students who have not registered with the Disability Resource Centre are not eligible for formal academic accommodation. You are also required to discuss your needs with your instructor no later than 14 days after the start of this course.

### **Absence From A Test**

Makeup tests/exams are NOT an option without an official University medical excuse (see the University Calendar). A completed Physician/Counselor Statement will be required to confirm absence from a test/exam for health reasons; the student will be required to pay any cost associated with this Statement. Students who miss a test/exam have 48 hours to contact the instructor and to schedule a makeup test/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. Except in extenuating circumstances (documented by an official University medical excuse), a makeup test/exam must be written within 2 weeks of the missed test/exam.

### **Freedom of Information and Protection of Privacy (FOIP) Act**

The FOIP legislation disallows the practice of having student's retrieve tests and assignments from a public place. Therefore, tests and assignments may be returned to students during class/lab, or during office hours, or via the Department Office (Admin 275), or will be made available only for viewing during exam review sessions scheduled by the Department. Tests and assignments will be shredded after one year. Instructors should take care to not link students' names or UCIDs with their grades or other FOIP-sensitive information.

### **Course Credits for Research Participation (Max 2% of final grade)**

Students in most psychology courses are eligible to participate in Departmentally approved research and earn credits toward their final grades. **A maximum of two credits (2%) per course, including this course, may be applied to the student's final grade. Students earn 0.5% (0.5 credits) for each full 30 minutes of participation.** The demand for timeslots may exceed the supply in a given term. Thus, students are not guaranteed that there will be enough studies available to them to meet their credit requirements. Students should seek studies early in the term and should frequently check for open timeslots. Students can create an account and participate in Departmentally approved research studies at <http://ucalgary.sona-systems.com>. The last day to participate in studies and to assign or reassign earned credits to courses is **Apr 14<sup>th</sup>, 2011**.

### **Student Organizations**

Psychology students may wish to join the Psychology Undergraduate Students' Association (PSYCHS). They are located in Administration 170 and may be contacted at 403-220-5567.

**Student Union VP Academic:** Phone: 403-220-3911 [suyaca@ucalgary.ca](mailto:suypaca@ucalgary.ca)

**Student Union Faculty Rep.:** Phone: 403-220-3913 [socialscirep@su.ucalgary.ca](mailto:socialscirep@su.ucalgary.ca)

### **Student Ombudsman's Office**

The Office of the Student Ombuds provides independent, impartial and confidential support for students who require assistance and advice in addressing issues and concerns related to their academic careers. The office can be reached at 403-220-6420 or [ombuds@ucalgary.ca](mailto:ombuds@ucalgary.ca) (<http://www.su.ucalgary.ca/services/student-services/student-rights.html>).

### **Safewalk**

The safewalk program provides volunteers to walk students safely to their destination anywhere on campus. This service is free and available 24 hrs/day, 365 days a year. Call 403-220-5333.

### **Important Dates**

The last day to drop this course with no "W" notation and **still receive a tuition fee refund** is **Jan 21<sup>st</sup>, 2011**. Last day for registration/change of registration is **Jan 24<sup>th</sup>, 2011**. The last day to withdraw from this course is **Apr 15<sup>th</sup>, 2011**.