MTR 6230: Writing an NIH Grant

Spring 2024

Course Dates:
Wednesdays, January 17th – April 17th, 11:00am-1:00pm via Zoom

Zoom Information: To be added to course canvas site.

Instructor Information:
Course Director:
Karen Teff, Ph.D. | Email: kteff@pennmedicine.upenn.edu

Dr. Teff recently retired from her role as Program Director, Division of Diabetes, Endocrinology, and Metabolic Diseases at the National Institute of Diabetes and Digestive and Kidney Diseases at the NIH. Prior to her time at the NIH, Dr. Teff was an adjunct faculty member at Penn and served as director of translational research for the Diabetes Research Center (2006-13) as well as the Director of the Clinical and Translational Research Center (2011-13) and a lead faculty member for the MS Translational Research degree program. Dr. Teff returned to Penn in spring 2022 as a member of ITMAT Education Leadership and course director for MTR 6230.

Course Coordinator:
Megan Maxwell, MSW | Email: mmaxwell@upenn.edu

Description

This course will provide a comprehensive overview of the NIH structure, submission and review process as well as foundational knowledge for any R01 grant proposal. The course will cover the preparation and writing of the grant application focusing on the required sections of the R01 grant (e.g. biosketch, specific aims, innovation, significance, research strategy and approach) and the expectations/requirements for each of these sections. In addition, an overview of the NIH submission and review cycle, how and when to interact with program directors and scientific review officers, an explanation of the different types of program announcements and how to read them. Identifying the appropriate study section, interpretation of summary statements, how to respond to concerns by reviewers and requirements for revisions will also be discussed.

Participants will be drafting, revising, and working one-on-one with their peers and the course director to improve their proposal. While it will be mandatory for all students to submit their biosketch, specific aims, innovation and significance sections students will be encouraged to take advantage of review by peers and the course director by submitting their complete grant application. Participants will be required to review their peer's work twice, once using a review rubric as a guide and once using the NIH Review format.

This course is not appropriate for students applying for training applications (Ks and Ts) as the components for these types of mechanisms will not be covered. However, students planning to submit a K99 applicant will be considered.

Objectives and Evaluation:

Students will demonstrate that they understand the key elements and considerations in writing an NIH grant through attendance, participation, peer review and submission of assignments. All students will submit the required components of their grant proposal through assignments in Canvas by 11:59pm on the deadline. Submitting the portions of the grant on the designated dates and participating in peer review are mandatory.

The evaluation of this class will be Pass/Fail.

Evaluation and Due Dates

Evaluation Methods:
Students will be evaluated based on class attendance, active engagement and participation, and assignments. Passing students will receive 70 or more points. Students below 70 points will be considered a Fail.

Requirement	Portion of Grade
Attendance & Participation	30 points
Biosketch, Specific Aims, Significance & Innovation Sections	40 points
Peer Reviews	30 points

Mandatory Requirements
- **Attendance & Participation**
- **Participation in two review sessions of peer proposals**
  Students will peer review each other's grants since a key approach to learning is through analyzing and critiquing the work of others using a review rubric as a guide.
- **Submission of the Biosketch, Specific Aims, Significance and Innovation sections of an NIH R01 (first draft and revised)**
- **Submission of peer review in abbreviated NIH format**
- **Suggested but not mandatory requirement.**
  - Complete R01 application from Specific Aims to Research Strategy
  - It is suggested that students submit their whole NIH grant application, including the Research Strategy section and Approach. While not all participants will be ready to submit their complete application, we encourage students to try and complete the first draft of the whole application which then can be submitted for Peer review and review by the Course Director.

Students are required to submit the below assignments to Canvas.
- Biosketch, Specific Aims (1 page), Significance and Innovation sections of NIH grant (Max 4 pages in all) – due Feb 21, 2024
- Revised Biosketch, Specific Aims, Significance and Innovation (and if applicable Research Strategy section) following Peer and Course Director Review due March 27th, 2024
- Peer reviews in abbreviated NIH format due April 10th, 2024

Course Policies and Procedures

Attendance:
Classes will be held virtually. Attendance for peer review of submitted documents is **mandatory**, so students should ensure they are available. Students are expected to attend *and participate* in all classes.

If for any reason a student will not be in class or will be late to class, they should contact the Course Director and Coordinator prior to class to alert them. Attendance will be taken at the beginning of each class, please make sure to be on time to be counted as present. Part of class attendance consists of using your camera each class. If you experience technical issues, please let the course director know.

Students are allowed one excused absence. Additional absences will impact the course attendance and participation grade by 1 point for each absence.

Online Learning Environment:

All students taking ITMAT Education online and hybrid courses must ensure that their learning environment for synchronous course meetings is appropriate and free from distractions to themselves, other students, and instructors. Specifically, participate in the session in a physical space and surrounding environment that allows you to devote your full attention to the course meeting. Remain stationary in that location for the duration of class. You are expected to log on using a computer, with working microphone and video capabilities. During class, your video must be operational and be on at all times, with your background blurred and your microphone muted to minimize unexpected distractions to you and your fellow students. If you identify issues that compromise your ability to meet these expectations, contact the course director to seek ways to resolve the situation in a timely manner.

Two general rules of thumb are (i) if you wouldn't expect your instructor to facilitate a class under any condition or set of conditions, it is equally unacceptable for a student to attend class under those same conditions; (ii) if you would not do something in an in-person classroom environment, it should not be done in a synchronous online class. Some examples of unacceptable conduct during synchronous sessions include attending class while driving; attending class while walking; attending class while also working; attending class while being physically located in a busy environment or an environment likely to be disrupted by other people or significant background noise; attending class using your cell phone

Course Management System – Canvas:
All course materials (ppts, announcements, lecture recordings) and assignments will be posted on Canvas. Contact the Course Coordinator with questions. Log in with Pennkey.

Course Evaluation
Course evaluations are an opportunity to share feedback on the strengths of the course, and opportunities for improvement. We welcome constructive feedback in the BLUE system. Completing evaluations is a required part of course participation. An email from the BLUE system is sent to students with a link and directions on how to complete the course evaluation(s).

Participation and Active Participation
Participation in class is crucial to students' success. Students will attend and actively engage with the content and participate in discussion all courses.

Examples of active participation in a synchronous session include
- asking or answering questions during class
- posting comments in the chat
- collaborating with other students during group work
- sharing relevant expertise with other students and the instructor

This program is committed to creating a supportive, respectful, and productive learning environment for all students. Students will remain professional and respectful of their peers, course instructors, and guest lecturers. An important principal of code of conduct is to behave in the virtual space in the same way you would during an in-person class and/or a work meeting. If you wouldn't do it in a work meeting or in-person class, don't do it in the virtual space.

Student Disability Services
The University of Pennsylvania provides reasonable accommodations to students with disabilities who have self-identified and been approved by the office of Student Disabilities Services (SDS). Please make an appointment to meet with your instructor and the course coordinator as soon as possible to discuss your accommodations and your needs. To request accommodations or ask questions, you can make an appointment by calling SDS at 215-573-9235 or accessing the MyWeingartenCenter portal. The office is in the Weingarten Learning Resources Center at Hamilton Village, 220 S 40th St Suite 260. All services are confidential.

Learn more about the types of services and accommodations offered by Weingarten.

Late Work, Extensions
Students must request an extension prior to assignment deadline. Acceptance of late assignments and extensions will be approved at the discretion of the instructor.

Student Conduct
ITMAT Ed students must comply with the University's Code of Student Conduct and other University policies related to student conduct that appear in The PennBook: Resources, Policies and Procedures Handbook. These include, but are not limited to, policies on sexual harassment, acquaintance rape and sexual violence, appropriate use of electronic resources, open expression, and drug and alcohol usage.

Additional codes of conduct and expectations students should be familiar with are the nondiscrimination statement, the sexual misconduct policy and resource offices, and student grievance procedures.

Academic Integrity
The fundamental value of our academic community is intellectual honesty; accordingly, our academic community relies upon the integrity of every member. Students are responsible not only for adhering to the highest standards of truth and honesty but also for upholding the principles and spirit of the Academic Code. Violations of the Code include but are not limited to plagiarism, cheating, and fabrication, among others.

If you have questions regarding what is considered a violation of academic integrity, please review The Code of Academic Integrity in the PennBook.

Alleged violations of the Code of Academic Integrity are reviewed by the Program Director and as necessary referred to the Penn Office of Student Conduct. If a student is unsure whether their action(s) constitute a violation of the Code of Academic Integrity, it is that student's responsibility to consult with the instructor to clarify any ambiguities.

Use of Generative AI
It is plagiarism to submit work produced by a generative artificial intelligence (AI) service as your own without citing the source. Any use of generative AI services must be in alignment with course requirements and restrictions. Course Directors have full discretion to allow or deny use of ChatGPT or similar AI tools in their courses. Ask the course director for permission before using these tools for course assignments.

Religious and Cultural Holidays
Religious and cultural holidays are listed on the University of Pennsylvania's Chaplain website. If a student observes any of the listed holidays and they conflict with a class date, please contact program staff with the class date with which the holiday coincides.

If an assignment is due during a holiday, program staff and faculty will work with the student to determine an alternative due date.

Course Schedule
Class will take place on Wednesdays, from 11:00am-1:00pm. Please block your calendars.

Date	Topic
Jan 17	Introduction to the Course: Review of NIH system and structure, Identifying the appropriate Institute and Study Section for your application.
Jan 24	Negotiating the NIH: Decisions Prior to Submission Types of grant mechanisms; RFA's vs. PA's, How to read program announcements, ESI status, Interacting with the NIH (Program Officers and Scientific Review Officers).
Jan 31	Planning an R01: Timing, Organization, Biosketch, Specific Aims, Independence from mentor, Significance and Innovation Sections, Significance vs Innovation
Feb 7	Preliminary Data, Figures, Research plan, Approach, Statistics, Interpretation of results
Feb 14	Specific Issues related to Clinical Studies and Trials
Feb 21	How grants are reviewed, Summary statements; NIH review format, interpretating summary statements and how to respond. Paylines **Assignment Due in Canvas: First Draft of Biosketch, Specific Aims + Significance + Innovation Sections of Proposal**
February 28	Collaborations: Key Personnel, Co-Investigators, Mentors, Consultants, Budget
Mar 6	Peer Review Discussion of First Draft of Biosketch, Specific Aims, Significance and Innovation
Mar 13	Question and answer period
Mar 20	Other Research Plan Sections: Vertebrate animals, Resource Sharing, Data Management plan, Letters of Support, Sex as a biological variable, Rigor
Mar 27	**Assignment Due in Canvas:** **Final Revised Biosketch, Specific Aims, Significance and Innovation and if applicable, Research Strategy section including approach section**
Apr 3	Post-Review tasks: decisions on re-submission and next steps if within the payline
Apr 10	Peer Review Discussion of Revised Biosketch, Specific Aims, Significance and Innovation and if applicable, complete application. **Assignment Due in Canvas:** **Submission of abbreviated review in NIH format of peer applications**
Apr 17-19	Individual Meetings with Course Director