**Experimental Design**, Special Topics Seminar  
**Fall 2014, Thursdays 1-4pm**  
**Room 3102, Ivey Building**

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**Course Objectives**

This is a course in the fundamentals of experimental research. It is designed for doctoral students intending scholarly research careers and will involve hands-on practice in formulating and designing research to test your own research ideas. This course seeks to help students to begin developing the skills scholars need to be competent members of their scholarly fields, to complete an important dissertation that will increase the chance of securing interviews at the best schools, and to enable participants to do research that attracts fame and fortune throughout their careers.

These humble goals arise from the following immediate objectives:

(i) understanding the elements of experimentation and how they relate to types of designs, both in the abstract and in application,

(ii) mastering the facets of validity for causal inference, and

(iii) understanding the place of “true” experiments in the larger context of research.

**Class Format**

The class format will consist of weekly assigned readings and discussions of the readings and associated concepts. As well, we will often complete in-class exercises to aid in clarifying the concepts. Students are expected to contribute to the value of the class for all participants by coming prepared and by actively engaging in the collective goal of gaining better understanding during class time. Coming prepared means coming to class having done your best to understand the concepts covered in the assigned readings so that you have the foundation to accommodate any clarifications that are needed and any potentially challenging advances that might arise during class time.

**Readings**

There are two **required** books to be used for this course:


**NOTE: the above book assumes knowledge of basic statistics (talk to me if ??)**

Additional readings are listed below and can be accessed electronically via the library database unless otherwise noted. You will be informed of any changes to assigned readings (as listed in the class schedule) as soon as possible before the class session.
Grading
Grades will be assigned based on the following deliverables:

**Active class participation** ........................................ 30%

**Four research design mini-papers** .................................. 40%

**Final paper** .......................................................... 30%

(meta-analysis or research proposal with systematic review)

** IMPORTANT - Note: To pass this class, you must receive a grade of **not lower than** B- on the Final Paper. Any grade of C+, C or D will result in the class credit being recorded as **incomplete**. A grade of F on the Final Paper will result in the grade for the class being recorded as a **failing grade** regardless of your grades in the other deliverables.

(See below for specific grade assessments in my grading system.)

*Active class participation* will consist of class attendance, having read the assigned readings, coming to class with any assignments prepared, and active participation in and quality contribution to the class discussion and any exercises. If you must miss a class, please let me know as soon as possible. I don’t want you to come to class sick and get everyone sick, but neither can I give credit for classes missed. Simple physics dictate that you cannot contribute if you do not attend.

The *research design mini-papers* are prepared at four points in the term (see class schedule). Because they must be prepared before you have had a chance to discuss all of the relevant material, they will be graded based on the clarity, concision, and thoughtfulness of your submission, as well as on your understanding of the concepts. There is an absolute **maximum length of 5 pages** (1.15-spaced, 12 pt, Times New Roman, 1” margins, some elements in outline and/or bullet point format is acceptable **IF** your exposition is completely clear AND the majority of the paper is written in fully developed prose.) for each of these assignments. For some assignments, the required space may be even less, so read the descriptions in the class schedule.

For the *final class project*, each student will complete a 1) **meta-analysis** or 2) **detailed research proposal and systematic review** on a topic of your choosing. This means statistically and/or conceptually reviewing the research done in on a particular concept, hypothesis or research question. You should be sure to address any alternative interpretations of the results of existing research on the topic you choose, and the adequacy of the support for any explicit or implicit causal claims. This will be **due on December 21st 2012 by 5:00pm. Late papers will not be accepted and will result in a failing grade.**

The final paper is to be **no more than 20 pages of written text** (1.5-spaced, 12 pt, Times New Roman, 1” margins, organizational headings are a must), excluding references and tables/figures. Ideally, you should pick an area that will be useful to you in other work (e.g., RA, other courses, Bus 9824 - Experimental Design)
research projects you are involved in), but of course, the project must ultimately be work done uniquely for this class and represent your own work.

If you want to discuss potential topics with me, prepare for that meeting by doing literature searches on topics you are interested in to investigate the size of the body of literature on that topic. A search that yields hundreds of results is too broad, whereas a search that yields less than 10 is (likely) too specific. Approximately 10-20 papers (give or take) is a reasonable starting size for a meta-analytic review topic. Consider in the first case (a) whether there are more specific sub-topics that you could use to narrow the field, and in the latter case (b) whether this topic is part of a more general construct that has been called different things but defined and/or operationalized in very similar ways. A systematic review topic should be similarly researched, though the focus of the design proposed should be a novel hypothesis (whereas for meta-analysis, by definition, it would have to be a hypothesis that has been tested at least 2 times, and ideally more).

**Grading System (with examples relevant for written assignments):**

- **A+** = Exceptional and outstanding for ANY ‘level’
- **A** = Exceptional effort and very well-done for your current ‘level’
- **A-** = Well-done, with some minor rough spots (e.g., areas that should have been better explained)
- **B+** = Good effort, rough spots are a bit more than minor (e.g., the lack of clear explanation impairs understanding)
- **B** = Good effort, with at least one significant rough spot or error (e.g., there is at least one element missing or incorrect)
- **B-** = Fair effort, with at least one significant rough spot or error (i.e., as above, but here it seems likely that you should have expended more effort)
- **C+** = Some effort evident, but with errors, omissions, or lack of clarity that impairs understanding to the extent that I cannot be sure you adequately understand the material – I think revision could resolve these issues.
- **C** = Errors, omissions, or lack of clarity that impairs understanding to the extent that I cannot be sure you adequately understand the material, and I think you need to do more preparatory reading/study before you will be able to adequately advance on the assignment.
- **D** = I think you will need to do quite a significant amount of study before you will be able to resolve the issues and errors in completing the assignment.
- **F** = Evidence of effort is lacking, resulting in subpar understanding and I am not confident that you will expend the additional effort necessary to remedy the situation as it stands.

**Academic Integrity**
Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site: [http://www.uwo.ca/univsec/handbook/appeals/scholastic_discipline_grad.pdf](http://www.uwo.ca/univsec/handbook/appeals/scholastic_discipline_grad.pdf).

You are reminded that plagiarism (representing another person’s ideas, writings, etc., as one’s own) is a serious academic offence; the ultimate penalty is expulsion. We expect you to write reports, exams, etc., in your own words and using your own ideas. Whenever you take an idea or a passage from another author, you must acknowledge your debt by appropriately citing your source(s). NOTE: this also applies to your own work previously submitted for credit elsewhere (self-plagiarism is an actual thing: lesser known but also an integrity violation, due to the requirement that all course work be original). Western uses software to check for plagiarism. You will be required to submit your written work in electronic form for plagiarism checking. *All required papers may be subject to submission for textual similarity review to the commercial plagiarism-detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com ([http://www.turnitin.com](http://www.turnitin.com)).*

**Graduate Course Health and Wellness Insert for Graduate Course Outlines**

As part of a successful graduate student experience at Western, we encourage students to make their health and wellness a priority. Western provides several on campus health-related services to help you achieve optimum health and engage in healthy living while pursuing your graduate degree. For example, to support physical activity, all students, as part of their registration, receive membership in Western’s Campus Recreation Centre. Numerous cultural events are offered throughout the year. Please check out the Faculty of Music web page [http://www.music.uwo.ca/](http://www.music.uwo.ca/), and our own McIntosh Gallery [http://www.mcintoshgallery.ca/](http://www.mcintoshgallery.ca/). Information regarding health- and wellness-related services available to students may be found at [http://www.health.uwo.ca/](http://www.health.uwo.ca/)

Students seeking help regarding mental health concerns are advised to speak to someone they feel comfortable confiding in, such as their faculty supervisor, their program director (graduate chair), or other relevant administrators in their unit. Campus mental health resources may be found at [http://www.health.uwo.ca/mental_health/resources.html](http://www.health.uwo.ca/mental_health/resources.html)

To help you learn more about mental health, Western has developed an interactive mental health learning module, found here: [http://www.health.uwo.ca/mental_health/module.html](http://www.health.uwo.ca/mental_health/module.html). This module is 30 minutes in length and provides participants with a basic understanding of mental health issues and of available campus and community resources. Topics include stress, anxiety, depression, suicide and eating disorders. After successful completion of the module, participants receive a certificate confirming their participation.
Class Schedule

SESSION 1

Assigned reading:
Shadish et al. (2002): Preface, Ch. 1
Cumming (2011): Ch. 1

SESSION 2

Assignment 1:
Identify a research article that includes (ideally) the most amazing research you have ever seen and (at a minimum :) one that illustrates a research design you don’t yet fully understand or feel competent to implement in your own research. Along with the article, include a summary—not more than one page long, 1.15-spaced—of your understanding of the validity of the concepts, methods, and results. These should be emailed to me by noon on Tuesday Sept. 16th, with the understanding that I will forward ASAP to all seminar participants.

Assigned reading*:
*Also, please read the summaries of other participants and at least scan their chosen articles, all of which will be forwarded to you by email.

SESSION 3

Assigned reading:
Shadish et al. (2002): Ch. 2

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1 You will be informed of any changes to assigned readings as soon as possible.
SESSION 4  
**Oct. 2**

**Assigned reading:**
Shadish et al. (2002): Ch. 3  

SESSION 5  
**Oct. 16**

**Assigned reading:**
Shadish et al. (2002): Ch. 4-5, 8  

SESSION 6  
**Oct. 23**

**Assignment 2:**
This assignment will consist of designing a research program to test the theory section of a paper you will be assigned (and provided in hard copy with the methodology excluded). Though the paper you are assigned is published, you should avoid searching for the “right” answer and design what you think would be the best research program to test the hypotheses proposed. Describe the research program and designs, then, briefly, why you have chosen each element. The **5-page limit** applies here (see mini-paper assignment section). Once you have submitted your paper (**to me by email, by noon on Tuesday, Oct. 21**) you should read the full paper and consider the methodology they chose, as compared to your own.

**Assigned reading:**
Cumming (2011): Ch. 2-3, 5-6
Assigned reading (continued):

SESSION 7
Assigned reading:
Shadish et al. (2002): Ch. 11, 14

SESSION 8
Assignment 3:
Propose a specific experimental design for a novel research hypothesis inspired by The Happiness Hypothesis (Haidt 2006). You do not have to provide a lengthy literature review, but should briefly specify the literature that is the source of your thinking in generating your hypothesis. As well, you should clearly explicate the mechanism or process proposed by your hypothesis. Once you have clearly explained the hypothesis, describe the research you would do to test that hypothesis. This must be at least one study, and (if there are more than one) at least one study must use experimental methodology. Finally, explain the contribution to theory or practical implications (or both) if your predictions are borne out. The 5-page limit applies here (see mini-paper assignment section), and the assignment should be submitted to me, by email, by 5:00pm Tuesday Nov. 4.

Assigned reading:
SESSION 9

Assigned reading:
Cumming (2011): Ch. 7-9

SESSION 10

Assigned reading:
Cumming (2011): Ch. 14

SESSION 11

Assigned reading:
Cumming (2011): Ch. 15

SESSION 12

Assigned reading:
Cumming (2011): Ch. 15
Assignment 4:
Prepare an outline or draft as a “topic proposal” for the Final Paper, with as much detail as you have on progress relative to reviewing literature, the effects that have been observed in the area, search/collection/analysis plan (meta-analysis) or design plan (research proposal). Adhere to the 5 page limit for the body of the paper, but additional pages for tables, figures or other illustrative devices are allowed (just don’t go crazy or I won’t give them all much attention). Email to me by noon on Monday Dec. 1. NOTE that this is a day earlier than usual. Come to class prepared to explain what you are doing and where you are in the process to your classmates, as well as what you have found so far and any challenges you have encountered.

Assigned reading:

FINAL PAPER DUE Dec. 15, 2012
Electronic copies due to my email address by 12:00pm on Monday Dec. 15th. Late papers will not be accepted.