

<p><b>Spring 2023</b>  <b>Course Number: GS11 1142</b>  <b>Approaches to Research I</b>  Credit Hours: <u>  2  </u>  Meeting Location: MSB B.625</p>	Program Required Course: <u>  X  </u> Yes <u>      </u> No Approval Code <u>  X  </u> Yes <u>      </u> No Audit Permitted: <u>      </u> Yes <u>  X  </u> No Classes Begin: January 12, 2023 Classes End: May 4, 2023 Final Exam Week: May 1, 2023
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<p><b>Class Meeting Schedule:</b></p> <table border="1"> <thead> <tr> <th>Day</th> <th>Time</th> </tr> </thead> <tbody> <tr> <td>Thursdays</td> <td>2-4 pm</td> </tr> </tbody> </table>		Day	Time	Thursdays	2-4 pm
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<p><b>Course Director:</b>  Meagan Choates, MS, CGC  Clinical Instructor, Department of Ob/GYN and Reproductive Sciences  UTHealth  Email Address: Meagan.giles@uth.tmc.edu  Contact Number: 713-486-2296</p> <p><b>Course Co-Director:</b>  Dr. Syed S. Hashmi, MD, MPH, PhD  Associate Professor, Department of Pediatrics  UTHealth  Email Address: Syed.S.Hasmi.1@uth.tmc.edu  Contact Number: 713-500-5709</p> <p><b>NOTE:</b> Office hours are available on request. Please email me to arrange a time to meet.</p>	<p><b>Instructor/s:</b>  <b>Meagan Choates, MS, CGC</b>  <b>Dr. Hashmi, MD, MPH, PhD</b>  <b>Dr. Susan Peterson</b></p>
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<p><b><u>Course description:</u></b>  This course is first part of a two-part course that is offered to second year genetic counseling students in the GSBS Genetic Counseling Program. This course will focus on laying a foundation of basic epidemiological concepts as well as a strong foundation of basic research methodology.</p>
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**Textbook/Supplemental Reading Materials:**

- MacFarlane et al., Genetic Counseling Research: A Practical Guide, 1<sup>st</sup> Ed. 2014
- Fletcher and Fletcher, Clinical epidemiology – The Essentials, 4<sup>th</sup> Ed. 2005
- Hulley et al., Designing Clinical Research, 3<sup>rd</sup> Ed. 2006

**Course Objective/s:**

Upon successful completion of this course, students will have an understanding of basic epidemiological concepts and a strong foundation of basic research methodology.

***Specific Learning Objectives:***

1. To become familiar with basic concepts of literature review and hypothesis building
2. To differentiate between various study designs with a focus on pros and cons of each
3. To understand basic concepts of probabilities, probability testing and hypothesis driven testing
4. To understand epidemiological concepts of causation, confounding, bias and interaction
5. To understand qualitative research including best practices and theory being survey/questionnaire design and implementation

**Student responsibilities and expectations:**

Students enrolled in this course will be expected to perform the following activities:

1. Complete assignments
2. Prepare for and take course quizzes based on course lectures/ readings.
3. Participate in and contribute to course discussions during lecture, workshops, and review sessions.

While you may work and discuss all course materials and assignments in groups, all writing assignments must be your own. Plagiarism and failure to properly cite scientific literature and other sources will not be tolerated and are grounds for dismissal from the course and further GSBS disciplinary action. Cheating or engaging in unethical behavior during examinations (quizzes and final) will be grounds for dismissal from the course without credit and further GSBS disciplinary action.

Attendance and tardy policies are in accordance with UTGCP rules and can be found in the student handbook.

**NOTE to STUDENTS:** If you need any accommodations related to attending/enrolling in this course, please contact one of the Graduate School's 504 Coordinators, Cheryl Spitzenberger or Natalie Sirisaengtaksin. We ask that you notify GSBS in advance (preferably at least 3 days before the start of the semester) so we can make appropriate arrangements.

<b>Grading System:</b> Letter Grade (A-F) A – 90-100% B – 80-89% C – 65-79% F – <65%	
<b>Student Assessment and Grading Criteria:</b>	
Assignments (30%)	The goal of the assignments are to prepare your thesis proposal in piecemeal from. All assignments are to be presented in class on the date specified for each assignment. Written submissions need to be 1.5 line spaced and of an adequate font type and size. The assignments will be discussed in class as a group and all students will be welcome to provide input on the other students' work. The aim is to learn concepts not just from your own thesis project design but also from the other ones. These will be graded for completion for the purpose of this course; finalization and feedback should be obtained by the Thesis Advisor.
Quiz (20%)	There will be three quizzes throughout the semester. The aim of these quizzes will be to assess the understanding of the material as the class progresses. The final quiz will consist of students attending at least 5/10 thesis defenses and completing a Google Form about their reflections.
Midterm Exam (25%)	Each test will include multiple choice, multiple answer, and true/false questions evaluating the understanding of concepts in epidemiology and statistics. Tests will not require the use of Stata or any other statistical software. However, simple questions requiring some mathematical formulae may be present. These questions will not require anything more than a simple calculator.
Final Exam (25%)	

#### ASSIGNMENT DESCRIPTIONS

- **Citi Training**

Complete Citi Training; directions available in 1<sup>st</sup> Year Forms folder: Supervisors and Students > Thesis > Forms and Documents > 1<sup>st</sup> Year Forms > Citi Training. Select and complete the following courses: Human Subjects Research (HSR), Data Acquisition and Management, Responsible Authorship and Publication. Upload a copy of your certificates to Typhon (merged pdf file). CITI training Certificate of Completion is automatically forwarded to CPHS office when you pass the quiz.

- **Research Question and Aims**

A single research question should be formulated. If applicable, a testable null hypothesis should be stated that would lead to an "answer" for the research question. An alternative hypothesis (which would be proven correct if the null hypothesis is found invalid) should also be stated.

Study aims should be formulated (no more than 3) that will be used to answer your research question or test your hypothesis. Aims are concrete actionable items that are broad statements of what is expected from the study and emphasize what is to be accomplished. They should be presented briefly and concisely and should be congruent with your research question and your study methodologies.

- **Study Design**

Include your study design, target population, study population, how and when will data be collected (in person, over the phone, medical records, etc.) and study timeline. Also present information on specific data points you are interested in, possible sources of bias and confounding (and any steps taken to minimize those). Type this as if you were writing a Methods section of a manuscript.

- **Questionnaire and abstraction tools**

Create an Excel document or Redcap/Qualtrics survey that shows an actual questionnaire or data abstraction tool. The length of the document is dependent on how many data points / variables you are planning on collecting/abstracting. If your tool is a survey or questionnaire, the document should include the proper instructions with each question (e.g. "Select only one option" or "pick all that apply," etc.).

- **Electronic Presentation for Research Advisory Board**

Students will create a presentation for approval of their final thesis project from the UT Research Advisory Board. A pre-recorded presentation will be submitted for review and comments by the Research Advisory Board, if needed students will provide further clarification prior to approval by the program. Additional details will be provided regarding this assignment later in the semester.

#### CLASS SCHEDULE

Day/Date	Duration (Hr)	Lecture Topic	Assignment	Lecturer/s
1/12	2	Course Overview, Thesis Manual Review, Discussion of Expectations		Meagan Choates
1/19	2	Performing a Lit Review, Writing Aims		Meagan Choates
1/26	2	Defining Data, Probabilities, Sensitivities, Specificities	Citi Training Due 1/31 RQ & Aims Due	Meagan Choates
2/2	2	Study Design I	Quiz 1: In Class	Dr. Hashmi
2/9	2	Study Design II/Sample Size		Dr. Hashmi
2/16	2	Qualitative Research	Study Design Due	Dr. Peterson
2/23	2	Confounding/Effect Modification	Quiz 2: In Class	Dr. Hashmi
3/2	2	WORKSHOP: Electronic Proposals		Meagan Choates
3/9	2	<b>Midterm Exam</b>		
3/16	2	<b>Spring Break</b>		
3/23	2	Survey/Questionnaire Development		Meagan Choates
3/30	2	WOKSHOP: Survey Development	Survey Draft I Due	Meagan Choates

4/6	2	WORKSHOP: Survey Development II	Quiz 3: In Class Electronic Proposal Due (4/7)	Meagan Choates
4/13	2	WORKSHOP: Iris and IRB tutorial	Survey Draft II Due	Meagan Choates
4/20	2	Office Hours: Troubleshooting Thesis, Q&A		Meagan Choates
4/27	2	Final Review/Thesis Updates		Meagan Choates
5/4	2	<b>Final Exam</b>		