BIOL 680 - How to write a grant proposal

Instructor: Prof. Nancy Stamp

Overview of course: Your research requires funding. For example, as an assistant professor, your administration will expect you to obtain external funding. If you are working for a state or federal agency, you will have to write proposals to obtain research funds from your supervisor. Working for industry, you will have to write proposals to justify your research program and expenditures. The fact is that if you are going to do research, you have to learn how to write an effective research proposal. That's what this course is all about.

The class will meet from 7-9 PM on Wednesdays in S3-214. Please be on time, so that we can adjourn on time.

Students will be expected to write a NSF/NIH/USDA-style research proposal from start to finish, and then the class will serve as the funding panel.

A number of faculty members have served on reviewing panels and been successful with a variety of funding agencies. I will arrange for some of these people to talk with the class about their experiences. These panel discussions will occur in the first hour of some of our class meetings. All graduate students and faculty in the department are welcome to attend the panel discussions. So feel free to bring your lab-mates.

Much of the class will be conducted as a workshop. We will analyze every part of a proposal using examples. We will also discuss strategies. This means that you need to be prepared for each class meeting.

The course grade will be based on participation in class discussions (25%), satisfactory (i.e., on time and adequate) progress on proposal parts (25%), and the final proposal (50%). The grading is Pass/Fail. “Pass” at the graduate level means a B or better.

Text for course: No text

Tentative Course Schedule:

26 Jan.  Introduction to course; Abstract, Introduction & Background of proposal; Research ideas
2 Feb.   USDA as a funding source (guest panelists Drs. S. Gal and K. Wilson); Critique of Abstract & Introduction; Research ideas
9 Feb.   Industry and government-industry as funding sources (Drs. R. Van Buskirk and J. Baust); Critique of Background sections; Justification of system, Justification of Sponsor & Proposal objectives
16 Feb.  Educational grants (Drs. A. Tan-Wilson and A. Clark); Critique of System Justifications & Objectives; Outlining Research Plan & Statement of Significance
23 Feb.  NSF funding (Drs. D. Madison and J. Titus); Critique of Research Plan & Statement of
Significance of Research; developing a reasonable budget (BRING A CALCULATOR); Curriculum vitae

1 Mar. NIH funding (Drs. S. Michael and D. McGee); Peer review of your introduction & your CV
8 Mar. Peer review of your background section
15 Mar. Peer review of your research section
22 Mar. University holiday
29 Mar. Peer review of your abstract, significance section, budget & budget justification
5 Apr. No formal class - use this time to revise and assemble your entire proposal.
12 Apr. "Last chance" peer review
19 Apr. University holiday
26 Apr. Training and equipment grants (Drs. D. Wilson and S. Gal); Reviewing instructions & panel process; How to write an influential review;

4 copies of your proposal are due in class. NO EXCEPTIONS! Don't even ask.
3 May No formal class - apply this time to completing your reviews.
10 May Panel meeting (you must bring three copies of a one-page, single-spaced typed review of each proposal that you are assigned to review)

Second class meeting: Students should come to the second meeting with one (or more) research ideas for their proposal. The research idea can be related to your current research, but the proposal that you write for this course must be a new attempt on your part. Simply revising a past proposal is not acceptable as the proposal for this course. The more thought that is put into the research idea(s) at the outset of the course, the more quickly the proposal will progress and the more each person will get out of the course.

At the second class meeting, students will be expected to identify the appropriate federal agency for their type of research (e.g., NIH, NSF, USDA). Each week there will be an assignment to complete (e.g., reading a federal agency's instructions for proposals, critiquing a set of proposal abstracts, constructing a budget). It is imperative that each person completes the assignments on time, so that the "workshops" function well.

Writing assignments due in class:

26 Jan. - none
2 Feb. - Critiques of Abstract & Introductions; Research idea(s)
9 Feb. - Critiques of Backgrounds
16 Feb. - Critiques of Justifications & Objectives
23 Feb. - Critiques on Research Plans, Statement of Significance & Budget Justification
1 Mar. - Your Introduction; your CV (double-spaced)
8 Mar. - Your Background (double-spaced)
15 Mar. - Your Research Plans (double-spaced)
22 Mar. - University holiday
29 Mar. - Your Abstract, Statement of Significance, Budget & Budget Justification (double-spaced)
5 Apr. - none
12 Apr. - Two sections of your proposal that you would like to have critiqued (double-spaced)
19 Apr. - none

26 Apr. – Four copies of your final proposal (single-spaced)
3 May. - none
10 May - Three one-page, single-spaced, typed copies of your review of each proposal assigned

*The italicized assignments must be typed using dark print, with 1" margins and left-justified only. There should be no more than 6 lines to an inch, and you should use 12 pt. font (no more than 15 characters to an inch). Use a font style that is easy on the eye (e.g., this font which is Times New Roman). Funding agencies do not accept proposals that fail to adhere to the required format; we won't either. Keep another copy for yourself. Use a word-processing program, keep your file(s) on a diskette, and frequently make a back-up copy of your file(s) on another diskette. You are responsible for all photocopying costs that you incur related to this course.

Reading assignments should be completed before class. The papers are on reserve in the Dept.'s Graduate Computer Pod. The reserve readings are supplied for you to make your life easier (i.e., few trips to the library), so make the lives of others easier by signing the readings out, only keeping them for ONE HOUR, and putting them back in alphabetical order. If you can't find what you are looking for, then go to the library.

**Reading assignments:**

26 Jan. - none
2 Feb. - Hailman & Strier's Chapter 1; Packet of Abstracts & Introductions
9 Feb. - Hailman & Strier's Chapter 2; Packet of Background sections
16 Feb. - Hailman & Strier's Appendix A; Packet of System Justifications & Objectives
23 Feb. - Budget section of the NSF application guide; Packet of Research Plans, Significance Statements and Budget Justifications
1 Mar. - Reif-Lehrer's Part V; Hailman & Strier's Chapter 5
8 Mar. -
15 Mar. -
22 Mar. -
29 Mar. -
5 Apr. -
12 Apr. -
19 Apr. -
26 Apr. -
10 May - Your assigned proposals
References

Brown RF, Rogers DJ, Pressland AJ (1994) Create a clear focus: The "big picture" about writing better research articles. Am Entomol 40:144-145
Chamberlin TC (1965) The method of multiple working hypotheses. Science 148:754-759 ["With this method the dangers of parental affection for a favorite theory can be circumvented."]
Crease RP, Samios NP (1991) Managing the unmanageable. Atlantic Monthly January pp 80-88 [How the US government fostered basic science after WWII, and why scientific freedom and the US's technological lead have eroded in recent years.]
Garfield SA (?) Guidelines for successful biomedical research grant applications. ENDOtrends, pp. 4-5
Platt JR (1964) Strong inference. Science 146:347-353 ["Certain systematic methods of scientific thinking may produce much more rapid progress than others."]
Reif-Lehrer L (1988) The confessions of a NIH grant proposal reviewer. The Scientist, Sept. 5:19
Reif-Lehrer, L (1989) Dissecting, and demystifying, a NIH grant application. The Scientist Sept. 18, pp. 19,