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

Winter 2022

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Pronouns: she/her
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Office Hours: by appointment (in person or Zoom)
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Lecture: Tuesdays: 9:30-11:30am, in person in ABB 136 (**NOTE:** Jan. 11th will be online). Thursdays: asynchronous online delivery (lectures will be recorded and posted on Avenue every Thursday by 9:30am).
Teaching assistant: Kate Cooper (coopek9@mcmaster.ca). Office hours are by appointment (in person or Zoom).

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 and hypothesis, 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.

Chiang, I. C. A., Jhangiani, R. S., & Price, P. C. *Research Methods in Psychology – 2nd Canadian Edition*. https://open.umn.edu/opentextbooks/textbooks/research-methods-in-psychology-2nd-canadian-edition

Class Format

Tuesday classes (9:30-11:30am) will be in person **(except January 11th, which will be asynchronous online).** I will do some lecturing, but most of the class will be devoted to interactive and problem-based learning. Please note that our classroom (ABB 136) is enabled for Echo360 lecture capture. Tests 1 and 2 will take place online as a Quiz on Avenue to Learn.

Thursday lectures will be online and asynchronous; we will not meet in person during the scheduled class time. Recordings of the Thursday lectures and accompanying PowerPoint slides will be posted every Thursday by 9:30am, 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 usually inform the in-person activities that we do in Tuesday classes. The recordings go into the material in much greater

depth than do the PowerPoint slides; to perform well in this course, it is necessary to attend to the recordings.

Course Evaluation – Overview

1. Test 1 – 20%, Feb 1
2. Test 2 – 35%, Mar 29
3. Preregistration – 5%, Mar 8th
4. Problem-based learning – 5%
5. Report – 35%, due April 12

Course Evaluation – Details

1. Test 1 (20%), February 1st, 9:30am-11:30am, online

Test 1 will consist of multiple-choice questions only. 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. If Test 1 is missed, **Test 2 will be reweighted to 55% of your final mark.** There is no make-up test for missing Test 1. It will take place as a Quiz on Avenue to Learn.

2. Test 2 (35%), March 29th, 9:30am-11:30am, online

Test 2 will be similar in format to Test 1 (i.e., multiple-choice questions only). It is non-cumulative 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 not be included in Test 2. As Test 2 is worth 35%, is not eligible for an online MSAF. If Test 2 is missed, please visit your respective Faculty office with appropriate documentation for the Faculty to review. If Faculty approval is obtained, **your report will be reweighted to 70% of your final mark.** There is no make-up test for missing Test 2. It will take place as a Quiz on Avenue to Learn.

3. Preregistration (5%), March 8th, 11:59pm

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 (5%)

There will be 10 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%). If you correctly complete more than 5, you can receive **2 bonus marks** for correctly completing all 10 exercises (5% for doing 5 correctly + 2% for doing another 5 correctly), or **1 bonus mark** for correctly completing 6-9 exercises (5% for doing 5 correctly + 1% for doing another 1-4 correctly). We will be doing these exercises in Tuesday classes; you should be able to submit them by the end of class. If you do not

attend class on Tuesday, you can still submit the exercises for full marks. The exercises will be released during Tuesday's class and must be submitted by 9:30am on Thursday at the latest. They will be graded on a pass-fail basis; if you fail, you can redo the exercise for a pass or you can correctly do any five of the other exercises throughout the term for full marks.

4. Report (35%), due April 12th by 11:59pm

As a class, we will conduct a study that examines university students' 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. For example, in 2021, one of the class's research questions was, "What is the quality of university students' close relationships during the Covid-19 pandemic and how has it changed since lockdowns were initiated in March 2020?" *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 three short scales that will yield quantitative data, and three 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).

Predictor variables. As a group, we will include several predictor variables in our survey, such as stress, personality traits, gender role conformity, perceived discrimination, relationship quality, or social media use. We will vote as a class on the three predictors we will include in the final survey.

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

Outcome/dependent variables. 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. **At minimum**, 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. You are welcome to analyze more than one predictor, demographic variable, or outcome variable, but please be mindful of

staying within the word limit of this report (2700 words). In past years, the majority of students analyzed one predictor, one demographic variable, and one outcome variable, but a few students chose to analyze two predictors, one demographic variable, and one outcome variable, OR one predictor, one demographic variable, and two outcome variables. You will not necessarily receive a higher mark if you choose to analyze more variables than the recommended one predictor, one demographic variable, and one outcome variable, though sometimes it can make for an interesting report. 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. 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 three 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. 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 three open-ended questions in our survey. These questions should complement the quantitative scales so that they address experiences of stress, gender role conformity, perceived discrimination, relationship quality, social media use, etc. We will vote as a class on the three 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 one of the three 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 one of the three 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 (**2700 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.

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.

Weekly Course Schedule and Required Readings

Week 1 (Jan 11) Introduction to research methods: Identifying a research topic/question; theoretical frameworks and their links with various methods; conducting literature searches and reviews.

Readings: Chapter 2 of online textbook

Note: All lectures this week will be prerecorded and posted on Avenue.

Week 2 (Jan 18) Qualitative research design; research ethics.

Readings: Chapter 7 of online textbook (section on Qualitative Research only). Chapter 3 of online textbook (research ethics)

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

Week 3 (Jan 25) Qualitative analysis: grounded theory, thematic analysis; Review for Test 1.

Readings:

- Chapter 7 of online textbook (section on Qualitative Research only).

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

Week 4 (Feb 1) Test 1; Quantitative research design - Experimental methods, Part 1

Readings: Chapter 6 of online textbook (for Thursday's lecture; this material will not be included in Test 1)

Notes: **Test 1** will be held on **Tuesday, February 1st from 9:30am-11:30am.** The lecture on quantitative research design will be posted on February 3rd, so you will **not** be tested on this material in Test 1, only in Test 2.

Week 5 (Feb 8) Experimental methods, Part 2; survey methods

Readings: Chapters 7 & 9 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/

Week 6 (Feb 15) Quantitative research design: Operationalizing variables, developing hypotheses, sampling, measurement, selecting scales, reliability and validity

Readings: Chapter 5 of online textbook.

Notes: **Submit 3 scales by Feb 17 for a 1% bonus mark.** Start class vote on **Feb 18** on scales to include in our survey; end class vote by **Feb 25** and decide on scales.

Week 7 (Feb 22) Reading Week

No readings

Week 8 (Mar 1) Replicability and openness in social science research

Readings:

- 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 8) Quantitative data analysis: Jamovi statistical software – descriptive statistics, *t*-tests, correlations. Preregistration due.

Readings: Chapters 12 & 13 of online textbook.

Notes: Study preregistration through AsPredicted due on **March 8th by 11:59pm**.

I will create the online survey for the class research project and send you the link; use this link to start collecting data Mar 10.

Week 10 (Mar 15) Quantitative data analysis: Jamovi statistical software – ANOVA, linear regression, logistic regression.

Readings: Chapters 12 & 13 of online textbook.

Notes: data collection finished by Mar 17; I will post the data on Avenue. Set up your Jamovi data file and start analyzing the data.

Week 11 (Mar 22) Writing a research report; analyze your data; review for Test 2.

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.

Week 12 (Mar 29): Test 2; Jamovi – testing interaction terms

No readings this week

Notes: Test 2 will take place on **Tuesday, March 29 from 9:30am-11:30am.** The material on writing a research report in Week 11 will not be included in Test 2. I will post a recording on Thursday, March 31st that describes how to test interaction terms in Jamovi (this is optional for your report!).

Week 13 (Apr 5): 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 on Tuesday to help you with any aspect of your report.

Week 14 (Apr 12) Report due April 12th by 11:59pm

Notes: No lectures this week

Course Policies

Submission of Assignments

Please submit an electronic copy of your preregistration and report 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**), 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+
85-90	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.

Absences, Missed Work, Illness

In the event of an absence for medical or other reasons, students should review and follow the Academic Regulation in the Undergraduate Calendar "Requests for Relief for Missed Academic Term Work".

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. A2L, 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.

Courses with an On-line Element

Some courses may use on-line elements (e.g. e-mail, Avenue to Learn (A2L), 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

McMaster Student Absence Form (MSAF): In the event of an absence for medical or other reasons, students should review and follow the Academic Regulation in the Undergraduate Calendar “Requests for Relief for Missed Academic Term Work”.

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, A2L 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.