



**Department of Psychology**  
**Psychology 407 (L01) – Psychometrics**  
**Winter Session 2009**

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<b>Instructor:</b>	Dr. Theresa Kline	<b>Lecture Location:</b>	A 253
<b>Phone:</b>	(403) 220-3469	<b>Lecture Days/Time:</b>	M/W/F 12:00 noon – 12:50 p.m.
<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 is 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 **25%** of your grade. Papers are due **Mar. 30, 2009 by 4:00 p.m.** and must be in hard copy form. They can be turned in during class time or 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:	10%
Second quiz:	10%
Third quiz:	10%
Fourth quiz:	10%
Fifth Quiz	10%
Paper	25%
Lab Assignments:	25% (grade will be based on five assignments)

Quizzes are multiple-choice format.

Paper assignment is formal APA format.

Laboratory assignment format is covered in the lab outline.

## Lecture Schedule

<u>Week</u>	<u>Topic</u>	<u>Chapter</u>
1. Jan 12	The Testing Enterprise/Review of Correlation & Regression	1
2. Jan 19	Designing and Writing Items and Responses	2 & 3
3. Jan. 26	Collecting Data: Samples and Sampling Issues	4

### QUIZ 1 covering topics 1-3 (Feb. 2)

4. Feb. 4	Classical Test Theory	5
5. Feb. 9	Modern Test Theory (dichotomous data)	6

### Reading Week

6. Feb. 23	Modern Test Theory (polytomous data)	6
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### QUIZ 2 covering topics 4-6 (Mar. 4)

7. Mar. 6	Reliability (tests & items)	7
8. Mar. 13	Reliability (raters)	8

### QUIZ 3 covering topics 7-8 (Mar. 20)

9. Mar. 23	Content and Criterion-Related Validity Approaches	9
10. Mar. 27	Internal Structure Validity Approaches (Part 1)	10
11. April 1	Internal Structure Validity Approaches (Part 2)	10

### QUIZ 4 covering topics 9-11 (Apr. 8)

12. April 13	Ethics and Professional Issues/Test Reviews	11/12
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### QUIZ 5 covering topic 12 (April 17)

### 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 (term paper, essay, test, etc.) has been unfairly graded may have the work re-graded as follows. The student shall discuss the work with the instructor within fifteen 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 fifteen 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 fifteen 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 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 fourteen (14) days after the start of this course.

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

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.

## **Course Credits for Research Participation**

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 **April 16, 2009**.

## **Student Organizations**

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

**Student Union VP Academic:** Phone: 220-3911 [suypaca@ucalgary.ca](mailto:suypaca@ucalgary.ca)  
**Student Union Faculty Rep.:** Phone: 220-3913 [socialscirep@su.ucalgary.ca](mailto:socialscirep@su.ucalgary.ca)

## **Important Dates**

The last day to drop this course and **still receive a fee refund** is **January 23, 2009**. The last day to withdraw from this course is **April 17, 2009**.

A copy of this course outline may be viewed on the Internet at the following web address:  
<http://psychology.ucalgary.ca/courses/w09>