Department of Family Medicine
UNIVERSITY OF COLORADO **ANSCHUTZ MEDICAL CAMPUS**

Conducting Survey Research: A Guide for MSA Students

Department of Family Medicine (DFM)

*This version is for MSA students working with a DFM mentor. If you are looking for the non-DFM version please download it here

About DFM

DFM is a large department and research topics span a variety of areas. You can browse DFM's website here. If you would like to find specific research being done in our department, you can check out the department's Colorado Profiles page here (linked page lists all faculty in DFM, if you'd like to search for DFM researchers conducting research on a specific topic, go to "Find People" on the left, add your keywords, and select SOM-FM General Operations under Department).

Resources

MSA

There are a number of student resources for the MSA here

Health Sciences Library (HSL)

The HSL has classes that can help you build skills necessary for conducting your project. Pertinent courses include Zooming PubMed Essentials, Searching for the Evidence, and Navigating the Library & Downloading Articles: A Zoom Online Class. See schedule of classes here.

You can also request a consultation here

DFM

Carlee Kreisel (she/her) is a Research Services Specialist in DFM who has helped develop this curriculum and can answer questions you have or connect you with additional resources.

Organization of this document

Part I outlines the survey research process with points for consideration. There are four brief exercises for you to complete to keep you on track and provide you with concrete items to work off of.

Part II contains 135 minutes worth of selected videos from Coursera to provide a foundation for multiple research topics.

Part I. Survey research process

1. Organization and documentation (more on this in videos in part II)
    1.1. Set up a place where you will save and organize your articles, measures, data notes, etc. If you are working with others, consider using a collaborative, online platform such as Egnyte, OneDrive, or Microsoft Teams. Your mentor may have a specific preference for file storage so check with them.
2. Familiarize yourself with the research topic (population, condition, community, environment, etc.)
    - Ask mentor to share all relevant articles, documents (e.g., protocol), or resources they have with you
    - Regulatory. Discuss with mentor if trainings are needed, if your survey requires an amendment, if you need to consent people etc.

Exercise 1 - list some information about your topic:

_____

_____

3. Conduct literature review (this will likely be done more than once as you are working to refine your research question)
    - Step-by-step guide to conducting a literature review
    - Stay organized as you are reviewing the literature (take notes on articles, use a synthesis matrix, etc.)
    - See resources section above for additional help through the HSL

Exercise 2 - Write out your initial research question/what you think you will look into:

_____

_____

4. Refine your research question
    - Focus on what is feasible, measurable, answerable (it is okay if you have a bigger question, start with something digestible - set yourself up for success)
    - Guidance on formulating a research question
        - Developing a Research Question (3 min video)
        - Formulation of Research Question – Stepwise Approach (article)
        - A Practical Guide to Writing Quantitative and Qualitative Research Questions and Hypotheses in Scholarly Articles (article)
    - Are you looking for a difference or relationship? What are you trying to answer? Why is this question important? What is the potential impact? What gap are you filling? What would be a follow up study if your hypothesis is true?

4.1. Go back to the literature once you start to hone in on your research question to further refine it

Exercise 3 - Write out your refined research question:
_____
_____

5. Survey design and content
   - See Questionnaire Design Tip Sheet

   5.1. Readability, length of, and time to complete survey
      - Consider your survey audience's reading level, ability to stay engaged with and time available to complete surveys of varying lengths (e.g., a busy working professional vs a retired individual). While there is no perfect survey length, you must consider the tradeoffs between survey length, amount of data collected, and accuracy of responses received. In general, the longer your survey, the higher the dropout rate will be and/or the less accurate the responses you receive will be.
      - Though not always possible given budget and resource constraints, try to offer the survey in the respondent's preferred language
      - Account for time to complete individual questions rather than just number of questions. For example, if you are asking a respondent to report all their medications, this would take more time than asking them a simple yes or no question
      - Incentives can be a great way to encourage survey participation and completion. In general, it is better to provide an incentive to each respondent rather than offer a raffle where participants have a chance to win. Consider what amount of money would be fair/enticing depending on the population you are recruiting (e.g., a $15 incentive is different to a college student compared to a surgeon).

   5.2. Accessibility
      - Consider any limitations your population has that may make completing or accessing your survey more difficult or impossible (e.g., visual impairments, unfamiliar with technology, no access to the internet, clogged email inbox)
      - Solutions will differ based on the specific limitation but paper surveys are one solution for those with technologic limitations or even for busy working professionals (e.g., you may propose to show up in person to a meeting and provide them all paper surveys to fill out)
      - Online surveys can be made more accessible using features provided by the software (see here for Qualtrics)

5.3. Population (more on this in videos in part II). Do you have access to the population? Is it the appropriate population to answer the question you are trying to answer?

5.4. Variables (more on this in videos in part II). Ideal time to meet with stats person

5.5. Measurement (more on this in videos in part II)

- Consider using validated measures if available. Validated measures are surveys and screening questionnaires that have been tested to ensure production of reliable, accurate results. A list can be found here and more guidance on finding validated measures here

5.6. Likert Scales

- CDC slides on using Likert Scales here
- Likert-Type Scale Response Anchors

5.7. Avoid common mistakes:

- Ask one specific question per survey item (i.e., no double-barreled questions)
- Don't ask leading questions
- Don't ask questions with double negatives
- Response options should be mutually exclusive
- Response options should be exhaustive
- Make sure the question gets at what you are trying to get at (valid)

5.8. Closed vs open-ended questions. Consider:

- Level of detail needed and ability (or not) of closed-ended questions to capture that level of detail
- Time constraints: open-ended questions will usually provide more accurate/detailed data but do so at the expense of the survey taker's time. Respondents are also more likely to skip these types of questions. Be mindful of the balance you are hoping to achieve
- Capacity for analysis: open-ended questions will usually provide more accurate data but analyzing this data takes more time and may be beyond the analyst's capacity

5.9. Sampling/recruitment (more on this in videos in part II)

5.10. Statistical Analysis Plan - This is an ideal time to meet with a statistician or analyst to develop a statistical analytic plan. Discuss research question/s, variables, intended samples, and the appropriate statistical analyses

Exercise 4 - *See this page on good and bad survey questions and complete the exercise (pgs 2-3)*

5.11. Demographics. Don't collect demographic data just because it is the norm. Be very intentional about why you are collecting it. Remember that there are individual stories behind group and population data. Understand why you are collecting your information, and determine your purpose for doing so. Who will

be better off as a result of your efforts? Why do you want to collect this information? Is the demographic/identity data what you want to know or is it a proxy for something else? Are you trying to understand a type of *person* or a type of *lived experience*?[1] Reach out to informed partners if you don't have the answers to any of these questions.

- Use inclusive and appropriate language. Understand how groups and communities prefer to describe themselves. Language evolves, so don't assume that common usage is still acceptable. Check out these resources:
  - NCWIT Guide to Demographic Survey Questions
  - NAMI: Core Demographic Questions Explained
  - UCLA Williams Institute
  - Harvard ORARC Inclusive Demographic Data Collection

6. Draft survey in Word/something similar (don't put it in software yet)
   6.1. Solicit input and feedback from colleagues and peers. Does it seem like an appropriate length? Is it asking what you intend it to? Are questions clear?
   6.2. Refine and repeat
7. Select survey software, learn how to use
   - Qualtrics – more user friendly
     - Learn to Use Qualtrics for Research
     - *You must be signed in to access the trainings – be sure to sign in using the SSO option and enter "ucdenver" as the organization ID*
   - REDCap – if you plan to do more research in the future, would be a good use of time to get trained and get access. Recommended for longitudinal projects
     - Full CU Anschutz REDCap Information Page
     - Full Account Registration and Tutorial (must complete registration and tutorial to gain access to full account)
   - Qualtrics vs REDCap. If you need more help deciding which to use, see this
8. Survey design
   8.1. Intro page – why survey is being done, what they can expect
   8.2. Look and feel – section headers, font, color, logo, format
   8.3. Be aware of fatigue, how to design to minimize fatigue
   - Use skip logic
   - Keep free text questions limited
   - Only keep questions that are important and provide unique information. Ask yourself, what data would I be missing if I didn't include this question? Is that data important to my research question?
   - Progress bar/let people know how long it will be
   - Put demographic questions last
9. Survey variable naming conventions
   - Keep consistent, no spaces in variable names, keep lower case

[1] https://community.weallcount.com/t/resources-for-developing-inclusive-demographic-survey-questions/486/11

- Strive to eventually adopt a column names as contracts approach

10. Survey testing
    - Test your online survey thoroughly and send it to others to test. Make sure to check all variations of branching logic. If you make a change to your survey, be sure to test it again. Do not rush through this step or take any shortcuts
11. Send out live survey
    - Keep track of your N so you can calculate your response rate. Sometimes participants will ask to be removed so remember to subtract this from your initial N
    - Schedule reminders if applicable
    - Keep an eye on your data as it is coming in for any strange patterns that may have to do with an error in the survey
12. Analysis (more on this in videos in part II)
    - Reach out to the analyst/statistician when your survey is ready for analysis.
    - Learn about p-hacking here (recommended sections: P-Hacking Definition, Variable Manipulation", Excessive Hypothesis Testing, Best Practices to Avoid P-hacking)

Part II. Coursera Videos

To provide a foundation for survey research, we have handpicked videos on Coursera from two different courses that fall within the Methods and Statistics in Social Sciences Specialization. To save you time, and because we assume most student do not have a Pro version of Coursera, we suggest that students audit courses instead of enroll. Auditing a course is free and gives you access most of the course materials but you won't be able to submit certain assignments or get grades for your work. You won't get a Course Certificate, but you can pay for one at any time during or after the course.

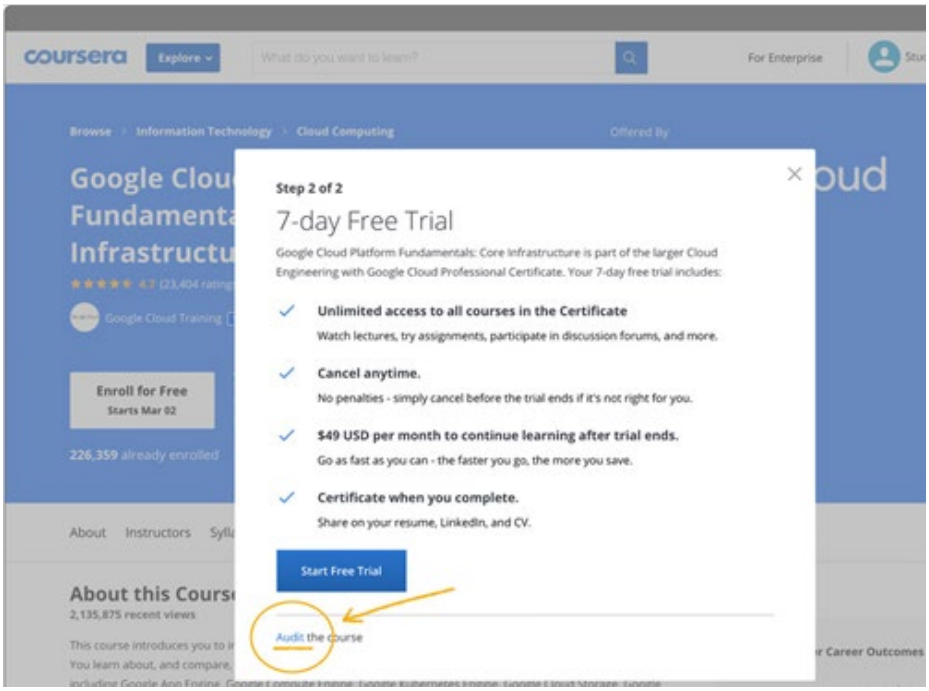
As we expect MSA students will differ in terms of their familiarity and proficiency with research concepts, you may find that the curated list of videos is either insufficient in providing you a foundation or that it is unnecessary given your previous experience or education. If you find yourself in the former category, we encourage you to explore the other videos and materials in the courses, or those of related course (e.g., Basic Statistics). If you still need support, would like supplemental resources/readings, or are struggling with the content of a specific area, please email Carlee.Kreisel@cuanschutz.edu.

To log in to Coursera:

1. Log on to your student portal.
2. Select Training, in the lower right navigation.
3. Select either the CU on Coursera or Coursera Partner Consortium tile.

To audit a course:

To audit a course click “enroll for free” and then you’ll see this pop-up and scroll down to “audit this course”



Audit the following courses:

Quantitative Methods, University of Amsterdam

Inferential Statistics, University of Amsterdam

Quantitative Methods (92 min)

Scientific Method (33 min)

- ❑ Criteria for evaluation (5 min)
- ❑ Internal Validity Threats: Participants (4 min)
- ❑ Internal Validity Threats: Instruments (5 min)
- ❑ Internal Validity Threats: Artificiality (5 min)
- ❑ Internal Validity Threats: Research setup (5 min)
- ❑ Variables of Interest (4 min)
- ❑ Variables of Disinterest (5 min)

Research Designs (4 min)

- ❑ Correlational Designs (4 min)

If your project is not correlational, you may want to review other videos in Week 3

Measurement (39 min)

- ❑ Operationalization (3 min)
- ❑ Measurement Structure (4 min)
- ❑ Measurement levels (5 min)
- ❑ Variable types (4 min)

- ❑ Measurement Validity (5 min)
- ❑ Measurement reliability (5 min)
- ❑ Survey, questionnaire, test (4 min)
- ❑ Scales and Response Options (5 min)
- ❑ Response and Rater Bias (4 min)

Sampling (5 min)

- ❑ Sampling Concepts (5 min)

Depending on your sampling plan, you may want to review other videos in Week 5

Practice, Ethics, & Integrity (11 min)

- ❑ Documentation (6 min)
- ❑ Data Management (5 min)

Inferential Statistics (43 min)

We expect that most of you will be working with a statistician and the statistics videos below have been included to support your understanding of basic statistics while you are working with a statistician.

- ❑ Null hypothesis testing (6 min)
- ❑ P-values (5 min)
- ❑ Confidence intervals and two-sided tests (4 min)
- ❑ Power (6 min)
- ❑ Two independent proportions (6 min)
- ❑ Two independent means (6 min)
- ❑ Two dependent proportions (5 min)
- ❑ Two dependent means (5 min)