HLTH AGE 3B03/SOCPSY 3L03: ADVANCED RESEARCH METHODS
Winter 2024

Instructor: Dr. Tara Marshall
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Pronouns: she/her
Please call me: Dr./Professor Marshall
Office Hours: by appointment
Office: KTH 234

Lecture: Mondays: 10:30am -12:20pm, in person. Wednesdays: asynchronous online delivery (lectures will be recorded and posted on Avenue every Wednesday by 10:30am).
Teaching assistant: TBA. Office hours are by appointment.

Contents

Course Description

In this course, students will learn how to design research projects in preparation for conducting a fourth-year thesis project or independent project in the social sciences. Students will gain hands-on experience conducting qualitative and quantitative research at every stage of the research process: selecting a topic, reviewing literature, developing a research question, deriving hypotheses from theoretical models, designing qualitative questions, collating measures for survey research, preregistering hypotheses and analysis plans, collecting data, analyzing qualitative data, analyzing quantitative data with Jamovi statistical software, and writing an academic research report. Openness and transparency in the research process will be emphasized.

Course Objectives

By the end of the course students should be able to:

- Critically analyze the research methods of empirical papers
- Design appropriate methods for answering research questions and hypotheses
- Analyze qualitative data
- Analyze quantitative data with statistical software
- Write research reports in a clear and concise manner

Required Materials and Texts

We will be using a FREE textbook for this course. Although it is billed as a textbook for psychological research methods, it is equally applicable for health/aging-related research methods.

Jhangiani, R. S., Chiang, I.-C. A., Cuttler, C., & Leighton. D. C. (2019). *Research Methods in Psychology – 4th Edition.* https://kpu.pressbooks.pub/psychmethods4e/

Class Format

Monday classes will be in person**,** and attendance is expected. During these classes, I will do some lecturing for part of the time and the rest will be devoted to interactive and problem-based learning. Lectures will be recorded using Echo360 and posted on Avenue to Learn for you to review should you have to be absent from class. Tests 1 and 2 will take place in person during our scheduled class time.

Wednesday lectures will be online and asynchronous; we will not meet in person during the scheduled class time. The recordings and accompanying PowerPoint slides will be posted every Wednesday by 10:30am, and it is up to you to listen to the recordings and take notes on your own time. I strongly advise keeping up with the recordings on a

weekly basis because they will help to inform the in-person activities that we do in Monday classes. <u>The recordings go into the material in much greater depth than do the PowerPoint slides, so to perform well in this course, it is necessary to attend to the recordings</u>.

Course Evaluation – Overview

1. Test 1 – 20%, Jan 29th
2. Test 2 – 35%, Mar 25th
3. Preregistration – 5%, Mar 18th
4. Problem-based learning – 5%
5. Report – 35%, due April 8th

Course Evaluation – Details

1. Test 1 (20%), January 29th, 10:30am-12:20pm, <u>in person</u>

Test 1 will consist of multiple-choice questions. It will be based on material presented in lectures from Weeks 1-3 only. The material on quantitative research design presented in Week 4 will be covered in Test 2, not Test 1. Test 1 will take place in our regular classroom, and it is a **closed book** test. If Test 1 is missed, you will need to contact the instructor to arrange a time to take the test within 7 days.

2. Test 2 (35%), March 25th, 10:30am-12:20pm, <u>in person</u>

Test 2 will be <u>non-cumulative</u> so it will be based on material covered in Weeks 4-10 only. The material on writing a research report presented in Week 11 will <u>not</u> be included in Test 2. It will take place in our regular classroom, but it will be administered as a Quiz on Avenue to Learn; therefore, **you will need to bring a laptop, tablet, or other device** to the classroom. It is an **open book** test.

As Test 2 is worth 35%, is not eligible for an MSAF. If Test 2 is missed, please visit your respective Faculty office with appropriate documentation for the Faculty to review. If your documentation is accepted, you can write Test 2 at an alternative time.

3. Preregistration (5%), March 18th, 9:00am

You will need to preregister 2-3 hypotheses, your data analytic plan, and several other aspects of our class research project using AsPredicted (https://aspredicted.org/). More details will be provided in lectures. Please submit a PDF copy of your preregistration in Avenue to Learn.

4. Problem-based learning (PBL; 5%)

There will be 7-8 opportunities to complete problem-based learning exercises; you only need to complete 5 correctly for full marks (each worth 1% for a total of 5%). We will be doing these exercises in Monday classes; there should be enough time to submit them by the end of class, but you will have until 10:30am the following morning (Tuesday) to submit them. They will be graded on a pass-fail basis; if you fail, you can redo the PBL

for a pass <u>or</u> you can correctly do an additional exercise for full marks.

Any additional PBLs you complete beyond the required 5 will be counted as bonus marks. To account for the bonus marks in your final grade, I will reweight Test 2 so that it accounts for less of your final grade, and the bonus marks will be added on to your final mark. For example, if you complete 3 bonus PBLs, I will reduce the weighting of Test 2 from 35% to 32% and add 3% in bonus marks to your final grade.

5. Report (35%), due April 8th by 11:59pm

As a class, we will conduct a study that examines university students' health and well-being with a mixed-methods approach (i.e., quantitative and qualitative). We will refine our research questions as we narrow down the quantitative scales and qualitative questions to include in our general survey. *We must be mindful not to include questions that are likely to create anxiety and discomfort or involve recall of unpleasant or traumatic events. We must also not involve a high-risk population (e.g., those with mental health issues) or vulnerable persons (e.g., persons with disabilities).*

As a class, we will vote on the selection of two short scales that will yield quantitative data and two open-ended questions that will yield qualitative data. We will also ask three demographic questions (I will supply these questions). Although we are designing the survey and collecting data as a group, **each student in the class will need to submit their own individual report.** The Results section of your report should be divided into a quantitative section and a qualitative section.

Quantitative section
For this project, you will quantitatively assess the independent variables (i.e., the predictors and demographic variables listed below) that are associated with our outcome/dependent variables (i.e., mental and physical well-being).

    <u>Predictor variables</u>. As a group, we will include two <u>predictor</u> variables in our survey, such as stress, personality traits, social comparison, relationship quality, or social media use (please note that these are just examples from past classes and may or may not be included as variables in our project). We will vote as a class on the two predictors we will include in the final survey.

    <u>Demographic variables</u>. We will also measure the following <u>three demographic</u> variables in our survey: gender identity, ethnicity, and socioeconomic status (SES).

    <u>Outcome/dependent variables</u>. Finally, the survey will also include two outcome (dependent) variables: the 6-item Warwick-Edinburgh mental health survey to measure mental/emotional well-being, and the general health perceptions subscale from the SF-36 to measure physical well-being.

This survey will measure more variables than you will need to analyze in your report. This will provide each student with flexibility and choice in what variables you find most

interesting to write about in your report. You will need to select **one** predictor variable, **one** demographic variable, and **one** outcome variable (physical or mental health) to focus on in your final report. Please do not select more variables than this. In your report, it isn't necessary to mention the predictors or outcome variables that we included in our survey but that you chose not to analyze (e.g., if you chose mental/emotional well-being as your outcome variable, you do not need to mention anything in your report about physical well-being). Although you only need to analyze one demographic variable in your Results section, you should report the descriptive data for all three demographic variables in your Participants section.

To give an example, you may choose stress as your predictor variable, SES as your demographic variable, and mental well-being as your outcome variable (please note that this is just an example and stress may or may not be included as a predictor in our project). Your report might therefore assess (a) the association of stress with mental well-being, and (b) the association of SES with mental well-being. Those of you who are feeling ambitious may also test the interaction between these predictor variables – i.e., stress x SES – which tests whether the association of stress with mental well-being differs for high vs low SES individuals. Testing interaction effects is optional for this project: if correctly executed and interpreted, testing the interaction effect may boost your mark. However, if incorrectly executed or interpreted, testing the interaction effect may potentially decrease your mark. It is up to you to decide what course of action to take. Please note that we will be devoting a lot of class time for data analysis toward the end of this course and I will be able to provide a lot of individualized instruction in person.

As a class, we will need to find relatively short (e.g., 5-10 items) published scales to assess the predictor variables. I will give a **1% bonus mark** to any student who finds two appropriate scales. This bonus mark will be added to your final mark for this course. I will provide the demographic variables and the outcome variables.

You will need to preregister 2-3 hypotheses and a data analysis plan (see details in Preregistration section above). As a group, we will create a single online survey using Qualtrics online survey software. Each student will distribute an online link to this survey to your social networks (e.g., via email, word of mouth, or social media) with the expectation of recruiting at least 10 participants each (this is encouraged but not required). When data collection is finished, everyone will analyze the same data set using Jamovi statistical software (https://www.jamovi.org/download.html), which is free to download. I will provide step-by-step instructions for using this software and analyzing the results in my lectures.

Qualitative section
We will include two open-ended questions in our survey. These questions should complement the quantitative scales so that they address experiences of (for example) stress, relationship quality, social media use, etc. We will vote as a class on the two open-ended questions we will include in the final survey. You should choose one qualitative question to code; this question should correspond, topic-wise, to the predictor variable you have chosen to focus on in your quantitative analysis. For

example, if you choose to examine the association of stress with mental well-being for your quantitative analysis, you should code the corresponding qualitative question that also addresses stress.

After data has been collected, you will carefully read responses to the open-ended question of your choice (only choose <u>one</u> of the two open-ended questions) and make notes on the data. In doing so, you will highlight notable quotes or passages of text. If we collect a large number of responses, you will only need to analyze **50** qualitative responses within <u>one</u> of the two open-ended questions (you are welcome to analyze more than 50 responses within that one question if you would like, but please be mindful of how much time this might take). Once you have read through these responses and gotten a feel for the content, you will begin the process of coding the data, which involves organizing the qualitative material into themes. In your report, you will discuss what is analytically interesting about the qualitative data based on the themes and sub-themes that you have identified.

Each student will produce a report (**2750 words** excluding references, tables, and the title page). It should be written in APA style and consist of the following sections: title page, abstract, introduction/literature review, method, results (separate sections for quantitative and qualitative results), discussion, references. Neither the professor nor TA are able to read drafts.

To facilitate communication between students, an online Discussion Board will be created for you on Avenue to Learn. Please note that all comments posted in this space are visible to your professor.

<u>Weekly Course Schedule and Required Readings</u>

Week 1 (Jan 8) Introduction to research methods: identifying topics and generating research questions; theoretical frameworks; conducting literature searches and reviews.

>   Readings: Chapter II of online textbook (sections 7, 8, 9)

Week 2 (Jan 15) Qualitative research designs: interviews, ethnography, photovoice, open-ended surveys; positionality; research ethics.

>   Readings: Chapter VI of online textbook (sections 31, 32). Chapter III of online textbook (research ethics).

>   Notes: we will vote on two qualitative questions to include in our survey.

Week 3 (Jan 22) Qualitative analysis: coding; thematic analysis, content analysis, IPA; review for Test 1.

>   Readings:
> - Chapter VI of online textbook (sections 31, 32).

- Braun, V., & Clarke, V. (2008) Using thematic analysis in psychology. *Qualitative Research in Psychology, 3,* 77-101.

Week 4 (Jan 29) Test 1; Quantitative research: developing hypotheses

Readings: Chapter II of online textbook (section 10). This is for Wednesday's recorded lecture; this material will not be included in Test 1.

Notes: **Test 1** will be held on **Monday, January 29th from 10:30am-12:20pm.** The lecture on quantitative research will be posted on January 31st, so you will **not** be tested on this material in Test 1, only in Test 2.

Week 5 (Feb 5) Quantitative research: survey methods; measurement - selecting scales, reliability, validity

Readings: Chapters IV & VII of online textbook.

Notes: the problem-based learning exercise this week will consist of creating a short Qualtrics survey. You can obtain a free trial account for Qualtrics here: (https://www.qualtrics.com/support/survey-platform/managing-your-account/trial-accounts/

Submit 2 scales by Feb 8 for a 1% bonus mark.

Week 6 (Feb 12) Quantitative research: experimental methods

Readings: Chapter V of online textbook.

Notes: Start class vote on **Feb 12** on scales to include in our survey; end class vote by **Feb 19** and decide on scales.

Week 7 (Feb 19) Reading Week

No readings

Week 8 (Feb 26) Replicability and openness in social science research

Readings:
- Chapter XIII (section 60) from online textbook
- https://www.psychologicalscience.org/observer/research-preregistration-101
- Simmons, J. P., Nelson, L. D., & Simonsohn, U. (2011). False-positive psychology: Undisclosed flexibility in data collection and analysis allows presenting anything as significant. *Psychological Science, 22*, 1359-1366.

Week 9 (Mar 4) Quantitative data analysis: Jamovi statistical software – descriptive statistics, *t*-tests, correlations.

Readings: Chapters XII and XII (sections 57, 58, 59) of online textbook.

Notes: I will create the online survey for the class research project and send you the link; use this link to start collecting data Mar 4.

Week 10 (Mar 11) Quantitative data analysis: Jamovi statistical software – ANOVA, linear regression, logistic regression.

Readings: Chapters XII and XII (sections 57, 58, 59) of online textbook.

Week 11 (Mar 18) Writing a research report; analyze your data; review for Test 2. Preregistration due.

No readings this week

Notes: the material this week on writing research reports will not be included in Test 2. After the lecture on writing research reports on Tuesday, Dr. Marshall will be available to help you set up your Jamovi file for the class research project and start analyzing your data.

Study preregistration through AsPredicted due on **March 18th by 9:00am**.

Data collection finished by March 14th; I will post the data on Avenue before class on March 18th. Set up your Jamovi data file and start analyzing the data.

Week 12 (Mar 25): Test 2; Jamovi – testing interaction terms

No readings this week

Notes: Test 2 will take place on **Monday, March 25th from 10:30am-12:20pm.** The material on writing a research report in Week 11 will not be included in Test 2. I will post a recording on Wednesday, March 27th that describes how to test interaction terms in Jamovi (this is optional for your report!).

Week 13 (Apr 1): Analyze your data

Notes: there will be no readings or recorded lectures posted this week. This time has been reserved for you to analyze your data and prepare your report. I will be available in class to help you with any aspect of your report.

Week 14 (Apr 8) Report due April 8th by 11:59pm

Notes: No lectures this week

Course Policies

Submission of Assignments

Please submit an electronic copy of your preregistration and report in the dropboxes in Avenue to Learn (Assessments ➜ Assignments ➜ HLTHAGE 3B03/SOCPSY 3L03 Preregistration or Report). The report dropbox is Turnitin-enabled. Emailed assignments will NOT be accepted. Your report should be typed and double-spaced in 12-point Times New Roman font with one-inch (2.54cm) margins on all sides. Please include a title page with your report title, student number (**DO NOT INCLUDE YOUR NAME ON THE TITLE PAGE OR IN NAME YOU GIVE THE DOCUMENT**), date submitted, course number, page number (upper right corner), and word count, and a References section at the end. References should adhere to APA style conventions. I will review these conventions in a subsequent lecture, but they should take the following form:

John, J. B., & Joe, M. L. (1998). Gratitude interventions enhance subjective well-being. Journal of Happiness Studies, 27, 254-260.

Tip: do not include the title of any papers in the body of your essay as this will deplete your word count unnecessarily (i.e., include the title in the References section only). In-text citations should only include the authors' last names and the date of publication (e.g., "Smith & Lee, 2019").

Please note that I am not able to provide feedback on written drafts; however, I am happy to answer questions in person or via email.

Grades

Grades will be based on the McMaster University grading scale:

MARK	GRADE
90-100	A+
85-89	A
80-84	A-
77-79	B+
73-76	B
70-72	B-
67-69	C+
63-66	C
60-62	C-
57-59	D+
53-56	D
50-52	D-
0-49	F

Late Assignments

Extensions for course assignments will only be granted under conditions of medical, family, or other extraordinary circumstances. All other late assignments will be penalized

at a rate of 5% per day (including weekends). Late assignments will not be accepted after 7 days beyond the original deadline without appropriate documentation from the Office of the Associate Dean of Social Sciences.

Course Modification

The instructor reserves the right to modify elements of the course during the term. If any modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes. It is the responsibility of the student to check his/her McMaster email and course websites weekly during the term and to note any changes.

University Policies

ACADEMIC INTEGRITY

You are expected to exhibit honesty and use ethical behaviour in all aspects of the learning process. Academic credentials you earn are rooted in principles of honesty and academic integrity. It is your responsibility to understand what constitutes academic dishonesty.

Academic dishonesty is to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. This behaviour can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: "Grade of F assigned for academic dishonesty"), and/or suspension or expulsion from the university. For information on the various types of academic dishonesty please refer to the Academic Integrity Policy, located at https://secretariat.mcmaster.ca/university-policies-procedures-guidelines/

The following illustrates only three forms of academic dishonesty:
- plagiarism, e.g. the submission of work that is not one's own or for which other credit has been obtained.
- improper collaboration in group work.
- copying or using unauthorized aids in tests and examinations.

AUTHENTICITY / PLAGIARISM DETECTION

Some courses may use a web-based service (Turnitin.com) to reveal authenticity and ownership of student submitted work. For courses using such software, students will be expected to submit their work electronically either directly to Turnitin.com or via an online learning platform (e.g. Avenue to Learn, etc.) using plagiarism detection (a service supported by Turnitin.com) so it can be checked for academic dishonesty.

Students who do not wish their work to be submitted through the plagiarism detection software must inform the Instructor before the assignment is due. No penalty will be assigned to a student who does not submit work to the plagiarism detection software. All submitted work is subject to normal verification that standards of academic integrity have

been upheld (e.g., on-line search, other software, etc.). For more details about McMaster's use of Turnitin.com please go to www.mcmaster.ca/academicintegrity.

GENERATIVE AI: USE PROHIBITED

Students are not permitted to use generative AI in this course. In alignment with McMaster academic integrity policy, it "shall be an offence knowingly to … submit academic work for assessment that was purchased or acquired from another source". This includes work created by generative AI tools. Also state in the policy is the following, "Contract Cheating is the act of "outsourcing of student work to third parties" (Lancaster & Clarke, 2016, p. 639) with or without payment." Using Generative AI tools is a form of contract cheating. Charges of academic dishonesty will be brought forward to the Office of Academic Integrity.

COURSES WITH AN ON-LINE ELEMENT

Some courses may use on-line elements (e.g. e-mail, Avenue to Learn, LearnLink, web pages, capa, Moodle, ThinkingCap, etc.). Students should be aware that, when they access the electronic components of a course using these elements, private information such as first and last names, user names for the McMaster e-mail accounts, and program affiliation may become apparent to all other students in the same course. The available information is dependent on the technology used. Continuation in a course that uses on-line elements will be deemed consent to this disclosure. If you have any questions or concerns about such disclosure please discuss this with the course instructor.

ONLINE PROCTORING

Some courses may use online proctoring software for tests and exams. This software may require students to turn on their video camera, present identification, monitor and record their computer activities, and/or lock/restrict their browser or other applications/software during tests or exams. This software may be required to be installed before the test/exam begins.

CONDUCT EXPECTATIONS

As a McMaster student, you have the right to experience, and the responsibility to demonstrate, respectful and dignified interactions within all of our living, learning and working communities. These expectations are described in the Code of Student Rights & Responsibilities (the "Code"). All students share the responsibility of maintaining a positive environment for the academic and personal growth of all McMaster community members, whether in person or online.

It is essential that students be mindful of their interactions online, as the Code remains in effect in virtual learning environments. The Code applies to any interactions that adversely affect, disrupt, or interfere with reasonable participation in University activities. Student disruptions or behaviours that interfere with university functions on online

platforms (e.g. use of Avenue 2 Learn, WebEx or Zoom for delivery), will be taken very seriously and will be investigated. Outcomes may include restriction or removal of the involved students' access to these platforms.

ACADEMIC ACCOMMODATION OF STUDENTS WITH DISABILITIES

Students with disabilities who require academic accommodation must contact Student Accessibility Services (SAS) at 905-525-9140 ext. 28652 or sas@mcmaster.ca to make arrangements with a Program Coordinator. For further information, consult McMaster University's *Academic Accommodation of Students with Disabilities* policy.

REQUESTS FOR RELIEF FOR MISSED ACADEMIC TERM WORK

In the event of an absence for medical or other reasons, students should review and follow the Policy on Requests for Relief for Missed Academic Term Work.3

ACADEMIC ACCOMMODATION FOR RELIGIOUS, INDIGENOUS OR SPIRITUAL OBSERVANCES (RISO)

Students requiring academic accommodation based on religious, indigenous or spiritual observances should follow the procedures set out in the RISO policy. Students should submit their request to their Faculty Office normally within 10 working days of the beginning of term in which they anticipate a need for accommodation or to the Registrar's Office prior to their examinations. Students should also contact their instructors as soon as possible to make alternative arrangements for classes, assignments, and tests.

COPYRIGHT AND RECORDING

Students are advised that lectures, demonstrations, performances, and any other course material provided by an instructor include copyright protected works. The Copyright Act and copyright law protect every original literary, dramatic, musical and artistic work, including lectures by University instructors

The recording of lectures, tutorials, or other methods of instruction may occur during a course. Recording may be done by either the instructor for the purpose of authorized distribution, or by a student for the purpose of personal study. Students should be aware that their voice and/or image may be recorded by others during the class. Please speak with the instructor if this is a concern for you.

EXTREME CIRCUMSTANCES

The University reserves the right to change the dates and deadlines for any or all courses in extreme circumstances (e.g., severe weather, labour disruptions, etc.). Changes will be communicated through regular McMaster communication channels, such as McMaster Daily News, Avenue to Learn and/or McMaster email.

Faculty of Social Sciences E-mail Communication Policy

Effective September 1, 2010, it is the policy of the Faculty of Social Sciences that all e-mail communication sent from students to instructors (including TAs), and from students to staff, must originate from the student's own McMaster University e-mail account. This policy protects confidentiality and confirms the identity of the student. It is the student's responsibility to ensure that communication is sent to the university from a McMaster account. If an instructor becomes aware that a communication has come from an alternate address, the instructor may not reply at his or her discretion.