

Syllabus for Psychology 492 (Jan. 5, 2015)
Psychological Measurement
2014-15 Winter

Instructor: Professor Bobocel
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Office Hours: Professor Bobocel: Wed 10:00-noon, PAS 4031

Teaching Assistants:

Office Hours

Sherif Soliman	PAS 4217	sherif.soliman@uwaterloo.ca	Monday 11:30-1:00 pm
Frank Mu	PAS 4247	xqmu@uwaterloo.ca	Thursday 9:30 – 11:00 am

Class Time and Location: Monday & Wed 2:30-3:50 PAS 1229

Lab Times and Location: All PAS 1237: Lab 101: Wed 5:30-6:20 p.m.
Lab 102: Thurs 11:30-12:20 p.m.

Textbook:

Custom Published Version of Kaplan, R.M., & Saccuzzo, D.P. (2013). *Psychological Testing: Principles, Applications, & Issues* (8th edition). Scarborough, ON: Thomson-Nelson.

Note: This is a special (reduced) printing of the book that contains only the chapters we will use, and it is considerably cheaper than the complete book. This version has a different ISBN than the complete book and is available in the bookstore, under the course title and my name (not the authors' names). Note that I've used the same custom text for several years so there are likely to be used copies around, although they will be lower editions

Course Objectives:

Measurement is fundamental to science. Tests of theory in most sciences 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 essential in both research and applied settings, because research results and clinical or applied decisions are dependent on the tests and measures that people 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/assignments corresponding to the lecture material, which we will

review in class (often the following week; see timetable). In summary, the lectures and the text provide the necessary foundation required for the successful application of the material in the assignments, the exams, and the lab components.

In the labs, your teaching assistant (TA) will assist you in an independent project, which will require individual research and some 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 researching and defining a construct of interest, inventing a test to measure this construct, and collecting a data set on your test on which to do a psychometric analysis and an analysis of convergent and discriminant validity. You will work in groups of 3-4 (depending on lab size) for this project (more detail below).

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

1. Completion of assignments 1-6. Six assignments will be due at specified times throughout the term (you will submit them at the start of the specified Monday class - see timetable), and I will be reviewing the answers that same class or the next one. The assignments will provide you with problems corresponding to the lecture material, which will help you to become more adroit with the material. Importantly, the assignments will help you prepare for exams, as they help you to learn the material at a deeper level. The correct answers will be posted and I will also review the solutions in specified classes (see timetable). Your performance on the set of assignments is worth 12% of your final grade (i.e., each assignment = 2 points). Your grade will be based on completing and **submitting solutions in class on the day they are due. Grading will be 2 marks for a completed assignment with more than half of the questions answered correctly; 1 mark for a completed assignment but more than half of the questions answered incorrectly, and 0 for submitting an incomplete assignment, or failing to submit.** Note: The class-assignments must be turned in by the due date—and without exception when the solutions are scheduled for in-class review the same day as the assignment is due. So watch the schedule closely.
2. Your performance on 2 midterm exams (one during the term, the other during the final exam period). Each test will include questions on lectures and readings related primarily to those topics covered since the previous exam. The exams will emphasize your application of the material covered in class and text, rather than mere memorization—thus, **rather than memorizing terms you will need to know the material well enough to apply it to new situations, which is more challenging.** Together, the exams are worth 50% of your course grade (each is worth 25%)
3. Group Lab Assignments A & B: You will be required to complete 2 Lab Assignments, due during the term. For Lab Assignment A (due on Fri, Feb 13), your group will submit the scale you created with a brief summary of the construct definition and domain specification. For Lab Assignment B (due Mon, April 6), you will conduct a psychometric analysis of the data obtained from your scale, including convergent and discriminant validity. Both lab assignments may be submitted as a group if desired, or as individuals if preferred. Together, the lab assignments are worth 38% of your final course grade. Assignment A = 13%; Assignment B = 25%). The penalty for late submissions on either assignment is 6% per day. **Note:** We will say more about this as the term progresses, but so you know now your measure cannot “raise any eyebrows” (i.e., no content that is potentially upsetting or highly personal, no content about sexuality), and it should contain a maximum of 10-12 items. For ethical reasons, your TA is required to veto any controversial content.

4. Data Collection: You are required to complete the booklet of measures created by the class in order to access the data (and hence complete Lab Assignment B). The booklet must be completed during lab time as indicated in the timetable below (Feb 25/26). No exceptions can be made, because we are on a tight schedule to input the data etc.
5. REG Bonus: Experiential learning is highly valued in the Department of Psychology and in this course. Therefore, students can earn a "bonus" of 3% by participating in these experiments. Guidelines for participation, including alternative assignments, will be posted on the LEARN website, along with the course syllabus (see REG Bonus Marks link).

For Students Requiring Exam or Other Accommodation

The AccessAbility Services (formerly Office for Persons with Disabilities), located in Needles Hall, Room 1132, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of a disability, **please register with the AssessAbility Office at the beginning of each academic term.**

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, you must arrange for the email from your UW account to be forwarded to your alternate email address. All faculty are required to use your UW account.

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.)

Note: From the Faculty of Arts Council

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.”

If you have any questions, please do not hesitate to ask.

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.

Students who believe that they have been wrongfully or unjustly penalized have the right to grieve. Please refer to Policy #70 (Student Grievance) at <http://www.adm.uwaterloo.ca/infosec/Policies/policy70.html>.

On the next pages is a tentative timetable of topics to be covered in lecture and lab components.

Psychological Measurement Winter, 2014-15: Lecture and Lab Components at a Glance

Week of	Monday Lecture	Wed Lecture	Lab Wed/Thurs
Jan 5/7	Review syllabus and course components	The BIG PICTURE: What is Psychological Measurement and Why is it Important? (Chapter 1)	Select Groups & Overview of Lab Structure (see benchmarks)
Jan 12/14	Process of Test Construction (Chapter 6, pp. 157-170, & Chapter 7 - skim)	Test Construction continued	Discuss Topic & Past Research on Construct of Interest Reacquaint with SPSS
Jan 19/21	Norms & Basic Statistics (Chapter 2) Intro to SPSS Assignment 1	Correlation and Regression (Chapter 3, omit 91-94 for now) Assignment 2	Continue Refining Topic and Construct of Interest
Jan 26/28	Regression continued & Reviewed Assignment 1 Due in Class Assignment 1 Solutions Reviewed	Reliability and Measurement Error (Chapter 4, omit pp. 120-122 for now) Assignment 3	Construct Definition & Domain Specification, Begin Writing Items & Instruction Set
Feb 2/4	Applications of Classical Test Theory Assignment 2 Due in Class Non-graded assignment: Reliability Applications	Applications of Classical Test Theory Continued Assignment 2 Solutions Reviewed	Complete Item Writing, and Instruction Set (Lab Assignment A due next week)
Feb 9/11	Psychometrics of Observation (Chapter 4, pp. 120-122) Assignment 3 Due in Class Assignment 3 Solutions Reviewed Non-graded Reliability Reviewed Q & A on Lecture Material to Date, as needed	No Lecture Student groups work on Lab Assignment A TAs available for consult as needed (in PAS 1229)	Final Scale Review (in Lab as needed) Lab Assignment A Due: no later than Friday, Feb 13 by noon to your TA
Reading Week	Recover & Study!	Recover & Study!	Recover & Study!

Feb 23/25	No Lecture: Professor available in PAS 1229 for consult as needed	Midterm 1	Students complete booklet of measures in lab (no exceptions)
Week of	Monday Lecture	Wed Lecture	Lab (Wed/Thurs)
Mar 2/4	Validity (Chapter 5) Assignment 4	Validity continued (MMMT) Project data set up	Raw Data to Groups, Enter Data into SPSS
Mar 9/11	Applications of Validity: Testing in Industry & Detecting Test Bias (Chapter 18 & Chapter 19)	Applications of Validity continued: Decision Theory Re-read Chp 18, pp. 485-489) Assignment 5 In class review of Midterm 1 solutions	Continued.... Preliminary Data and Syntax Preparation, Recoding Items, Creating composite scores
Mar 16/18	Item Analysis (Chapter 6, pp. 170-184) Assignment 6 Assignment 4 Due in Class	Item Analysis & Reliability in SPSS Assignment 4 Solutions Reviewed	Data Analysis 1: Item Analysis & Reliability
Mar 23/25	Factor Analysis (Chapter 3, pp. 91-94) Assignment 5 Due in Class	Factor Analysis in SPSS	Data Analysis 2: Factor Analysis
Mar 30/Apr 1	Evaluating Convergent & Discriminant Validity Assignment 6 Due in Class	Assignments 5 & 6 Solutions Reviewed Q & A on Lecture Material to Date	Data Analysis 3: Convergent & Discriminant Validity (Lab Assignment B is due next week)
	Classes over Lab Assignment B due by Monday April 6 by noon to your TA		

Midterm 2: Final Exam Period, Date TBA by Registrar's Office – Don't book your flights out of town before the date is announced!