Grant writing
PET 5936 (Section 6390)

Instructor: Scott K. Powers
Office: FLG 112
Office phone: 352-294-1713
Email: spowers@hhp.ufl.edu (prefer email in CANVAS)

Office hours: 9:30AM-11:00 AM Monday/Wednesday/Friday
Other times available via appointment

Lecture time/room: 0225 FLG 8-10 periods/Tuesday

Course Description: This is an introductory course in grant writing that is targeted for graduate students and clinician-scientists preparing for research careers. This course will focus on the fundamental components of a research grant using both lecture material and suggested readings. During this course, each student will write an "experimental" grant using an NIH R21 format. The course will conclude with the formation of "peer-review study sections" to review the grant proposals written by class members.

Textbook: None required (see suggested reading list for recommended readings)

Purpose of Course: The goal of this course is to provide students with a basic understanding of how to write an experimental grant using the National Institutes of Health format for research grants.

Specific course goals and student learning objectives:

After completion of this course the student should be able to:

1. Identify and describe key elements of good scientific writing
2. Identify key components and generate an NIH biosketch
3. Evaluate and critically review a research grant
3. Identify and discuss the organization of the National Institutes of Health (NIH) and the NIH grant submission process
4. Describe and generate components of an NIH grant and recognize the process of crafting the successful grant application
5. Analyze, identify and discuss the NIH grant review process and scoring system

Grading Policies
The following list provides the point-accruing components of the course. The total points earned from each grading component will be summed and will comprise the total points earned in the course. The course grading scale is also provided for reference.

Grading components:
Grant proposal = 40 pts
Preparation of NIH CV = 10 points
Written exam = 20 points
Participation in grant review study section = 10 pts
Written reviews completed for two assigned grants = 20
Total points = 100

Grading Scale:

A = 95 or above pts
A- = 90-94.99 pts
B+ = 86-89.99 pts
B = 83-85.99 pts
B- = 80-82.99 pts
C+ = 76-79.99 pts
C = 73-75.99 pts
C- = 70-72.99 pts
D+ = 66-69.99 pts
D = 63-65.99 pts
D- = 60-62.99 pts
E = 59.99-0

ATTENDANCE POLICY: Lecture attendance is not required and therefore, attendance does not contribute to the overall grade for this course. However, students are required to be present in class for the written examination and students are also required to participate in the grant review study sections scheduled near the end of the semester.

Policy for Make-up exams and other work:
Make-up exams and other work can be requested given that there is a medical, family, or other emergency that deems the need for a make-up.

Policy on disabilities:
The course will provide accommodations to students with disabilities. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation.

University Policy on Accommodating Students with Disabilities: Students requesting accommodation for disabilities must first register with the Dean of Students Office Disability Resource Center (352-392-8565) (http://www.dso.ufl.edu/drc/). The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation. You must submit this documentation prior to submitting assignments or taking the quizzes or exams. Accommodations are not retroactive, therefore, students should contact the office as soon as possible in the term for which they are seeking accommodations.

University Policy on Academic Misconduct: Academic honesty and integrity are fundamental values of the University community. Students should be sure that they understand the UF Student Honor Code at http://www.dso.ufl.edu/students.php.

Getting Help:
For issues with technical difficulties for E-learning in Canvas, please contact the UF Help Desk at:
- Learning-support@ufl.edu
- (352) 392-HELP - select option 2
- https://lss.at.ufl.edu/help.shtml

Other resources are available at http://www.distance.ufl.edu/getting-help for:
- Counseling and Wellness resources
- Disability resources
- Resources for handling student concerns and complaints
- Library Help Desk support

Should you have any complaints with your experience in this course please visit http://www.distance.ufl.edu/student-complaints to submit a complaint.

Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact umatter@ufl.edu so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

Course Evaluations:
Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at https://evaluations.ufl.edu. Evaluations are typically open during the last two or three weeks of the semester,

but students will be given specific times when they are open. Summary results of these assessments are available to students at https://evaluations.ufl.edu/results/.

Details of the lecture schedule and grant proposal are contained in subsequent pages of this syllabus.

Lecture Schedule

DATE	TOPICS TO BE ADDRESSED
Jan 10	1) Introduction to course; and 2) Why grant writing skills are important for faculty members at R1 and other institutions
Jan 17	1) Sources and types of research grants; 2) Applying for NIH grants-NIH organization and grant application process
Jan 24	Applying for pre- and post-doctoral fellowship-views from trainees following submission of their first application
Jan 31	1) Components of an NIH research grant; 2) Grant budgets and preparation of your NIH CV; 3) Grant writing-how do I get started?
Feb 7	NIH grant components-1) 10 common mistakes in preparing grants; 2) Flawless packaging – Grant writing skills or "how to sell your grant to a reviewer! ; 3) Effective scientific writing is key to a fundable proposal
Feb 14	1) Grant review process and scoring; 2) Selection of NIH study sections and institutes
Feb 21	1) Polishing grant writing skills -where the rubber meets the road! 2) Responding to reviewers comments-grant revision and resubmission
Feb 28	Exam-covers all lectures prior to Feb 27-study questions provided
March 7	**Spring break-no class**
March 14	Abstracts due on this date-please bring 8 copies of your abstract to class-include grant title and your name at top of abstract-class will read and score abstracts according to ability to review
Mar 21	1) The art of reviewing a grant and writing a critique; 2) Review of study section operation. *Grants due on this date-please bring complete 3 (paper) copies of your grant and 8 copies of both your abstract and specific aims (complete with PI's name and grant title on abstract)
Mar 28	Pick up your grant review assignment
April 4	Study section #1 meets and scores grants
April 11	Study section #2 meets and scores grants
April 18	Study section #3 meets and scores grants

Guidelines for grant proposal (completed grant applications due March 20, 2018)

The objective of this assignment is to improve your ability to identify an important research problem, devise an experimental solution to the problem, and compose a peer-reviewed competitive grant. Students should use the instructions provided by the NIH SF424 forms (see NIH web page for details). Your grant R21 application requires the completion of all of the NIH required forms which includes yours and your co-investigators NIH biosketches. The body of the research plan of the grant **will be limited to 6 pages (note: this page count does not include the abstract and specific aims)**. This 6 page limit is identical to the current NIH R21 guidelines) and should contain the following sections:

1. Abstract: The abstract (~ 1 page-this page does not count against 6 page total) provides a brief summary of the proposed study.

2. Specific aims: This section (~1 page-does not count against your 6-page limit) should briefly list the questions to be addressed in the experiments and the hypotheses to be tested.

3. Significance: (~1/2 pages) This section should identify the significance of your proposed experiments and provide an explanation as to why this work is important (what will be accomplished by completion of the proposed experiments?).

4. Innovation: (~1/2 page) This section discusses the innovation behind your project (e.g., innovative hypothesis, innovative techniques, etc.)

4. Approach: (~5 pages): This section typically contains both the background for the project, preliminary data and the experimental approach. The methods should briefly outline the experimental design and the general techniques to be employed. An explanation of the statistical procedures for data analysis should be included and a brief interpretation of the expected findings. Complete details of crafting this section will be discussed in class.

5. List of references: use any accepted scientific reference style. (reference pages do not count against your page limit).

Submit 3 complete copies of the grant (NIH forms included) along with 8 separate copies of the abstract* and specific aims* by March 13, 2018 (in class)

* Abstract should contain both the title of your grant and name of P.I.

Other guidelines:
Font-12 point Ariel-single spaced
Margins-1/2 inch all around
Figures should be numbered and contain captions

Grant grading procedure (points per section)*:

   ***Note that the satisfactory category represents the lowest number of points awarded for completion of any section of the grant.**

   Abstract (10 points total):
   Outstanding = 10 points
   Excellent = 9
   Very good =8
   Good =7
   Satisfactory=6

   Specific aims (15 points total)
   Outstanding = 15 points
   Excellent = 13
   Very good =12
   Good =11
   Satisfactory=10

   Innovation (5 points total)
   Outstanding = 5 points
   Excellent = 4
   Very good =3
   Good =2
   Satisfactory=1

   Significance (5 points total)
   Outstanding = 5 points
   Excellent = 4
   Very good =3
   Good =2
   Satisfactory=1

   Approach (15 points total)
   Outstanding = 15 points
   Excellent = 13
   Very good =12
   Good =11
   Satisfactory=10

   Definitions for evaluation terms:
   Outstanding = well organized and conceived; succinctly written and compelling writing style
   Excellent = well-conceived and succinctly written
   Very good =generally well written but lacks clarity in 1-2 sections
   Good =well written areas exist but lacks clarity in 3-4 sections

Satisfactory (but needs improvement) = lacks organization and clarity in 5 or more areas

Grant reviews
Each class member will be assigned two grants to review during the peer review sessions. Successful completion of written reviews for the two assigned grants will result in the awarding of all 20 points (10 points per grant).

Attendance and oral participation in grant review study section
Each class member is required to attend and participate in a peer review section of grants written by class members. Attendance and oral participation in this process will result in the awarding of all 10 points.

Suggested Reading List

WEB-based information on writing research proposals:

1. **Tips for New NIH Grant Applicants**- https://grants.nih.gov/grants/grant_basics.htm

2. **NIH grants page.** https://www.nih.gov/grants-funding

3. **How to apply to NIH.** https://grants.nih.gov/grants/how-to-apply-application-guide.html

4. **Grants Process Overview**. http://grants.nih.gov/grants/grants_process.htm

Suggested reference books on grant and scientific writing:

1. Gerin, W. et al. Writing the NIH grant proposal. Sage Publications. Thousand Oaks. Second edition. (2011).

2. Yang, O. Guide to effective grant writing: How to write a successful NIH grant application. Springer. Second edition (2012).

3. Schimel, J. Writing science: How to write papers that get cited and proposals that get funded. Oxford University Press (2012).

4. Lindsey, D. Scientific writing = thinking in words. CSIRO publishing. (2011).

5. Hofmann, A. Scientific writing and communication. Oxford Press. (2014)

6. Royal, B. The Little Red Writing Book: Writing plus Grammar-Deluxe Edition. Maven Publishing, Calgary, Canada, 2012.