DEPARTMENT: Environmental Health

COURSE NUMBER: EH 596  SECTION NUMBER: 000

CREDIT HOURS: 1  SEMESTER: Fall

COURSE TITLE: Research Design in Environmental Health

CLASS HOURS AND LOCATION: Tues 1-2:50p through 10/23, GCR P53

INSTRUCTOR NAME: Paige Tolbert

INSTRUCTOR CONTACT INFORMATION

EMAIL: ptolber@emory.edu

PHONE: 404-727-3801

SCHOOL ADDRESS OR MAILBOX LOCATION: Office – CNR 2011
Mailbox – CNR 2nd fl mailroom

OFFICE HOURS: Immediately after class, or by appointment

Teaching Assistant(s): NA

COURSE DESCRIPTION
Introduces basic concepts underpinning the conduct of research in environmental health. The course takes place during the first half of the fall semester (second year, for most students). Students will have opportunities to identify and/or refine potential integrative learning experience project topics. Students will also review: criteria for selection of a project topic, objectivity in science, research design issues, and use of the literature. Students will complete a brief plan for the steps in the development of their potential projects. Students will then have opportunities to develop and apply their analytical and writing skills in the development of their integrative learning experience project proposal. Students will refine their research questions and/or project objectives, formulate plans for data management and analysis, and prepare and present their project proposal to departmental faculty for review, comment and approval.

MPH/MSPH FOUNDATIONAL COMPETENCIES
MPH students complete an integrative learning experience (ILE) that demonstrates synthesis of foundational and concentration competencies. This course shepherds students through ILE project proposal submission, a major step toward completion of integrative learning project.
CONCENTRATION COMPETENCIES
EH and GEH competency for this course: Design environmental health programs, policies, interventions and/or research intended to improve the health of individuals, communities, and populations

COURSE LEARNING OBJECTIVES
1. Teach students the basic concepts involved in developing and pursuing a project in the field of environmental health
2. Provide opportunities for students to identify potential project topics and evaluate their feasibility
3. Guide students in choosing between thesis and capstone integrative learning experience options
4. Provide opportunities for students to plan, develop, and write sections of their integrative learning experience project proposal
5. Provide opportunities for students to receive peer and faculty feedback on their project ideas

EVALUATION
This course is graded on S/U grading basis. Throughout the course, students will be required to turn in assignments that will move them toward presentation of their project proposals in late October/early November. Students will receive qualitative comments throughout the course.

COURSE STRUCTURE
The course is built around a series of lectures that cover important aspects of research design in environmental health, from problem formulation to planning execution of appropriate design. The class is intended to be useful at two levels: 1) for lifelong engagement in rigorous research and project implementation, as well as 2) specific application to development of plan for integrative learning experience. There are multiple assignments, leading up to proposal submission and presentation in late October and early November. All of the assignments are geared toward proposal write-up and presentation with many of them being parts of either the written proposal or oral presentation. The timing of the assignments and the in-class presentations is designed to keep students on track and moving toward the formal presentation of proposals to the faculty. Class meets Tuesdays 1-2:50p, in GCR P53, unless otherwise noted.

COURSE POLICIES
Students are expected to attend all classes and notify the instructor ahead of time if they expect to miss a class (unless it’s an emergency.) Students are expected to post each assignment by the stated deadline, even if it’s just a note to indicate status of progress on the assignment. There is no text book for the course.

As the instructor of this course I seek to provide an inclusive learning environment. However, if you experience barriers to learning in this course, do not hesitate to discuss them with me and the Office for Equity and Inclusion, 404-727-9877.

RSPh POLICIES

Accessibility and Accommodations
Accessibility Services works with students who have disabilities to provide reasonable accommodations. In order to receive consideration for reasonable accommodations, you must contact the Office of Accessibility Services (OAS). It is the responsibility of the student to register with OAS. Please note that accommodations are not retroactive and that disability accommodations are not provided until an accommodation letter has been processed.

Course: EH 596
Students who registered with OAS and have a letter outlining their academic accommodations are strongly encouraged to coordinate a meeting time with me to discuss a protocol to implement the accommodations as needed throughout the semester. This meeting should occur as early in the semester as possible.

Contact Accessibility Services for more information at (404) 727-9877 or accessibility@emory.edu. Additional information is available at the OAS website at http://equityandinclusion.emory.edu/access/students/index.html

**Honor Code**

You are bound by Emory University’s Student Honor and Conduct Code. RSPH requires that all material submitted by a student fulfilling his or her academic course of study must be the original work of the student. Violations of academic honor include any action by a student indicating dishonesty or a lack of integrity in academic ethics. *Academic dishonesty refers to cheating, plagiarizing, assisting other students without authorization, lying, tampering, or stealing in performing any academic work, and will not be tolerated under any circumstances.*

The RSPH Honor Code states: “Plagiarism is the act of presenting as one’s own work the expression, words, or ideas of another person whether published or unpublished (including the work of another student). A writer’s work should be regarded as his/her own property.”

([http://www.sph.emory.edu/cms/current_students/enrollment_services/honor_code.html](http://www.sph.emory.edu/cms/current_students/enrollment_services/honor_code.html))

**COURSE CALENDAR**

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<td>Course Introduction and Overview of Research Design</td>
<td>Paige Tolbert</td>
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<td>Thesis vs. Capstone Considerations</td>
<td>Stefanie Sarnat</td>
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<td>September 11, 2018</td>
<td>Using Qualitative Approaches</td>
<td>Bethany Caruso</td>
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<td>Planning Sample Size and Study Power</td>
<td>Katie Gass</td>
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<td>September 18, 2018</td>
<td>Objectivity in Science</td>
<td>Jeremy Sarnat</td>
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<td>Proposal Development Check-In</td>
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<td>September 25, 2018</td>
<td>Designing Research to Achieve Objectives</td>
<td>Mitch Klein</td>
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<td>Proposal Development Check-In</td>
<td>Paige Tolbert</td>
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<td>October 2, 2018</td>
<td>Choosing Appropriate Statistical Methods</td>
<td>Kyle Steenland</td>
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<td>Proposal Development Check-In</td>
<td>Paige Tolbert</td>
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<td>October 9, 2018</td>
<td>No Class (Fall Break)</td>
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<td>October 16, 2018</td>
<td>Peer Review of Proposal Drafts</td>
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<td>Peer Review of Practice Presentations</td>
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<td>Class Wrap-up</td>
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<td><strong>October 26, November 1, and November 2, 2018</strong></td>
<td>Proposal Presentations</td>
<td>ALL</td>
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COURSE OUTLINE

Detailed Schedule and Assignments:

- September 4, 2018: Course Introduction/Overview (Tolbert) and Thesis vs. Capstone Considerations (S Sarnat)
  - Course goals, objectives, assignments
  - Overview of research design in project development
  - Considerations in deciding between thesis vs. capstone

Assignment 1 (post item #1 below on class Canvas by 5p Friday, September 7, 2018):
(1) Prepare a brief summary of the progress you have made to date on identifying an integrative learning experience project.
   a. Your current thoughts on whether you will pursue a thesis or a capstone
   b. Who is your thesis advisor or capstone mentor (if already identified)? Who is your faculty advisor (regardless of whether thesis advisor/capstone mentor is identified)
   c. If you have already chosen a topic, provide a brief introduction to the topic, its relevance to environmental health, and a research design strategy or management process that could be used for this project.
      OR
   If you are still searching for a topic, list several areas of interest and strategies for finding and pursuing projects in these areas. And how will you find a mentor?
   d. Include in your write-up your current career goals upon completion of your degree
   e. Prepare a timeline with action items that will lead up to submission of your proposal (latest by October 19, 2018, for May 2019 graduation) and milestones to complete your project by April 2019. Overarching categories to consider include departmental and school-wide deadlines, IRB submission, literature search/review, research design, data collection, data processing, data analysis, writing, first complete draft, etc.
(2) If you have not already done so, complete the CITI human subjects certification by September 18, 2018 (an EH Departmental requirement for all students). As part of Assignment 3, you will upload your certification to the EH Canvas site by September 18, 2018; Ariadne will provide me a status summary.
(3) Schedule a meeting with your thesis advisor or capstone mentor if you have one, or your faculty advisor asap, unless you have met with them in the past two months. As part of Assignment 3, summary of meeting due September 18, 2018.

Assignment 2 (to be completed prior to class September 11, 2018):
(1) Read the EH Culminating Experience Guide (available on the EH Canvas site under “Thesis/Capstone”).
(2) Samples of previous theses and capstones are posted on the EH Canvas. Peruse these to get an idea of thesis/capstone scope and expectations.

- September 11, 2018: Qualitative Approaches (Caruso) and Sample Size and Power (Gass)
  - Presentation on qualitative methods and analysis
  - Approaches to planning study size and considering study power.
Assignment 3 (post items 1 and 2 below on class Canvas before class Tuesday, September 18, 2018):
(1) Following up on Assignment 1, sometime in the first two weeks of class, meet with your thesis advisor or capstone mentor if you have one, or your faculty advisor, unless you have met with them in the past two months, to discuss your progress on identifying a project and any relevant issues, including research design and IRB considerations. Create brief notes and action items stemming from your meeting and post on class Canvas.
(2) Searching, documenting, and organizing the literature:
   a. Read “Environmental Health: Locating the literature” pdf file on class Canvas.
   b. Use an online database to search for literature on your project topic (or interest area, if project not yet identified).
   c. Conduct several searches to find at least 10 articles relevant to your project topic (or relevant to your interests, if you have not yet identified a project). Download these references to EndNote. Insert them as citations into Word and create a bibliography.
   d. Document your search strategy by identifying the databases that you searched and the keywords/terms that you used.
   e. Post on Canvas.
(3) Read article by Weed and McKeown posted on class Canvas site, prior to class on September 18, 2018.
(4) Following up on Assignment 1, email CITI certification to Ariadne (ascarl@emory.edu) by September 18, 2018 – she will provide me status summary.

September 18, 2018: Objectivity in Science (J Sarnat) and Proposal Development Check-In (Tolbert)
- Discussion of objectivity in science
- Conferring re: status of proposal development

Assignment 4 (post on class Canvas by noon, Friday, September 21, 2017):
(1) Prepare a 1-page Word document that contains a brief (bullet point) outline of your project, with the following (as complete as possible):
   a. Your name
   b. Whether you are pursuing a capstone, a thesis, or are undecided
   c. Your capstone mentor/thesis advisor
   d. Project title
   e. Background
   f. Purpose of project (hypothesis, if applicable)
   g. Study design, methods
   h. Measurements and/or data (sources of data and key variables, such as main exposure of interest, if applicable)
   i. Analytic plan or strategy for managing your information
   j. NOTE: Keep each bullet short
   This document will be used in conjunction with Dr. Klein’s presentation on September 25, 2018, and should reflect your discussion with your capstone mentor or thesis advisor (if identified) or faculty advisor.

September 25, 2018: Designing Research to Achieve Objectives (Klein) and Proposal Development Check-In (Tolbert)
- Formulation of project objectives and hypotheses
Dr. Klein will choose from project outlines submitted by the class (Assignment 4) to discuss concrete examples of how to formulate objectives/hypotheses and assure study design achieves objectives.

Assignment 5 (post on class Canvas and email to assigned partner(s) by noon Monday, September 18, 2017):
(1) Prepare a 1-2 page draft project proposal (as complete as possible). Include the following information:
   a. Project title and advisor/mentor (if applicable)
   b. Background and significance
   c. Purpose of your project. Include your research hypothesis or study question (if applicable) and your specific aims.
   d. The design of your project and methodology to be used (e.g., data collection methods, and strategy for analyzing or managing the data or information)
   e. Provide 3+ citations as part of the justification for your topic
   f. Detailed timeline outlining the anticipated progression of your project. Include what steps of the project you have already accomplished, what steps are still required for completion of your project, and a proposed timeline.

- October 2, 2018: Choosing Appropriate Statistical Methods (Steenland) and Proposal Development Check-In (Tolbert)
  - Quantitative analysis approaches
    Dr. Steenland will discuss selection of appropriate statistical methods to be used in assessing your data. He will draw from materials turned in prior to class (Assignment 5) and from class discussion and questions.

- October 9, 2018: Fall Break – NO CLASS

Assignment 6 (post on class Canvas and email to partner(s) by 5p Friday, October 12, 2018):
(1) Revise and continue to flesh out your project proposal, incorporating comments and feedback received on your project to date. In the revised version, be sure to include details of the data management and/or statistical procedures you plan to use for your project. If your project is qualitative or informational, describe how you intend to organize and manage your information.

Assignment 7 (post on class Canvas and email to partner(s) by 5p Monday, October 15, 2018):
(1) Peer review: Files of draft proposals will be exchanged with assigned peer reviewers for peer review discussion session October 16, 2018. Prepare a brief review of your colleague’s draft project proposal - no more than one page. Your job is to be constructive and help your colleague. Make sure you are convinced that the topic is important and that the framework, project design and/or methods are appropriate and feasible.

- October 16, 2018: Peer Review of Proposal Drafts

Assignment 8 (post on class Canvas by 5p Friday, October 19, 2018):
(2) Revise and finalize your project proposal, incorporating comments and feedback from peer review. Obtain approval from thesis advisor or capstone mentor. In addition to posting final proposal on canvas for class, thesis/capstone proposals are due to Ariadne by 5p with scanned email approval from thesis advisor or capstone mentor (department requirement).
**Assignment 9** (post your draft powerpoint slides to class Canvas by 5p Monday, October 22, 2018, and bring to class on October 23, 2018, on laptop):

(1) Prepare a 5-minute PowerPoint presentation describing your proposal. Include the following information: Title slide including your name and advisors/mentors with affiliations, background and significance, purpose/research questions/hypotheses (if applicable)/specific aims, proposed methods including analysis plan. Have timeline as extra slide in case there are questions about timetable for completion.

- **October 23, 2018: FINAL CLASS Practice Presentations and Course Wrap-up / Evaluations**
  Bring your presentation and laptop to class. You will be assigned to a small group. Each person in the group will do a practice run-through of their presentation, and the group will provide feedback and suggestions. This is the last meeting of the class. After this, you will finalize your slides for your oral presentation of your proposal to the faculty, as described below.

**IMPORTANT REMAINING DEADLINES...**

- **October 25/October 31/November 1, 2018:** Final slides (e.g., powerpoint file) of your proposal presentation should be uploaded to the EH Canvas site by 5p the evening prior to your scheduled presentation

- **October 26, 2017, and November 1 and 2, 2018:** Final oral presentations of proposals to faculty
  The formal proposal presentation sessions will take place October 26, November 1 and November 2, 2017. Presentation slots within each session will be assigned and the schedule will be posted on Canvas. You are required to attend the entire session (morning or afternoon) in which you are scheduled to present. You will have uploaded your slides ahead of time (per above) so they can be loaded and ready to go. The session will be attended by EH faculty. Your talk must be no more than 5-minutes long, and you should be prepared for 3-5 minutes of questions. Be sure to practice your presentation several times to keep within the 5-minute timeframe.