HPM 424
Proposal Writing for Health Services Research
Spring Quarter 2019
4 units

Course Syllabus

Course Day/Time	Wednesdays 1pm-3:50pm
Course Location	A2-125 CHS (CPCR Conference Room)
Instructors	Roshan Bastani, PhD (and Barbara Berman, PhD)

Department of Health Policy and Management
Fielding School of Public Health
University of California, Los Angeles
Email: bastani@ucla.edu*
Office Hours: By appointment

*Note: Please CC Dr. Bastani's assistant, Michelle Guerra (michelleguerra@ucla.edu) on any e-mails to Dr. Bastani.

Course Objectives

The primary purpose of this course is to help students develop and enhance their skills in writing and critiquing research proposals. The course is designed to supplement technical skills taught in other HPM courses by explicitly focusing on how to craft research proposals in a compelling manner and to critically evaluate their strengths and weaknesses.

An important secondary objective is to provide an overview of various funding mechanisms and sources for health policy and services research, and to alert students to the significant variations in proposal requirements among funding mechanisms and sources. Although writing and critiquing activities in this course will focus primarily on the NIH or AHRQ investigator-initiated framework, students also will be exposed to other peer-reviewed funding sources such as the Centers for Disease Prevention and Control (CDC), Patient Centered Outcomes Research Institute (PCORI), and California mechanisms such as the California Tobacco Related Diseases Research Program (TRDRP), the California Breast Cancer Research Program (CBCRP), and the California HIV/AIDS Research Program (CHRP).

Specifically, students will:

- Learn the principles of conceptualizing and writing a competitive research proposal.
- Learn the basics of the peer-reviewed research review process – culture, structure, main considerations by reviewers, timetables, and outcomes – in different research environments (e.g., NIH, PCORI).
- Critically evaluate the strengths and weaknesses of at least *two* research proposals in a mock NIH study section (i.e., review) exercise in which students serve as reviewers.
- Develop a research proposal following NIH or AHRQ guidelines for a small grant (e.g., R03 or R21) or doctoral dissertation (e.g., R36).

- Receive a mock review of their research proposals in a NIH-style study section conducted by faculty.
- Orally present their research ideas and proposals.
- Learn how to both give and respond to critical feedback from peers and colleagues.

MS and PhD Program in Health Services Research Competencies

Competencies addressed in this course include:

- Conceptual knowledge: Apply or develop theoretical and conceptual models and skills relevant to health services research
- Relevant and Important HSR question development: Pose relevant and important research questions, evaluate them, and formulate solutions to health problems, practice, and policy
- Study designs: Describe the strengths and weaknesses of study designs to appropriately address specific health services research questions
- Research conduct management: Execute and document procedures that ensure the reproducibility of the science, the responsible use of resources, the ethical treatment of research subjects
- Communication: Effectively communicate the process, findings, and implications of health services research through multiple modalities (e.g., proposal development, writing skills)

Course Prerequisites

Graduate student standing. Completion of coursework in research design and methods (e.g., HPM 225A-B) is required. While not required, it is highly recommended that students enter the course with a research topic in mind. This is a doctoral level course. Masters students with adequate preparation and a research topic in mind are welcome to take the course. It is highly recommended that masters students contact Dr. Bastani before registering.

Course Requirements

Note: Assignments are described on the Sessions and dates when due. Please look ahead a week or two.

- Learning exercises
  - RePORT 10%
  - Student mock grant review 20%
- Class participation and Oral presentation
  - Vigorous class participation is expected 20%
  - Brief oral updates throughout the quarter, at various stages of proposal writing.
  - A ten-minute presentation of the final research proposal (with PowerPoint slides), focused on the Research Strategy: Significance, Innovation, Approach. Questions, suggestions and feedback from peers/colleagues are expected.
- Research proposal for a small grant 50%

  Students will write a proposal for an NIH/AHRQ small grant (e.g., R36, R03, R21) on any research topic of their choice. For the purpose of this assignment, it should be assumed that all NIH Institutes/Centers allow investigator-initiated small grant proposals.
  - Intermediate deadlines (See Session ***Assignment Due)***. These ***required*** submissions are due as noted on the description of Sessions, below. They are designed to provide

multiple opportunities for feedback and to ensure that students adhere to a schedule for timely proposal completion.
- Final research proposal due Wednesday, June 12, 2019 by 5:00pm, including:
  - Research Plan (Specific Aims, Research Strategy: Significance, Innovation, Approach, References)
  - Biosketch

Recommended Reading:
Note: Course handouts and other readings are accessible via CCLE.

Technical writing skills
- P. LaRocque (2003). The book on writing: The ultimate guide to writing well. Portland, Oregon. Marion Street Press.
- M. Zeiger (1999). Essentials of writing biomedical research papers, 2nd edition. New York. McGraw-Hill.

Proposal writing
Note: Although not all chapters will be relevant to early investigators, we highly recommend the Russell and Morrison (2019) Workbook. Other guides to grant writing are listed for your consideration.

- S. Russell & D. Morrison (2019). "The Grant Application Writer's Workbook: NIH Version." (Available at: http://www.grantcentral.com/workbooks/national-institutes-of-health/ and on reserve at the UCLA BioMedical Library Circulation Desk.
  Note: This book is written with R01 guidelines in mind. Page limits and required grant sections will vary by type of proposal/ funding mechanism/agency. This is *one* example only, and not a required template to follow. It can serve as a guideline but does not represent the only way to write a successful research proposal.
- W. Gerin & C. Kapelewski (2011). Writing the NIH Grant Proposal: A Step-By-Step Guide" 2nd edition. Thousand Oaks, CA.: Sage Publications.
- L. Gitlin & K. Lyons (2013). Successful grant writing: Strategies for health and human services professionals, 4th edition. New York: Springer Publication.
- O. O. Yang (2012). Guide to effective grant writing: How to write a successful NIH grant application. New York: Springer Publication.
- J.B. Ries & C.G. Leukefeld (1995). Applying for research funding: Getting Started and Getting Funded. Thousand Oaks, CA.: Sage Publications.
- L. Reif-Lehrer (1995). Grant Application Writer's Handbook. 4th Edition. Sudbury, MA. Jones and Bartlett Publishers.
- K.M. Berg, T.M. Gill, A. F. Brown, et al. Demystifying the NIH Grant Application Process. Journal of General Internal Medicine (JGIM). 2007;22(11):1587-1595.
- G.H. Guyatt & R. B. Hayes. Preparing reports for publication and responding to reviewers' comments. Journal of Clinical Epidemiology 2006;59:900-906.
- Cummings P. Rivara F.P. Responding to Reviewers' Comments on Submitted Articles. Archives of Pediatric and Adolescent Medicine Feb. 2002;156:105-107.

Websites and other e-resources
- NIH RePORT: report.nih.gov

- Research Instructions for NIH and other PHS agencies: (P. 79-93): https://grants.nih.gov/grants/how-to-apply-application-guide/forms-e/research-forms-e.pdf
- NCI Examples of Funded Grants: https://cancercontrol.cancer.gov/IS/sample-grant-applications.html
- NIH K Awards: https://researchtraining.nih.gov/programs/career-development
- NIH Insider's Guide to Peer Review for Applicants: http://public.csr.nih.gov/aboutcsr/NewsAndPublications/Publications/Pages/InsidersGuide.aspx
- NIH Application Instructions Changes: https://grants.nih.gov/grants/how-to-apply-application-guide/forms-e/general/g.120-significant-changes.htm
- AHRQ Pre-doctoral Fellowship (R36) : http://grants.nih.gov/grants/guide/pa-files/PA-12-256.html
- UCLA Graduate Division Funding Opportunities for Graduate Students: https://grad.ucla.edu/asis/stusup/fundingop.htm
- UCLA Graduate Research Mentorship Program: https://grad.ucla.edu/asis/sfap/srmintro.htm (Applications typically due in February for a mentored summer opportunity culminating in paper and/or conference presentation)
- UCLA Strategic Research Initiatives: UCLA Resources on Grant Writing (http://www.ovcr.ucla.edu/grant-writing-tips.html): Grants Tutorial, Grant writing Tips, archival videos, etc.
- UCLA OVCR Initiatives Funding Opportunity Resources, including the SPIN database (https://vcr.ucla.edu/ovcr-initiatives/funding-opportunity-resources)
- NIH Review Video: 15 min video on peer review here & 5 min tips for applicant video here
- CITI Human Subjects Tutorial (https://www.citiprogram.org/default.asp)

Plagiarism

Academic dishonesty is an affront to the integrity of scholarship at UCLA and a threat to the quality of learning. Violation of academic integrity is of particular concern in a course on grant writing. Please consider the following definition of plagiarism and be mindful of others' intellectual property in writing your grant proposals:

Plagiarism shall be defined as the act of incorporating ideas, words, or specific substance of another, whether purchased, borrowed, or otherwise obtained, and submitting same to the University as one's own work to fulfill academic requirements without giving credit to the appropriate source. Plagiarism shall include but not be limited to (a) submitting work, either in part or in whole, completed by another; (b) omitting footnotes for ideas, statements, facts, or conclusions that belong to another; (c) omitting quotation marks when quoting directly from another, whether it be a paragraph, sentence, or part thereof; (d) close and lengthy paraphrasing of the writings of another; (e) submitting another person's artistic works, such as musical compositions, photographs, paintings, drawings, or sculptures; and (f) submitting as one's own work papers purchased from research companies.

Accommodating Students with Disabilities

Students needing academic accommodations based on a disability should contact the Center for Accessible Education (CAE) at (310)825-1501 or in person at Murphy Hall A255. When possible, students should contact the CAE within the first two weeks of the term as reasonable notice is needed to coordinate accommodations. For more information visit www.cae.ucla

Sessions: Content and Assignments

(1) 4/03 Introduction and Overview

Course Overview:
Course content, expectations, assignments

Funding Overview:
Types of grants, cooperative agreements, contracts
NIH (RePORT, Reporter, RFP vs PA)
Other government agencies (Federal, State)
Foundations (diversity, requirements)
Early career opportunities (Career and Fellowship Awards: e.g., R36, K Awards K99/R00)

Assignment Due: Proposed research topic. Be prepared to present in class on 4-3-19, and answer questions posed by instructors and fellow students.

Note: Assignments are described on the Sessions and dates when due. Please look ahead a week or two.

Note: Example Research Ideas for a Small Grant

These are some types of studies - not a comprehensive list. The key to a successful small grant proposal is to keep the proposed work relatively narrow in scope, not overly complex, and (most important) *feasible* due to shorter timelines. It also is important to make a case for how study findings will inform future work.

Methodological Studies:
Develop and validate a new measure
Collect reliability and validity data on an existing measure
Apply a new methodological approach

Observational (non-intervention) Studies:
Collect cross-sectional data to evaluate correlates of XXXX
Collect longitudinal data to evaluate predictors of XXXX
Analyze existing dataset to assess correlates/predictors

Intervention-Related Research:
Conduct formative evaluation and use it to develop an intervention
Pilot test a previously developed intervention with a new population
Both of the above
Conduct a small, controlled study

(2) 4/10 Proposal Writing

Planning phase:
Determine funding agency/section/mechanism (consider funding climate); Identify required elements/checklists/preliminary documents (letter of intent, concept papers); Identify partners and others/division of labor; Draft a realistic timeline and procedures

Research Plan:
Specific Aims: Significance of issue, questions, hypotheses
Research Strategy: Significance, Innovation, Approach, References

Assignments Due: -RePORT*

-Verbal update or outline of potential research topic
(Key issue and why it matters. Ideas for how to address the issue.)

-Review information on structure and guidelines for F31, R36, R03, and/or K01, paying attention to required sections, page and budget limits. Post-docs should specifically review R03 and K guidelines, pre-docs should review R36 or F31 guidelines).

Note: Assignments are described on the Sessions and dates when due. Please look ahead a week or two.

***Note:** Completing the NIH RePORT Exercise

The purpose of this exercise is to familiarize students with the NIH RePORT database and with the types of studies NIH has funded in the past. Students will identify a funding agency of interest and the agency's funding priorities. To complete this assignment:

- Consider possible research topics of interest and identify possible search terms.
- Access Research Portfolio Online Reporting Tool (http://projectreporter.nih.gov/reporter.cfm)
- Type in the topic at "text search." Select the required year(s). Select research project at "funding mechanism." Submit query.
- From the list that results, select grants related to the research topic. Click on the title to access the abstract.
- Browse abstracts and summarize your findings considering the following: What innovative ideas are being supported? What gaps are evident from what is being funded? What innovations can I introduce that would complement what has been funded?
- Identify specific agency(ies) funding your topic of interest. Visit the agency(ies) website and collect information on their strategic priorities for funding.
- Submit a 500-word summary of what you learned and be prepared to share in class.

(3) 4/17 Grant review process

Reviewer guidelines and summary sheets
Study Sections
How the review process actually works
The role of the Program Officer (Program Officer contact)
Reviewer concerns/common pitfalls
Responding to critiques: Introduction to application for resubmission

Assignment Due: -Draft of Specific Aims: Bring written bulleted aims to class and be prepared to discuss

-Review NIH Review Guidelines (CCLE) –review criteria, example summary sheets, read through the review criteria and scoring system for R-mechanisms and the K-mechanisms; F-31 Guide for Reviewers also is posted.

Note: Assignments are described on the Sessions and dates when due. Please look ahead a week or two.

(4) 4/24 Proposal Writing

Research Plan:
Specific Aims: Significance of issue, questions, hypotheses
Research Strategy: Significance, Innovation

Assignment Due: **Specific Aims (one page Word document)** – Submit (e-mail) by 4/23

Note: Assignments are described on the Sessions and dates when due. Please look ahead a week or two.

(5) 5/01 Proposal Writing

Research Plan:
Research Strategy: Approach

- Research Design (overall; designs appropriate for scope of mechanisms), Preliminary Studies, Team Qualifications, Conceptual framework, Methodology, Sample Size Calculations, Measures/Instruments/Scales, Data Collection, Statistical Power, Data Analysis, Limitations, Timeline

Assignment Due: Bulleted draft of Research Strategy (Significance, Innovation, Approach) Submit (e-mail) Word document by 4/28

Note: Assignments are described on the Sessions and dates when due. Please look ahead a week or two.

Note: Hard copies of proposals for student mock grant review will be distributed

(6) 5/08 Student Mock Grant Review Exercise

Assignment Due:
The purpose of this exercise is to familiarize students with NIH reviewer guidelines and the review process. Students will be given several research proposals to read, and access to NIH reviewer guidelines and templates in CCLE. (To protect the intellectual property of investigators, hard copies of research proposals may be distributed and then collected in class.) Student will review these guidelines and apply them in critiquing the strengths and weaknesses of the research proposals distributed in class.

In reviewing the proposal, students should consider each of the following criterion: Overall Impact; Significance; Investigator; Innovation; Approach; and Environment; assign a score for each criterion (1 to 9, with 1 being the best – to the right of each heading); and provide a (brief) **written review** that identifies key strengths and weaknesses. Bulleted format is acceptable, although complete sentences are very helpful. Other sections of the proposal, such as the Budget or Human Subjects Protection components, will not be considered in this review. Students should be prepared to discuss the assigned proposal and their review as primary reviewers, and to submit a hard copy of their written critiques in class on this date. **Actual study section critiques will be shared so students can see how their reviews compare with those of expert reviewers.**

Note: Assignments are described on the Sessions and dates when due. Please look ahead a week or two.

(7) 5/15 Proposal Writing

Biographical Sketches, Budget and Budget Justification, Vertebrate/Human Subjects considerations, Facilities and Resources (Environment), Letters of Support/Participation

Assignment Due: Draft Biosketch (Bulleted Contributions to Science acceptable)
Submit (e-mail) Word document by 5/14.
Review example Biosketch template, guidelines and clarifications (CCLE)

Note: Assignments are described on the Sessions and dates when due. Please look ahead a week or two.

Note: NIH Biosketch Instructions and Sample https://grants.nih.gov/grants/forms/biosketch.htm; recent clarifications regarding Biosketch guidelines are posted on the CCLE page

Note: Researchers should include a link to a full list of their published work as found in a publicly available digital database such as My Bibliography.

(8) 5/22 Proposal Writing

Title, Summary/Abstract, Project Narrative, Bibliography and References Cited, Facilities and Other Resources (Environment),

Assignment Due: Revised Research Strategy (Significance, Innovation, Approach)
Submit (e-mail) Word document by 5/21.

Note: Assignments are described on the Sessions and dates when due. Please look ahead a week or two.

(9) 5/29 Mock NIH Study Section: Review of Student Proposals by faculty

(10) 6/05 Oral Presentations

Assignment Due: In-class presentation of student research proposals

Note: Final research proposal due Wednesday, June 12, 2019 by 5:00pm.

In preparing the final research proposal it is important to review and follow instructions in form PHS 398 regarding formatting requirements. Although students should be aware of all required grant sections, for purposes of this assignment only the following proposal elements will be submitted:

- Research Plan
  - Specific Aims (1 page maximum)
  - Research Strategy: Significance, Innovation, Approach (6 pages maximum), References

- Biosketch (for student, only; not for co-investigators)

Proposal Grading Criteria
In addition to the formal NIH review criteria, the following factors will be considered:

- Is the scope of the study appropriate for the mechanism?
- Is the content well-organized and presented (e.g., does it tell a coherent story, and are tables used appropriately?)
- Is the proposal legible and free of typos and other physical problems?
- Is the writing clear and concise?