

# **Psychology 291: Basic Research Methods**

## **Fall 2013**

### **Instructor:**

Richard Eibach

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Office hour: Tuesdays, 11:00 AM - 12:00 PM

### **Class Meetings:**

Where: Arts Lecture Hall (AL) 116

When: Tuesdays and Thursdays 9:00-10:20am (NOTE: midterm exam sessions will begin at 8:30am)

### **Teaching Fellows:**

Kevin Barber (office: PAS 3029; email: [k4barber@uwaterloo.ca](mailto:k4barber@uwaterloo.ca))

Pierre Boucher (office: PAS 2237; email: [p2bouche@uwaterloo.ca](mailto:p2bouche@uwaterloo.ca))

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Jeffrey Wammes (office: PAS 4227; email: [jwammes@uwaterloo.ca](mailto:jwammes@uwaterloo.ca))

**Course Description:** This course provides a comprehensive introduction to general principles and strategies of psychological research. Principal goals of the course include: 1) cultivating skills for critically thinking about psychological research; and, 2) preparing students to conduct well-designed psychological investigations. This course will begin with an introduction to the principles of scientific inference and methods for generating and evaluating hypotheses. We will then explore in depth techniques of psychological investigation including sampling procedures, scale construction, survey design, cross-sectional and longitudinal research methods, and the logic and design of experiments. We will also review specific methodologies including lab and field experiments, survey methods, archival research, and case studies. Finally, ethical considerations and the sociopolitical contexts of research will be reviewed.

**Textbooks** (Required; available at UW Campus Bookstore; and on reserve as Porter library):

- 1) Pelham, B., & Blanton, H. (2007). *Conducting research in psychology: Measuring the weight of smoke (4<sup>th</sup> Edition)*. Belmont, CA: Thomson Wadsworth. (abbreviated as PB in reading list)
- 2) Nisbett, R. E., & Cohen, D. (1996). *Culture of honor: The psychology of violence in the South*. Boulder, CO: Westview Press. (abbreviated as NC in reading list)

**LEARN** Lecture slides, other course materials, and announcements will be posted regularly on LEARN (<https://learn.uwaterloo.ca>). Links to online resources and information relevant to course topics will also be posted on LEARN. Make sure to check LEARN on a regular basis for these updates.

## Course Requirements and grading:

First midterm	24%
Second midterm	24%
Writing assignment	12%
Randomization tutorial	3%
TCPS CORE tutorial	7%
Final exam (cumulative)	30%

[Bonus for research experience up to 4%; see below for details]

**Midterms and final exam:** The midterms and final will cover material reviewed in lectures and the assigned readings. The exams will consist of both multiple choice and short answer questions.

**Writing assignment (12%):** The writing assignment will involve a 5-page critical analysis of a research study. This assignment will allow you to apply the principles of research design to assess the strengths and limitations of a psychological research project. Further details about the content and requirements of the assignment will be provided in an assignment guide, which will be distributed midway through the course. Chapters 11 and 13 from the Pelham and Blanton textbook and the article by Jordan and Zanna should be read in connection with this assignment. **Due: Friday, November 22.** Assignments should be uploaded in MS Word format to a dropbox at the course's LEARN website by 11pm on the due date.

### **Tutorial assignments:**

**Completion of randomization tutorial assignment (3%):** Students are required to complete an online tutorial on randomization in sampling and experimental design by November 1, 2013. This online tutorial can be accessed and completed at the following link: <http://www.socialpsychology.org/teach/random-assign.htm>. This course consists of 3 core parts: 1) a tutorial for using an online randomization application, 2) a task applying this randomization procedure to construct a random sample, and 3) a task applying the randomization procedure to randomly assign individuals to experimental conditions. This tutorial will help to clarify the conceptual and methodological distinctions between random sampling and random assignment. When this tutorial is completed you will be able to save/print the results of your tasks for parts 2 and 3. A copy of these results must be submitted to your designated course TA by November 1, 2013 to receive credit.

**Completion of TCPS course on research ethics (7%):** Students are required to complete the online TCPS tutorial course on research ethics (CORE) by November 25, 2013. This online tutorial can be accessed and completed at the following link: <http://pre.ethics.gc.ca/eng/education/tutorial-didacticiel/>. This course consists of 8 learning modules that provide basic instruction in the principles of ethical conduct of research with human participants. Interactive media features and online quizzes allow students to explore and test their understanding of research ethics concepts. Upon successfully completing the tutorial you will receive a certificate of completion, which you will need to submit to your designated course TA to receive credit.

## **Additional course readings** (available on LEARN):

- Amir, O., et al. (2005). Psychology, behavioral economics, and public policy. *Marketing Letters*, 16, 443-454.
- Chase, A. (2000, June). Harvard and the making of the Unabomber. *Atlantic Monthly*, 285, 41-65.
- Gilovich, T. (1997). Some systematic biases of everyday judgment. *Skeptical Inquirer*, 21, 31-35.
- Gladwell, M. (2001, December 17). Examined life. *The New Yorker*, 77, 86-92.
- Gladwell, M. (2007a, November 12). Dangerous minds: Criminal profiling made easy. *The New Yorker*, 83, 36-45.
- Gladwell, M. (2007b, December 17). None of the above. *The New Yorker*, 83, 92-96.
- Holmbeck, G. N. (1997). Toward terminological, conceptual, and statistical clarity in the study of mediators and moderators: Examples from the child-clinical and pediatric psychology literatures. *Journal of Consulting and Clinical Psychology*, 65, 599-610.
- Lilienfeld, S. O. (2012). Public skepticism of psychology: Why many perceive the study of human behavior as unscientific. *American Psychologist*, 67, 111-129.
- Lopez, D. J. (2002). Snaring the Fowler: Mark Twain debunks phrenology. *Skeptical Inquirer*, 26, 37-44.
- Maher, B. A. (1992). Stimulus sampling in clinical research: Representative design reviewed. In Kazdin, A. E. (Ed), *Methodological issues & strategies in clinical research* (pp. 107-115). Washington, D.C.: American Psychological Association Press.
- McGrath, J. E., & Johnson, B. A. (2003). Methodology makes meaning: How both qualitative and quantitative paradigms shape evidence and its interpretation. Camic, P. M., Rhodes, J. E., & Yardley, L. (Eds.), *Qualitative research in psychology: Expanding perspectives in methodology and design* (pp. 31-48). Washington, D.C.: American Psychological Association Press.
- Mook, D. G. (1983). In defense of external invalidity. *American Psychologist*, 38, 379-387.
- Redding, R. E. (2001). Sociopolitical diversity in psychology: The case for diversity. *American Psychologist*, 56, 205-215.
- Riniolo, T. C., & Nisbet, L. (2007). The myth of consistent skepticism: The cautionary case of Albert Einstein. *Skeptical Inquirer*, 31, 49-53.
- Sears, D. (1986). College sophomores in the laboratory. *Journal of Personality and Social Psychology*, 51, 515-530.
- Trochim, W. K. (2006). *The Research Methods Knowledge Base* (2<sup>nd</sup> Edition; Topics: Sampling, External Validity, Sampling Terminology, Statistical Terms in Sampling, Probability Sampling, Non-probability Sampling). Internet WWW page, at URL: <<http://www.socialresearchmethods.net/kb/>> (version current as of October 20, 2006).

## Lecture/Exam Schedule

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**WEEK 1**      **TUESDAY, SEPTEMBER 10**      Introduction  
*Reading: Lilienfeld*

**THURSDAY, SEPTEMBER 12**      Principles of scientific inference  
*Reading: PB (Ch. 1); PB (Ch. 2 pp. 29-50)*

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**WEEK 2**      **TUESDAY, SEPTEMBER 17**      Biases in intuitive inference  
*Reading: Gilovich; Riniolo & Nisbet*

**THURSDAY, SEPTEMBER 19**      Hypothesis-testing & operationalization  
*Reading: NC (Ch. 1, Ch. 2 & Appendix A)*

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**WEEK 3**      **TUESDAY, SEPTEMBER 24**      Heuristics for generating testable hypotheses  
*Reading: PB (Ch. 2, pp. 50-57)*

**THURSDAY, SEPTEMBER 26**      Participant sampling  
*Reading: Sears; Trochim*

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**WEEK 4**      **TUESDAY, OCTOBER 1**      Reliability in measurement  
*Reading: PB (Ch. 3); Lopez*

**THURSDAY, OCTOBER 3**      Validation of measures  
*Reading: PB (Ch. 3, ctd.); Gladwell (2001)*

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**WEEK 5**      **TUESDAY, OCTOBER 8**      **MIDTERM 1**

**THURSDAY, OCTOBER 10**      Survey design  
*Reading: PB (Ch. 4); NC (Ch. 3, Appendix B)*

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**WEEK 6**      **TUESDAY, OCTOBER 15**      Measurement IV: Qualitative measures & content analysis  
*Reading: McGrath & Johnson; Gladwell (2007a)*

**THURSDAY, OCTOBER 17**      Threats to validity in research design  
*Reading: Ch. 5; Gladwell (2007b)*

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**WEEK 7**      **TUESDAY, OCTOBER 22**      Experimentation I: The logic of experimentation  
*Reading: PB (Ch. 7)*

**THURSDAY, OCTOBER 24**      Experimentation II: Experimental design  
*NC (Ch. 4 & Appendix C)*

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**WEEK 8**      **TUESDAY, OCTOBER 29**      Experimentation III: Experimental realism & validity  
*Reading: Maher; Mook*

**THURSDAY, OCTOBER 31**      Case studies  
*Reading: PB (Ch. 6, pp. 162-171)*

**FRIDAY, NOVEMBER 1**      **Results from randomization tutorial due**

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**WEEK 9**      **TUESDAY, NOVEMBER 5**      Naturalistic observations and archival investigations  
*Reading: PB (Ch. 6, pp. 172-196); NC (Ch. 5, pp. 57-73)*

**THURSDAY, NOVEMBER 7**      Field experiments & controlled interventions  
*Reading: NC (Ch. 5: pp. 73-80); Cohen et al.*

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**WEEK 10**      **TUESDAY, NOVEMBER 12**      **MIDTERM 2**

**THURSDAY, NOVEMBER 14**      Quasi-experimental & longitudinal research designs  
*Reading: PB (Ch. 8)*

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**WEEK 11**      **TUESDAY, NOVEMBER 19**      Complex research designs  
*Reading: PB (Ch. 9)*

**THURSDAY, NOVEMBER 21**      Moderation, mediation, & causal chains  
*Reading: Holmbeck; PB (Ch. 12)*

**FRIDAY, NOVEMBER 22**      **WRITING ASSIGNMENT IS DUE**

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**WEEK 12**      **MONDAY, NOVEMBER 25**      **Certificate of completion of TCPS' CORE tutorial is due**

**TUESDAY, NOVEMBER 26**      Ethical issues & political contexts of research  
*Reading: Ch. 2 (pp. 57-66); Chase; Redding*

**THURSDAY, NOVEMBER 28**      Applying psychological research  
*Reading: Amir et al.*

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## **Course policies:**

**Students who are requesting accommodation for course requirements (assignments, midterm tests, final exams, etc.) due to illness** should do the following:

- seek medical treatment as soon as possible and obtain a completed UW Verification of Illness Form: [http://www.healthservices.uwaterloo.ca/Health\\_Services/verification.html](http://www.healthservices.uwaterloo.ca/Health_Services/verification.html)
- submit that form to the instructor within 48 hours.
- (preferably) inform the instructor by the due date for the course requirement that you will be unable to meet the deadline and that documentation will be forthcoming.

In the case of a missed final exam, the instructor and student will negotiate an extension for the final exam which will typically be written as soon as possible, but no later than the next offering of the course.

In the case of a missed assignment deadline or midterm test, the instructor will either: 1) waive the course component and re-weight remaining term work as he/she deems fit according to circumstances and the goals of the course, or 2. provide an extension.

**In the case of bereavement**, the instructor will provide similar accommodations to those for illness. Appropriate documentation to support the request will be required. Students who are experiencing extenuating circumstances should also inform their academic advisors regarding their personal difficulties.

**Accommodations for Students with Disabilities** The Access-Ability Services Office, 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 your disability, please register with the Access-Ability Services Office at the beginning of each academic term.

**The Official Version of the Course Outline** If there is a discrepancy between the hard copy outline (*i.e.*, if students were provided with a hard copy at the first class) and the outline posted on LEARN, the outline on LEARN will be deemed the official version. Outlines on LEARN may change as instructors develop a course, but they become final as of the first class meeting for the term.

### **Concerns About the Course or Instructor (Informal Stage)**

We in the Psychology Department take great pride in the high quality of our program and our instructors. Though infrequent, we know that students occasionally find themselves in situations of conflict with their instructors over course policies or grade assessments. If such a conflict arises, the Associate Chair for Undergraduate Studies (*Myra Fernandes from July 1, 2012 through June 30, 2014*) is available for consultation and to mediate a resolution between the student and instructor. Contact information is as follows: Myra Fernandes Email: [mafernan@uwaterloo.ca](mailto:mafernan@uwaterloo.ca) Ph 519-888-4567 ext 32142 . A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. See Policy 70 and 71 below for further details.

### **Academic Integrity, Academic Offenses, Grievance, and Appeals**

To protect course integrity, as well as to provide appropriate guidance to students, course outlines in the Faculty of Arts must include the following note on avoidance of academic offenses:

**Academic Integrity:** In order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect and responsibility.

[Further details: <http://www.uwaterloo.ca/academicintegrity/>]

**Discipline:** A student is expected to know what constitutes academic integrity [<http://www.uwaterloo.ca/academicintegrity/>], to avoid committing academic offenses, and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offense, or who needs help in learning how to avoid offenses (e.g., plagiarism, cheating) or about 'rules' for group work/collaboration should seek guidance from the course instructor, academic advisor, or the Undergraduate Associate Dean. When misconduct has been found to have occurred, disciplinary penalties will be imposed under Policy 71 - Student Discipline. For information on categories of offenses and types of penalties, students should refer to Policy 71 - Student Discipline [<http://www.adm.uwaterloo.ca/infosec/Policies/policy71.htm>].

**Grievance:** A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read Policy 70 - Student Petitions and Grievances, Section 4 [<http://www.adm.uwaterloo.ca/infosec/Policies/policy70.htm>].

**Appeals:** A student may appeal the finding and/or penalty in a decision made under Policy 70 - Student Petitions and Grievances (other than regarding a petition) or Policy 71 - Student Discipline if a ground for an appeal can be established. Read Policy 72 - Student Appeals [<http://www.adm.uwaterloo.ca/infosec/Policies/policy72.htm>].

## **Bonus Points for Research Experience**

[Grade breakdown: 100% course work, 4% bonus credits]

Experiential learning is considered an integral part of the undergraduate program in Psychology. Research participation is one example of this, article review is another. A number of undergraduate courses have been expanded to include opportunities for Psychology students to earn grades while gaining research experience. Since experiential learning is highly valued in the Department of Psychology, students may earn a "bonus" grade of up to **4%** in this course through research experience. Course work will make up 100% of the final mark and a "bonus" of up to **4%** may be earned and will be added to the final grade if/as needed to bring your final grade up to 100%.

The two options for earning research experience grades (participation in research and article review) are described below. Students may complete any combination of these options to earn research experience grades.

### **Option 1: Participation in Psychology Research, Research Experiences Group (REG)**

Research participation is coordinated by the Research Experiences Group (REG). Psychology students may volunteer as research participants in lab and/or online (web-based) studies conducted by students and faculty in the Department of Psychology. Participation enables students to learn first-hand about psychology research and related concepts. Many students report that participation in research is both an educational and interesting experience. Please be assured that all Psychology studies have undergone prior ethics review and clearance through the Office of Research Ethics.

#### ***Educational focus of participation in research***

To maximize the educational benefits of participating in research, students will receive feedback information following their participation in each study detailing the following elements:

- Purpose or objectives of the study
- Dependent and independent variables
- Expected results
- References for at least two related research articles
- Provisions to ensure confidentiality of data
- Contact information of the researcher should the student have further questions about the study
- Contact information for the Director of the Office of Research Ethics should the student want to learn more about the general ethical issues surrounding research with human participants, or specific questions or concerns about the study in which s/he participated.

Participation in LAB studies is worth 0.5 participation credits (grade percentage points) for each 30-minutes of participation. Participation in ONLINE studies is worth 0.25 credits for each 15-minutes of participation. Researchers will record student's participation and will advise the course instructor of the total credits earned by each student at the end of the term.

#### ***How to participate?***

Study scheduling, participation and grade assignment is managed using the SONA online system. All students enrolled in this course have been set up with a SONA account. You must get started early in the term. For instructions on how to log in to your SONA account and for a list of important dates and deadlines please, as soon as possible go to:

<https://uwaterloo.ca/research-experiences-group/participants/sona-information>

\*\*\* Please do not ask the Course Instructor or REG Coordinator for information unless you have first thoroughly read the information provided on this website.\*\*\*

More information about the REG program is available at:

[REG Participants' Homepage](#)

## **Option 2: Article Review as an alternative to participation in research**

Students are not required to participate in research, and not all students want to do so. As an alternative, students may opt to gain research experience by writing short reviews (1½ to 2 pages) of research articles from empirical psychology journals relevant to the course.

*You must contact your TA to get approval for the article you have chosen before writing the review.* Each review article counts as one percentage point. To receive credit, you must follow specific guidelines. The article review must:

- **Be submitted before the [last day of lectures](#). Late submissions will NOT be accepted under ANY circumstances.**
- Be typed
- Fully identify the title, author(s), source and date of the article. A copy of the article must be attached.
- Identify the psychological concepts in the article and indicate the pages in the textbook that are applicable. Critically evaluate the application or treatment of those concepts in the article. If inappropriate or incorrect, identify the error and its implications for the validity of the article. You may find, for example, misleading headings, faulty research procedures, alternative explanations that are ignored, failures to distinguish factual findings from opinions, faulty statements of cause-effect relations, errors in reasoning, etc. Provide examples whenever possible.
- Clearly evaluate the application or treatment of those concepts in the article.
- Keep a copy of your review in the unlikely event we misplace the original.