

EPID 7050: Grant Writing and Scientific Communications (Fall 2025)

1. Background and Learning Objectives

This course provides students with guidance and hands-on experience with writing an NIH F-award application and the peer-review process for NIH grants. Most of the course provides an in-depth overview of and experience with the NIH grant-writing process. By the beginning of December, students will have drafted and, in writing groups, workshoped the major components of an F30/F31/F32 application, and had that application reviewed by faculty members in a mock study section. **With additional input from the application's sponsor (i.e., the student's mentor and possibly a co-mentor), the application should be suitable for submission to the NIH by the December 8, 2025, deadline (with materials due to BGS by December 1, 2025, at 5:00 PM ET).**

After completing this course, students will:

- Understand the basic principles of grant writing.
- Be familiar with the structure, content, and timeline for preparing an F31/F32 grant under the March 2025 NIH Fellowship Instructions and relevant NOFOs ([PA-25-422 for F31](#) or [PA-25-423 for F32](#)).
- Have received guidance on the administrative details of grant submission.
- Have prepared template documents for mentors to complete.
- Have read, written, and workshoped the sections of an F31/F32 grant according to current NIH requirements.
- Have provided feedback to their peers on the peers' draft grant applications.
- Have had their draft grant application reviewed as part of a mock study section.
- Understand the structure of scientific papers.
- Be familiar with best practices for writing and preparing each component of a scientific paper, including the introduction, methods, results, and discussion sections, as well as figures and tables.
- Have an understanding of, and practice with, the literature peer-review process.

2. General Course Information

Course Director	Sean Hennessy – hennessy@pennmedicine.upenn.edu
Teaching Assistant	Jessica Wong – jess.wong@pennmedicine.upenn.edu
Meeting Details	Tuesdays & Thursdays, 1:45–3:15 PM –235 Blockley Hall
Credits	1.0 CU
Duration	14 weeks, 29 scheduled sessions (August 26 – December 4)

3. Prerequisites

Students should have identified a research topic and F-award sponsor (mentor) by the beginning of the course. Ideally, the student should have drafted Specific Aims for the grant prior to the first class. Although the student's primary sponsor should have independent R01-level NIH funding, co-sponsorship arrangements can sometimes work if the secondary but not primary mentor is R01 (or equivalent)-funded. Students outside of the Epidemiology PhD Program who are planning to submit an F award application (F30/F31 for predoctoral students, F32 for postdoctoral fellows) for the December 8, 2025 deadline (with materials due to BGS by **December 1, 2025 at 5:00 PM**) may take this course with permission of the Course Director, subject to availability. Although international students are encouraged to participate to learn and practice grant writing principles, NIH policy states that only US citizens and permanent residents are eligible for F awards. Non-NIH Funding opportunities for international students are described [here](#).

4. Materials

Required readings are listed in the session-by-session outline below. Additional recommended readings are listed below.

- [Hollenbach, Andrew D. A Practical Guide to Writing a Ruth L. Kirschstein NRSA Grant.](#)
- [Saramäki, Jari. How to Write a Scientific Paper: An Academic Self-Help Guide for PhD Students.](#)
- [Schimel, Joshua. Writing Science: How to Write Papers That Get Cited and Proposals That Get Funded, Illustrated Edition.](#)
- [Tufte, Edward R. The Visual Display of Quantitative Information, 2nd edition.](#)

- [Tufte, Edward R. Visual explanations : images and quantities, evidence and narrative.](#)
- [Tufte, Edward R. Envisioning Information.](#)

5. Format

The class will meet weekly on Tuesdays and Thursdays from 1:45 to 3:15 PM ET in 235 Blockley Hall. Until the beginning of December, the course will be devoted to the preparation, workshopping, and peer review of an F30/F31/F32 grant application. While there will be some instructor-led content, the majority of class time will be spent in writing groups of approximately three students each, with the Course Director and Teaching Assistant circulating among the groups. In the writing groups, students will workshop all of the major components of an F-award application. While the schedule below provides a structure for preparing applications, students are encouraged to work ahead. Additionally, students may use their individual discussion time to address any component of the grant on which they would like feedback, but they must submit that week's assignment on Canvas on time for it to be marked complete. The remaining weeks of class will be devoted to other aspects of scientific communication in epidemiology.

6. Grading: homework (70%), attendance and in-class participation (30%)

7. Academic Freedom Statement

The policies of the University of Pennsylvania protect academic freedom, as defined in the [American Association of University Professor's 1940 Statement of Principles](#). This statement has been endorsed by over 250 scholarly and educational organizations in the United States, and its principles are written into faculty handbooks nationwide, including [Penn's](#). The principles of academic freedom were established to protect the integrity of research and teaching from interference by donors, trustees, politicians, and others who might seek to make universities serve private and political interests. They are founded on the idea that a university's purpose is to generate new knowledge that can serve the common good in a democratic society, and that generating new knowledge requires free and open inquiry. To safeguard the university's public mission, academic freedom entails the following rights for all faculty members—whether tenure-track or non-tenure track, and including graduate research and teaching assistants—and for students: (1) the right of faculty members to full freedom in research, teaching, extramural speech (public speech on issues of general concern) and intramural speech (speech about the university itself, including criticism of it) and (2) the right of students to freedom in learning, which includes freedom of association and expression and freedom of inquiry in the classroom. Academic freedom is only as strong as the institutions, procedures, and professional norms that faculty members established over the last century to protect it: institutions of faculty governance such as Faculty Senates and unions; the institution of tenure; and due process procedures that protect both tenure-track and non-tenure-track faculty against unjust discipline or dismissal. For further information about academic freedom, see the [AAUP-Penn website](#).

Course Agenda (Subject to Change)

Session	Date	Topic	Due Today	In-Class Activity	Due Next Class
1	Tue 8/26/25	Orientation to the course. NIH funding mechanisms. Required components of an F. RePORTER. Who makes a good sponsor? Logistics of submitting Fs at Penn. Specific Aims. (Hennessy)	<p>Pre-Reading: A Practical Guide to Writing a NRSA Grant & BGS on Predoctoral Fellowships</p> <p>Assignment 1: Motivation and preliminaries.</p>	<p>***This session will be held via Zoom: https://pennmedicine.zoom.us/j/96782355288</p> <p>Introductions. In groups, share your responses to Assignment 1.</p>	<p>Assignment 2:</p> <ol style="list-style-type: none"> Specific Aims, Draft 1: read sample grants' Specific Aims sections, draft your Specific Aims page, and get sponsor feedback if possible. Contact potential sponsors, co-sponsors, collaborators, and referees. Read PA-25-422 (F31) or PA-25-423 (F32). Optional: Try Penn's writing accountability group.
2	Thu 8/28/25	The process of grant writing. NIH Reviews. The post-review process. Resubmissions. (Hennessy)	<p>Assignment 2: Specific Aims, Draft 1.</p>	<p>In groups, workshop draft Specific Aims page (Assignment 2).</p> <p>Group 1: Sean; Group 2: Jessica</p>	<p>Assignment 3:</p> <ol style="list-style-type: none"> Specific Aims, Draft 2. Revise your Specific Aims page based on feedback received. If possible, get feedback from your sponsor before submitting. If you are a GGEB student, email Marianne Altland (altland@pennmedicine.upenn.edu) about planning to apply for F-award for December 1, 2025 at 5:00 PM BGS deadline (Dec 8, 2025 NIH deadline). Include working title, fellowship mechanism, institute, sponsor name, duration of support requested.
3	Tue 9/2/25	Use of Large Language Models in Epidemiology Research (Hennessy)	<p>Assignment 3: Specific Aims, Draft 2.</p>	<p>In groups, workshop the revised Specific Aims page (Assignment 3).</p> <p>Group 1: Jessica; Group 2: Sean</p>	<p>Assignment 4:</p> <ol style="list-style-type: none"> Specific Aims, Draft 3. Revise your Specific Aims page based on feedback received. If possible, get feedback from your sponsor before submitting. Read the Research Strategy sections of at least three sample grant applications.
4	Thu 9/4/25	Office of Research Support Services Research Administration Academy	<p>Assignment 4: Specific Aims, Draft 3.</p>	<p>In groups, workshop Specific Aims, Draft 3 (Assignment 4).</p> <p>Group 1: Sean; Group 2: Jessica</p>	<p>Assignment 5:</p> <ol style="list-style-type: none"> Research Training Project Strategy outline (6 pages total). Make the outline as specific to your project as possible. If possible, get feedback from your sponsor before submitting.

		Training. (Chanika)			
5	Tue 9/9/25	"Approach" subsection of Research Training Project Strategy (Hennessy)	Assignment 5: Research Training Project Strategy outline.	In groups, workshop the Research Strategy outline (Assignment 5). Group 1: Sean; Group 2: Jessica	Assignment 6: 1. Approach subsection, Draft 1. Focus on strategy, methodology, analyses, potential problems, and alternative approaches. If possible, get feedback from your sponsor before submission.
6	Thu 9/11/25	None.	Assignment 6: Approach subsection, Draft 1.	In groups, workshop Approach, Draft 1. (Assignment 6). Jessica will facilitate both groups (Jessica has scheduling conflict).	Assignment 7: 1. Approach subsection, Draft 2. Revise based on feedback. If possible, get feedback from your sponsor before submission.
7	Tue 9/16/25	The "Scientific Foundation and Rationale" subsection within Research Training Project Strategy. (Hennessy)	Assignment 7: Approach subsection, Draft 2.	In groups, workshop the Approach subsection, Draft 2 (Assignment 7). Group 1: Sean; Group 2: Jessica	Assignment 8: 1. Scientific Foundation and Rationale, Draft 1. Focus on context, scientific foundation, rationale, and importance. If possible, get feedback from your sponsor before submission.
8	Thu 9/18/25	None.	Assignment 8: Scientific Foundation and Rationale, Draft 1.	Share what is working and not working about your writing process. In groups, workshop Scientific Foundation and Rationale, Draft 1 (Assignment 8). Group 1: Jessica; Group 2: Sean	Assignment 9: 1. Scientific Foundation and Rationale, Draft 2. Revise based on feedback provided. If possible, get feedback from your sponsor before submission.
9	Tue 9/23/25	None.	Assignment 9: Scientific Foundation and Rationale, Draft 2.	In groups, workshop the Scientific Foundation and Rationale, Draft 2 (Assignment 9). Group 1: Sean; Group 2: Jessica	Assignment 10: 1. Complete Research Training Project Strategy (6 pages total). Combine your revised Approach + Scientific Foundation sections into one cohesive document. If possible, get feedback from your sponsor before submission.
10	Thu 9/25/25	"Goals, Preparedness, and Potential" section overview (Hennessy & Wong)	Assignment 10: Complete Research Training Project Strategy	In groups, workshop the complete Research Training Project Strategy (Assignment 10). Group 1: Jessica; Group 2: Sean	Assignment 11: 1. Goals, Preparedness, and Potential - Parts A & B, Draft 1 (3 pages): A. Overall Training Goals, B. Candidate's Preparedness. If possible, get feedback from your sponsor before submission.
11	Tue 9/30/25	None.	Assignment 11: Goals, Preparedness, and	In groups, workshop Parts A & B, Draft 1 (Assignment 11).	Assignment 12: 1. Goals, Preparedness, and Potential - Parts A & B, Draft 2. Revise based on feedback.

			Potential - Parts A & B, Draft 1.	Sean will facilitate both groups (Jessica has scheduling conflict).	If possible, get feedback from your sponsor before submission.
12	Thu 10/2/25	None.	Assignment 12: Goals, Preparedness, and Potential - Parts A & B, Draft 2.	In groups, workshop Parts A & B, Draft 2 (Assignment 12). Group 1: Jessica; Group 2: Sean	Assignment 13: 1. Goals, Preparedness, and Potential - Parts C & D, Draft 1 (3 pages): C. Candidate Self-Assessment, D. Scientific Perspective. If possible, get feedback from your sponsor before submission.
13	Tue 10/7/25	None.	Assignment 13: Goals, Preparedness, and Potential - Parts C & D, Draft 1.	In groups, workshop Parts C & D, Draft 1 (Assignment 13). Group 1: Sean; Group 2: Jessica	Assignment 14: 1. Goals, Preparedness, and Potential, Draft 2 (6 pages total): Combine all four parts (A-D) into cohesive document. If possible, get feedback from your sponsor before submission.
14	Thu 10/9/25	Fall Break. NO CLASS.			
15	Tue 10/14/25	Human Subjects Documents (Wong)	Assignment 14: Complete Goals Draft 2.	In groups, workshop Complete Draft 2 (Assignment 14). Group 1: Jessica; Group 2: Sean	Assignment 15: 1. Training Activities and Timeline, Draft 1 (2-3 pages). If possible, get feedback from your sponsor before submission.
16	Thu 10/16/25	Working with sponsors, co-sponsors, collaborators, letter writers. Reference letter requirements. (Wong)	Assignment 15: Training Activities and Timeline, Draft 1.	In groups, workshop Training Activities and Timeline, Draft 1 (Assignment 15). Group 1: Sean; Group 2: Jessica	Assignment 16: 1. Training Activities and Timeline, Draft 2. Revise based on feedback. If possible, get feedback from your sponsor before submission.
17	Tue 10/21/25	Sponsor Commitment Statements. Understanding the five-part structure. (Wong)	Assignment 16: Training Activities and Timeline, Draft 2.	Workshop Training Activities and Timeline Draft 2 (Assignment 16). Group 1: Jessica; Group 2: Sean	Assignment 17: 1. Sponsor(s) Commitment - Parts A & B, Draft 1 (3 pages): A. Mentoring Approach and Candidate Mentoring Plan, B. Prior Commitment to Training and Mentoring. If possible, get feedback from your sponsor before submission.
18	Thu 10/23/25	Training Activities and Timeline Section. (Hennessy & Wong)	Assignment 17: Sponsor(s) Commitment - Parts A & B, Draft 1.	Workshop Parts A & B, Draft 1 (Assignment 17). Group 1: Sean; Group 2: Jessica	Assignment 18: 1. Sponsor(s) Commitment - Parts C, D & E, Draft 1 (3 pages): C. Commitment to Candidate's Research Training Plan, D. Research Training Environment, E. Candidate's Potential. If possible, get feedback from your sponsor before submission.
19	Tue 10/28/25	None.	Assignment 18: Sponsor(s)	In groups, workshop Parts C, D & E, Draft 1 (Assignment 18).	Assignment 19:

			Commitment - Parts C, D & E, Draft 1.	Group 1: Sean; G Group 2: Jessica	1. Sponsor(s) Commitment, Draft 2 (6 pages total): Combine all five parts (A-E) into cohesive document. If possible, get feedback from your sponsor before submission.
20	Thu 10/30/25	None.	Assignment 19: Sponsor(s) Commitment - Complete Draft 2.	In groups, workshop Complete Draft 2 (Assignment 19). Group 1: Sean; Group 2: Jessica	Assignment 20: 1. Letters of Support from Collaborators (6 pages total). If possible, get feedback from your sponsor before submission.
21	Tue 11/4/25	None.	Assignment 20: Letters of Support.	In groups, workshop final sponsor materials (Assignment 20). Group 1: Jessica; Group 2: Sean	Assignment 21: 1. Training in Responsible Conduct of Research, (1 page) + Facilities and Other Resources, (2 pages). 2. Project Summary/Abstract (30 lines) + Project Narrative (3 sentences) + Biosketch (5 pages). If possible, get feedback from your sponsor before submission.
22	Thu 11/6/25	None.	Assignment 21: RCR + Facilities/Resources & Project Summary + Project Narrative + Biosketch.	Individual consultations available. Jessica and Sean available for final reviews.	Assignment 22: 1. Complete application PDF with all sections for mock study section review.
23	Tue 11/11/25	None.	Assignment 22: FULL APPLICATION.	Workshop summary materials (Assignment 22). Sean will facilitate both groups (Jessica has scheduling conflict).	None.
24	Thu 11/13/25	None.	None.	Individual consultations available. Jessica and Sean available for final reviews.	None.
25	Tue 11/18/25	Mock Study Section #1 (45 min/application).			
26	Thu 11/20/25	Mock Study Section #2 (45 min/application).			
27	Tue 11/25/25	None.	None.	Individual consultations available. Jessica and Sean available for final reviews.	This is the last class before applications are due. Final application materials must be submitted to the BGS business office by Monday, December 1, 2025 at 5:00 PM . Final NIH submission deadline is Monday, December 8, 2025 .
28	Thu 11/27/25	Thanksgiving Break. NO CLASS.			

29	Tue 12/2/25	Sustainable Productivity & Op-Eds	None.	None.	None.
30	Thu 12/4/25	Ellie Caniglia: Reporting the results of emulated trials and propensity score methods.	None.	Lunch provided.	<p>Read: Lederer, D. J., Bell, S. C., Branson, R. D., Chalmers, J. D., Marshall, R., Maslove, D. M., ... & Vincent, J. L. (2019). Control of confounding and reporting of results in causal inference studies. Guidance for authors from editors of respiratory, sleep.</p> <p>Von Elm, E., Altman, D. G., Egger, M., Pocock, S. J., Gøtzsche, P. C., & Vandenbroucke, J. P. (2007). The Strengthening of Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. The lancet,</p>