

**Syllabus for Psychology 492
Psychological Measurement
Winter 2004-05**

Instructor: Professor Ramona Bobocel
888-4567 x3622
course email: psych492@watarts.uwaterloo.ca

Office Hours: Dr. Bobocel: Tuesday 3:00-4:00 p.m., PAS 4031

<u>Teaching Assistants:</u>			<u>Office Hours</u>
Nicole Ethier	PAS 3007	naethier@watarts.uwaterloo.ca	TBA
Lance Ferris	PAS 4231	dlferris@watarts.uwaterloo.ca	TBA
Heather MacDonald	PAS 4239	hmacdona@watarts.uwaterloo.ca	TBA
Lee Markowitz	PAS 3285	ljmarkow@watarts.uwaterloo.ca	TBA
Jeff Paulitzki	PAS 3035	jrpaulit@watarts.uwaterloo.ca	TBA
Jeff Spence	PAS 4235	jr2spenc@watarts.uwaterloo.ca	TBA

Class Time and Location: Thursday 4:30-6:30, occasionally Tuesday 4:30-6:30, PAS 2083

Lab Time and Location: Tuesday 4:30-6:30 PAS 2083, 2086, 3026, 4288,
HH 139, HH 336

Textbook:

Kaplan, R.M., & Saccuzzo, D.P. (2005). Psychological Testing: Principles, Applications, & Issues (6th edition). Toronto, ON: Brooks/ Cole.

Note: We have arranged a special (reduced) printing of the book that contains only the chapters we use and is considerably cheaper than the full book. This version has a different ISBN than the full book and is available in the bookstore.

Course Objectives:

Measurement is fundamental to science. Tests of theory in most sciences generally involve specific predictions requiring controlled and accurate observations. In psychology, we are faced with the problem of measuring variables such as “intelligence” or “aggressiveness” that are inferred from behaviour or self-report. How can we tell if the tests we create are really measuring what we think they are? How can we estimate the precision of our tests? This course will tell you. You will learn not only how to evaluate psychological tests and measures, but also how to construct and refine your own. This knowledge is invaluable in both research and applied settings, as our research results and clinical/applied evaluations are dependent on the tests and measures we use.

Course Structure:

This course is a hybrid between a statistics course and a research methods course. The lecture sessions will be run similar to those of a statistics course, and the labs will run like a research workshop. In the lectures, we will go over the content of the assigned readings step-by-step, in order to learn the basic material. You are expected to complete the assigned readings in preparation for the class. In addition, I will assign problem sets corresponding to the lecture material, which you will review in the next lab session (usually the following week). You are expected to try to formulate what is confusing or

not clear to you as you read the text, and complete the problem sets, so that you can raise these points in the lab time. In summary, the lectures and the text provide the necessary foundation required for the successful application of the material on the assignments and the exams.

In the labs, the teaching assistants will assist you in an independent project, which will require individual research and written work from each of you. This will be a measure construction project, intended to help you learn how to devise and refine a psychological test. The project will involve carefully defining a construct of interest, inventing a test to measure this construct, and collecting a small data set on your test on which to do a practice psychometric analysis. You will work in groups of 3 or 4 for this project, but each of you will write up your work, and submit it, independently (see below for more on this).

Evaluation:

Your grade in this course will be based on the following:

1. Your performance on 2 midterm exams given in the lecture sessions. Each test will include questions on lectures and readings related to primarily those topics covered since the previous exam. The exams will emphasize the application of the material covered in class and text, and most of the questions will involve solving problems, much like in the assignments (see below). The exams will each be worth 25% of the course grade (for a total of 50% of your final course grade).
2. Completion of assignments. 5 assignments will be due at specified times throughout the term in your lab. The assignments will provide you with problem sets corresponding to the lecture material, which will help you to learn the material and to prepare for exams. The correct answers will be reviewed at the next lab. Your performance on the set of assignments is worth 10% of your final grade (i.e., each assignment is worth 2%). Your grade will be based on completing and submitting solutions (along with your derivation of the solutions) on each assignment by the due date. Assignments turned in one day late will be worth half their original value (1% vs. 2%), and assignments will have no grade value if turned in more than one day late.
3. Your write-up of the research project (due Tuesday, April 12, 2005, by 4:30 p.m. in your TA's mailbox). You will write up the research as if it were to be submitted to a psychological journal. First drafts of some sections will be due at specified times throughout the term. This research report will be worth 38% of the final grade. The penalty for late submissions is 5% per day.
4. Project Participation: 2% of your final grade. You will receive 2% for completing the booklet of measures (during lab time) that you and your classmates will produce.

A Few Notes About the Lab Component (see Lab Schedule below)

1. **Scheduling:** Note that the lab sections will meet on Tuesday of most weeks. Exceptions to this are noted above. There is one date listed in the lab syllabus (Friday, February 18) that is a submission deadline only – there will be no lab meeting on that date.
2. **Drafts of Sections of the Paper:** Deadlines for submitting sections of your final paper (the Introduction/Literature Review, Method, and Results sections) have been set throughout the term. The teaching assistants will review and make comments on a draft of each section of your paper that you submit on time. Although there is no grade penalty for late submission of sections of your paper, do keep in mind that the teaching assistant may not be able to provide commentary to after the deadline. There is a penalty for submission of your final paper after the deadline, as indicated in the section on Evaluation.

3. **Submitting the Measure:** The measure is must be in the mailbox of your teaching assistant by 12 noon on Friday February 18th. This is a firm deadline, as the teaching assistants need to compile the set of measures over reading week for distribution to the class on March 1st.
4. **Individual Write Up of the Project:** As noted above, you will work in groups of 3 or 4 for this project, but each of you will write up your work, and submit it, independently. This means that you may work together in the development and analysis of your measure, but that you are expected to write up your final paper (and the various sections due throughout the term) individually. In short, you should not work together while doing any of the write up of your project, and you should not familiarize yourself in any way with other group members' written work (e.g., do not proof read, etc.). Ask your teaching assistant or me if there is any ambiguity in your mind about how to write up your project individually.

A Few Other Notes

All students should activate their UW computer accounts each term. The accounts give students access to applications such as word processing, statistical and graphics packages, and electronic email as well as access to the Internet. For those who are not planning to use their UW email addresses, please do one of the following things:

- change your email address on QUEST to the one that you want posted on the University Directory, or
- on the UW account, arrange for the email from your UW account to be forwarded to your alternate email address.

Psychology majors should check the Psychology Undergraduate Web Site

(<http://www.psychology.uwaterloo.ca/ugradprog/>) regularly for updates (e.g., psychology course offerings for F/W/S, volunteer and/or part-time paid research positions, application deadlines for scholarships, etc.)

Plagiarism. The Associate Dean of Arts has requested that all course outlines in the Faculty of Arts quote the definition of plagiarism and emphasize the gravity of this academic offense. A summary is provided on page 1:10 of the Undergraduate Calendar.

“Plagiarism... is the act of presenting the ideas, words or other intellectual property of another as one’s own. The use of other people’s work must be properly acknowledged and referenced in all written material... The properly acknowledged use of sources is an accepted and important part of scholarship. Use of such material without complete and unambiguous acknowledgement, however, is an offense under this policy.”

In the lab, the teaching assistants will discuss how to properly acknowledge sources in the written assignment. If you have any questions, please do not hesitate to ask.

Note on avoidance of academic offenses: All students registered in the courses of the Faculty of Arts are expected to know what constitutes an academic offense, to avoid committing academic offenses, and to take responsibility for their academic actions. When the commission of an offense is established, disciplinary penalties will be imposed in accord with Policy #71 (Student Academic Discipline). For information on categories of offenses and types of penalties, students are directed to consult the summary of Policy #71 which is supplied in the Undergraduate Calendar (section 1; on the Web at http://www.adm.uwaterloo.ca/infoucal/UW/policy_71.html). If you need help in learning how to avoid offenses such as plagiarism, cheating, and double submission, or if you need clarification of aspects of the discipline policy, ask your course instructor for guidance. Other resources regarding the discipline policy are your academic advisor and the Undergraduate Associate Dean.

**Psychological Measurement
Lecture Component
Winter, 2005**

Approximate Lecture Time Table

January 4	Tuesday	Introduction to Tests and Measurement Chapter 1
January 6		Basic Statistics Chapter 2 and Chapter 3 (pp. 63-88 + Appendix 3-1)
January 13		Process of Test Construction Chapter 6 (pp. 158-168 for now) and Chapter 7
January 20		Reliability & Measurement Error Chapter 4
January 27		Reliability Part II
February 3		Psychometrics of Observation
February 10		Review
February 17		Midterm 1
February 21-25		Reading Week
March 3		Validity I Chapter 5
March 10		Validity Part II Chapter 19
March 15	Tuesday	Item Analysis Chapter 6 (pp. 168-182)
March 22	Tuesday	Factor Analysis Chapter 3 pp. 89-93.
March 31		Midterm 2

**Psychological Measurement
Lab Component
Winter, 2005**

Approximate Lab Time Table

January 11		Meet in PAS 2083: Selection of Groups Move to Lab Room with TA: Selection of Topic; Library Resources
January 18		Research Review Assignment 1 (Basic Stats) Due & Review
January 25		Construct Definition Assignment 2 (Reliability I) Due & Review
February 1		Domain Specification
February 8		Item Writing Literature Review Due Assignment 3 (Reliability II) Due & Review
February 15		Item Review & Final Measure Construction
February 18 Friday		Final Version of Measure Due (no later than 12 noon)
February 22		Reading Week
March 1		Data Collection
March 8		Discussion of Exam Method Section Due
March 17	Thursday	Data Analysis I (meet in PAS 2083) Discussion of Writing the Results & Discussion Sections Assignment 4 (Validity I & II) Due & Review
March 24	Thursday	Data Analysis II (meet in PAS 2083) Assignment 5 (Item Analysis & Factor Analysis) Due & Review
March 29		Results Section Due
Research paper due Tuesday April 12th.		