

PSYC 981: Measurement
Fall 2025
Tuesdays 3:30 pm – 5:30 pm

Course Instructor: Jill A. Jacobson, Ph.D.

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Office: Craine Hall Room 318

Student Hours: Before/after class and by appointment.

- I have a few times I know in advance that I'll be available each week that you can sign up for without having to email me first. Just click on "Sample Service" at the link below to schedule a meeting.
<https://jill-jacobson.setmore.com>
- If none of those times work, you don't need to send a separate email asking if we can meet. Just send me some days/times when you are free (including any evening or weekend times if you are open to meeting outside of typical business hours), and I will set up a meeting for a mutually agreeable time.

Course Purpose

The primary purpose of this course is to introduce you to the construction and validation of psychological measures. We will focus primarily on questionnaire design and self-report measures, but we also will discuss measurement more broadly to include other methods, sources, and types of assessments used in psychological research. The goal is to provide the background in test theory, psychometrics, and types of tests that will allow you to be both a critical consumer of research as well as a thoughtful researcher in the choice, use, and interpretation of psychological measures in research and applied settings.

Intended Student Learning Outcomes

By the end of this course, you will be able to:

- Describe the basic history and current issues in psychological measurement (aka the measurement crisis).
- Evaluate the pros and cons of various choices in questionnaire design and psychological measurement.
- Develop your own items/questionnaire to assess a particular construct or address a particular research question.
- Identify problems with existing measures and propose potential improvements

Course Materials

Copyright of Course Material

Course materials created by the course instructor, Jill A. Jacobson, including all slides, presentations, handouts, tests, exams, and other similar course materials, are the intellectual property of the instructor. It is a departure from academic integrity to distribute, publicly post, sell, or otherwise disseminate an instructor's course materials or to provide an instructor's course materials to anyone else for distribution, posting, sale, or other means of dissemination, without the instructor's express consent. A student who engages in such conduct may be subject to penalty for a departure from academic integrity and may also face adverse legal consequences for infringement of intellectual property rights.

Required

R software for Windows or Mac OS. R Core Team (2025). *R: A language and environment for statistical computing*. R Foundation for Statistical Computing, Vienna, Austria. URL <http://www.R-project.org/>. **Price:** Free
RStudio software for Windows or Mac OS. RStudio Team (2025). *RStudio: Integrated Development for R*. RStudio, Inc., Boston, MA URL <https://posit.co/downloads/> **Price:** Free

Recommended

American Psychological Association. (2019). *Publication Manual of the American Psychological Association* (7th ed.). Washington, DC: Author. **Price at the APA website:** \$31.99 USD
Baruffa, O. (2025). *The Big Book of R*. <https://www.bigbookofr.com/> This compilation of 300+ free R books and resources includes the two I most often recommend when learning R, Navarro's *Learning Statistics with R* and Wickham and Grolemund's *R for Data Science*. **Price:** Free

Lecture slides, other readings, and additional course materials will be posted on onQ.

Course Components

Lectures/Laboratories. One 120-minute lecture/lab is scheduled for each week. Slides for the lecture portion will be available on onQ at least one hour before the lecture is scheduled to begin. The laboratory portion will focus on practicing techniques in R by working on 2 short lab assignments. The lectures and labs provide active engagement, promote a deeper understanding of the course content, and contribute to your success not just in this course but in your academic career. Your presence in lecture and participation in lab contribute to the knowledge and skills that you will develop. I expect you to attend all class meetings to take advantage of these times, which are already built into your schedules, to learn the course material and to complete the lab assignments.

Lab assignments. The lab assignments will consist of answering questions about activities or demonstrations intended to enhance understanding of material covered in lecture and/or completing exercises in R. These assignments will be completed during class, so I can assist you with any problems. You must complete both assignments to pass this course (i.e., if you do not, you will receive a failing mark for the class regardless of your performance on the other components of the course). The lab assignments are due by **8:00 pm on the Tuesday** that they are distributed but see below under “Assignment Submission Policy” about the built-in 3-day grace period.

Final project. The final project must be submitted in electronic format (e.g., Word, PDF, etc.) on onQ by **5:00 pm on Friday, December 19** but see below under “Assignment Submission Policy” about the built-in 3-day grace period. Students must complete the final project to pass this course (i.e., if you do not, you will receive a failing mark for the class regardless of your performance on the other components of the course). Final projects should have some benefit to you beyond the course requirement (e.g., help you move your research ideas forward, contribute to your thesis analyses and write up, lead to a potential poster presentation, form the initial stages of a journal article submission, etc.). Furthermore, students are taking this course for different reasons (i.e., elective vs. required) and have different levels of background preparation (i.e., MSc through PhD). Thus, you have a variety of options for the final project hopefully to best suit your needs and future goals including but not limited to:

- 1) **Critique.** An analysis of an existing psychological measure (e.g., a personality or psychopathology scale, a behavioral assessment, an attitudes survey, etc.). Please include the following sections: a) Description of the instrument and the construct or constructs it seeks to measure; b) Historical background on the development of the instrument; c) Use of the instrument in research and practice, including populations for which the instrument was intended to be used; d) Description of items and scoring; e) Detailed description of the psychometric studies and the associated findings of these studies; f) Your own assessment, based on all you have learned about this instrument, on the utility of this measure in research and practice, and across populations (e.g., race/ethnicity, SES, gender, sexual orientation).
- 2) **Scale Development Research Proposal.** A proposal for a set of studies to develop a new measure or improvement of an existing measure of some psychological construct. You will need to justify why this new or improved measure is necessary. Your paper should follow the guidelines and include the relevant sections for an MSc or PhD proposal.
- 3) **Analysis of Own Data to Either Develop a New Scale or Reassess an Existing Scale using a Different Psychometric Technique.** If you, your advisor, or your lab already has collected data using a new measure for which factor analysis, item response theory, and/or psychometric network analysis would be appropriate, you could conduct those analyses. Alternatively, if you have data for an existing scale that was developed relying primarily on factor analytic techniques, you can reanalyze the measure using item response theory or psychometric network analyses. If you do not have the necessary data but want to use data available in R or online, please get my approval prior to the homework due date and provide the link to the data in your write up. **You cannot use open data for which the code necessary for the homework assignment is available as well.** The write up will be a briefer version of an APA-style paper reporting your results.
- 4) **Best Practices/Tutorial Paper.** *AMPSS* would like to publish papers that help improve measurement practices across the field. Topics of interest include (but are not limited to) methodologies and practices for measure development, analysis planning and transparent practices for measure use and evaluation, further development of or tutorials on psychometric methods and approaches to validation and developing practices for integrating information from multiple measures and/or data sources. (*AMPSS* does not publish instrument validation papers. Measurement contributions on these or other topics should be of broad interest.)

Assignment Submission Policy

Please see Queen’s Graduate School policy on accommodation and academic consideration (including the relevant forms) at <https://www.queensu.ca/academic-calendar/graduate-studies/admission-registration/> (scroll down to “Accommodation for Graduate Students with Disabilities”). To build in flexibility and promote accessibility and inclusion for all students, this course uses universal design including built-in grace periods where possible.

Written Submissions. All written assignments will be submitted in electronic format (i.e., Word, PDF) on onQ. They must be originally and individually written including any R code and must follow the format of the 7th edition of the

Publication Manual of the American Psychological Association. All written assignments have a built-in 3-day grace period, which aligns with the policy for Academic Considerations. If you have extenuating circumstances when a submission is due, and these circumstances will last up to 3 days, you can use the grace period without applying for formal Academic Considerations through the Portal. The grace period is automatically applied to papers submitted up to 3 days late (e.g., submitted before 8:00 pm on the Friday following the lab assignment's Tuesday due date). However, if your circumstances will last more than 3 days, and you have documentation, please use the Academic Considerations Portal. If you have accommodations that allow you to have extensions on assignments, the extension time begins the day assignment is due, not at the end the 3-day grace period. The grace period is part of your extended time.

Late Policy: Late assignments and final projects submitted beyond the grace period will be penalized 1 letter grade per day that they are late unless arrangements have been made. So, for example, if your initial grade for a lab assignment was an A, but the document was submitted after 8:00 pm on the Friday following the lab assignment's Tuesday due date, your final grade for the lab assignment will be an A-.

Statement of Academic Integrity

All written assignments in this course must be originally and individually written. If you are uncertain about what constitutes plagiarism, please review Queen's Graduate School policy on academic integrity at <https://www.queensu.ca/academic-calendar/graduate-studies/academic-integrity-policy/>.

Generative Artificial Intelligence (AI) Tools

Students must submit their own work and cite the work that is not theirs. Generative AI writing tools such as ChatGPT are only permissible when explicitly noted in the assignment instructions. In these cases, be sure to cite the material that they generate. Any other use constitutes a Departure from Academic Integrity.

Student Code of Conduct

As a Queen's student, you are bound by the Student Code of Conduct available for review at https://www.queensu.ca/secretariat/sites/uslclwww/files/uploaded_files/policies/board/StudentCodeOfConduct.pdf. The code is the foundation for the university's non-academic misconduct (NAM) system, which provides a process for identifying and addressing misconduct within the Queen's community, encouraging informal resolution of grievances while taking into account the well-being of each student and the safety and well-being of the community.

Turnitin Statement

This course makes use of Turnitin, a third-party application that helps maintain standards of excellence in academic integrity. Normally, students will be required to submit their course assignments through onQ to Turnitin. In doing so, students' work will be included as source documents in the Turnitin reference database, where they will be used solely for the purpose of detecting plagiarized text in this course. Data from submissions is also collected and analyzed by Turnitin for detecting Artificial Intelligence (AI)-generated text. These results are not reported to your instructor at this time but could be in the future.

Turnitin is a suite of tools that provide instructors with information about the authenticity of submitted work and facilitates the process of grading. The similarity report generated after an assignment file is submitted produces a similarity score for each assignment. A similarity score is the percentage of writing that is similar to content found on the internet or the Turnitin extensive database of content. Turnitin does not determine if an instance of plagiarism has occurred. Instead, it gives instructors the information they need to determine the authenticity of work as a part of a larger process.

Please read Turnitin's [Privacy Policy](#), [Acceptable Use Policy](#) and [End-User License Agreement](#), which govern users' relationship with Turnitin. Also, please note that Turnitin uses cookies and other tracking technologies; however, in its service contract with Queen's University Turnitin has agreed that neither Turnitin nor its third-party partners will use data collected through cookies or other tracking technologies for marketing or advertising purposes. For further information about how you can exercise control over cookies, see [Turnitin's Privacy Policy](#).

Turnitin may provide other services that are not connected to the purpose for which Queen's University has engaged Turnitin. Your independent use of Turnitin's other services is subject solely to Turnitin's Terms of Service and Privacy Policy, and Queen's University has no liability for any independent interaction you choose to have with Turnitin.

Evaluation

You are responsible for all lecture material and all corresponding material on onQ. You must turn in both lab assignments and the final project to pass this course. You also are expected to submit these papers on the indicated due dates. Exceptions will be made only under relevant circumstances. Exams and assignments due in other courses will not

be sufficient grounds for excusal, and the PSYC 981 assignment dates will not be changed to accommodate conflicts with your other courses' schedules. Late assignments will be penalized two letter grades per each day late (i.e., if you earn an A- on a homework but handed it in 1 day late, your grade will be a B once the penalty is applied), and no extra credit opportunities will be offered.

Summary of evaluation components (all are required):

PARTICIPATION TOTAL	Discussion Questions/Class Attendance and Contribution
LAB ASSIGNMENTS TOTAL	2 Lab Assignments
PAPER TOTAL	1 Final Project

Weighting of evaluation components: Participation will be worth 25%. Of the remaining two components, the lab assignments will be worth 30% of your final grade, and the Final Project will be worth 45% of your final grade. All components must be completed to pass this course.

Grading Method

All components of this course will receive letter grades, which, for purposes of calculating your course average, will be translated into numerical equivalents using the Faculty of Arts and Science approved scale (see below). Your course average then will be converted to a final letter grade according to Queen's Official Grade Conversion Scale (see below).

Arts & Science Letter Grade Input Scheme and Official Grade Conversion Scale

Grade	Numerical Value for Calculation of Final Grade	Numerical Course Average (Range)
A+	93	90-100
A	87	85-89
A-	82	80-84
B+	78	77-79
B	75	73-76
B-	72	70-72
C+	68	67-69
C	65	63-66
C-	62	60-62
D+	58	57-59
D	55	53-56
D-	52	50-52
F	48	49 and below

PSYC 981 Course Outline Fall 2025

Week	Date	Topics and Readings	Due
1	Sept. 2	Introduction and the Measurement Crisis	
2	9	Reliability and Validity	
3	16	Questionnaire Design Initial Steps	
4	23	Response Formats	
5	30	<i>Classes Cancelled – Truth and Reconciliation Day</i>	
6	Oct. 7	Response Styles and Question Wording, Order, and Balance	
Reading Week			
7	Oct. 21	Retrospective/Recall, Asking Why, Assessing Change, Short vs. Long Forms	
8	28	Administration, Different Methods/Sources, and Arbitrary Metrics	
9	Nov. 4	Item Response Theory I	
10	11	Item Response Theory II	Lab Assignment 1
11	18	Factor Analysis and Equity-Informed Measurement, Invariance, and Scoring	
12a	25	Psychometric Network Analysis I	
12b	Dec. 2	Psychometric Network Analysis II	Lab Assignment 2
Exam	19	Final Project	By 5 pm