

Course Handbook

PHCO732: Scientific Writing

aka... "Grant writing for grad students"

Introduction

This handbook provides an overview of the grant writing class for Fall 2020, including goals, schedules, logistics and expectations.

Why do we do this? One of the most important skills you will develop in graduate school, regardless of your future career, is the ability to communicate. The skills needed to communicate effectively cut across different mediums, and include subject matter knowledge, describing complex topics clearly, crafting arguments, and knowing your audience. The primary goal of this class is to help you develop those skills. Along the way, we will also further develop critical thinking as it relates to addressing a scientific question.

We will foster these skills through the preparation of a written grant-style proposal. We know most of you will not end up as a PI writing grants. However, learning to think critically and developing a project plan to suite your audience, will serve you well in graduate school and beyond, regardless of your career.

At the completion of the course you will have developed a complete, or near complete, first draft of your doctoral written exam (DWE). This document will be finished and submitted as part of your qualifying exam in the spring.

What you can expect from us. The course instructors are here to help you navigate this process. We will provide clear objectives, and honest and constructive feedback. This will allow you know what aspects of the process you are doing right, and where things need improving. Writing can be hard! But it will get easier the more you do it and the more you have honest feedback about how you are doing and where you can improve.

What we expect from you. Take ownership. You are in the driver's seat and are responsible for generating the ideas and writing your proposal. This will require that you dive deep into the literature, and to think hard about the questions you want to address and how you can address them. You can discuss this proposal with anyone, including friends, colleagues, and your PI. However, the ideas should be your own. Do not use an aim from your PI's grant or base your proposal on something someone told you. We expect you to stay engaged during classes and to provide honest feedback to your classmates.

The class has been historically focused on creating a document that would be viewed through the lens of an F31-style grant reviewer. While we will stick to this stylistically, we will focus on producing a clear, coherent proposal that is built on prior studies, addresses gaps in knowledge, and that is conceptually sound. Notably, little emphasis will be placed on the need for preliminary data.

Henrik Dohlman and Adrienne Cox have previously written about the mechanics of producing a proposal. This information is provided at the end of this document and is taken almost verbatim from their prior work.

This class is constantly evolving to address the needs of and feedback from students. Having to do everything through virtual meetings will add further challenges. We will all need to be patient with each other as we try to navigate this challenging time as best as possible together. We welcome your feedback as we go along.

Course instructors and contact information

1. Michael Emanuele (course director): emanuele@email.unc.edu
2. Adrienne Cox: adrienne_cox@med.unc.edu
3. Tom Kash: thomas_kash@med.unc.edu
4. Juan Song: juansong@email.unc.edu
5. Jonathan Schisler: schisler@unc.edu
6. Melissa Herman: melher@email.unc.edu
7. Mauro Calabrese (alternate): mauro_calabrese@med.unc.edu

Schedule

- All class meetings will be held using zoom. We will have a standing zoom link for meeting as a large group (below).
- You are expected to remain engaged, and with cameras on, throughout classes and meetings.
- Most weeks you will work in smaller groups of ~5-6 students and 2 instructors discussing your writing and getting feedback. You are expected to read proposals for half of your group before meeting so you can provide feedback and contribute to the discussion.
- Although you will spend a lot of time interacting with your subgroup, never hesitate to reach out to other instructors with questions, or contact Mike Emanuele (course director), with problems or concerns.
- The first two classes require no written preparation. We will meet from 1-3pm on Tuesday, August 18 and August 25. We may need to reassess the best time to meet as a larger group as we go.
- We will use a UNC OneDrive folder for sharing documents.
- The goal of the class is for you to develop a written research proposal. It is never too early to start thinking about ideas for what you might want to write about or jotting down ideas

Date	Description
8/18/2020	<p>In class: Introduction to “Scientific Writing” class</p> <ul style="list-style-type: none"> • Meet 1-3PM • Class meeting link (click here) • Introductions (be ready to share who you are a little about yourself) • What to expect this semester • Introduce and discuss goals, logistics, meeting schedule, expectations, challenges, etc. • What is allowed and what is not, interactions with PI/colleagues/friends/lab • Discuss strategies for writing a successful grant, decision trees, writing habits, word vomit, etc. • Aspects of successful science communication and writing <p>Homework for next week:</p> <ul style="list-style-type: none"> • Start thinking about potential aims, discussing these with friends, colleagues, PI
8/25/2020	<p>In class: Anatomy of a proposal and aims</p> <ul style="list-style-type: none"> • Meet 1-3PM • Class meeting link (click here) • Rigor and reproducibility • Responsible conduct of research • What is in a proposal? • What is an aims page? • What makes a good aims page? • Go through examples of an aims page and discuss what makes a good aims page • Discuss strategies for writing your own aims page • Example of what we will do next week (Emanuele) <p>Homework for next week:</p> <ul style="list-style-type: none"> • Prepare a short powerpoint of your current research project (see below) • Start sketching out potential aims, discussing these with friends, colleagues, PI
Week of 8/31/2020	<p>Small group meeting: Teach your subgroup about your project</p> <ul style="list-style-type: none"> • Meet with your subgroup (2 instructors and 5-6 students) at time that your group decides

	<ul style="list-style-type: none"> • Come to class with a few PPTX slides (less than 8) to present the background of your project • Present your research background to your subgroup so that everyone gets a broad overview of what you work on and details related to your project • Start broadly and then narrow your focus to the specifics of what you work on (proteins, genes, etc) • Plan to talk for 5-10 minutes each <p>Homework for next week</p> <ul style="list-style-type: none"> • Prepare a first draft of an aims page, with 2-3 aims related to your project • Remember, this is a first draft and will be edited significantly before the end of the semester • Upload a draft of your aims at least 24 hours before class, using OneDrive • Incorporate these aims into an updated PPTX using 1 slide per aim • Be ready to present a PowerPoint that outlines your background and aims
Week of 9/7/2020	<p>Small group meeting: Pitch your aims to your group, part 1</p> <ul style="list-style-type: none"> • Meet with your subgroup (2 instructors and 5-6 students) at time that your group decides • One person at a time will present the background of their project and their draft aims. Be ready to share your PowerPoint with the group, quickly reiterating your background and now your proposed specific aims, why you chose these questions, etc. Your instructor and group will provide <u>significant</u> feedback on your aims. When not discussing your own aims, ask questions and provide feedback to your classmates. • Instructors should shoot for ~30-45 minutes per person • We will not get through everyone this week <p>Homework for next week</p> <ul style="list-style-type: none"> • Edit your aims based on feedback in class
Week of 9/14/2020	<p>Small group meeting: Pitch your aims to your group, part 2</p> <ul style="list-style-type: none"> • Meet with your subgroup (2 instructors and 5-6 students) at time that your group decides • Continuation of last week • One person at a time will present the background of their project and their draft aims. Be ready to share your PowerPoint with the group, quickly reiterating your background and now your proposed specific aims, why you chose these questions, etc. Your instructor and group will provide <u>significant</u> feedback on your aims. When not discussing your own aims, ask questions and provide feedback to your classmates. • Instructors should shoot for ~30-45 minutes per person • We will probably not get through everyone this week <p>Homework for next week</p> <ul style="list-style-type: none"> • Edit your aims based on feedback in class

<p>Week of 9/21/2020</p>	<p>Small group meeting: Pitch your aims to your group, part 3</p> <ul style="list-style-type: none"> • Meet with your subgroup (2 instructors and 5-6 students) at time that your group decides • Continuation of last week • One person at a time will present the background of their project and their draft aims. Be ready to share your PowerPoint with the group, quickly reiterating your background and now your proposed specific aims, why you chose these questions, etc. Your instructor and group will provide <u>significant</u> feedback on your aims. When not discussing your own aims, ask questions and provide feedback to your classmates. • Instructors should shoot for ~30-45 minutes per person • The goal is to finish going through these this week <p>Homework for next week</p> <ul style="list-style-type: none"> • Edit your aims based on feedback in class • Discuss aims with your PI
<p>9/29/2020</p>	<p>In class: Next steps and review so far</p> <ul style="list-style-type: none"> • Meet 1-3PM in larger group (the time may change depending on schedules) • Class meeting link (click here) • Discuss how to write the next sections: significance and approach • Discuss citations, citation managers, plagiarism • Discuss any questions you might have • Break into subgroups to discuss the status of the near-finalized specific aims pages; if you feel any of them need additional work, what else should be done? <p>Homework for next week</p> <ul style="list-style-type: none"> • Prepare a draft of your "Significance" section • This should be ~1-2 pages describing the background information and why the project is significant (= "important" - if the study is accomplished successfully, how will it advance the field / why should we care that this study is done?). • Send your Significance draft to your group at least 24 hours before class, using OneDrive
<p>Week of 10/5/2020</p>	<p>Small group meeting: Discuss significance section, part 1</p> <ul style="list-style-type: none"> • Meet with your subgroup (2 instructors and 5-6 students) at time that your group decides • One person at a time, discuss with subgroup for feedback on significance sections. Which parts did people like; which were confusing? Take notes on feedback from your group. When not discussing your own proposal, ask questions and provide feedback to your classmates. • Instructors should shoot for ~30 minutes per person • We will probably not get through everyone this week <p>Homework for next week</p> <ul style="list-style-type: none"> • Incorporate suggestions into your draft Significance sections

<p>Week of 10/12/2020</p>	<p>Small group meeting: Discuss significance section, part 2</p> <ul style="list-style-type: none"> • Meet with your subgroup (2 instructors and 5-6 students) at time that your group decides • One person at a time, discuss with subgroup for feedback on significance sections. Which parts did people like; which were confusing? Take notes on feedback from your group. When not discussing your own proposal, ask questions and provide feedback to your classmates. • Instructors should shoot for ~30 minutes per person • Goal is to finish editing all significance sections this week <p>Homework for next week</p> <ul style="list-style-type: none"> • Incorporate suggestions on significance sections
<p>10/20/2020</p>	<p>In class: Flexible week- based on where we are and who needs help</p> <ul style="list-style-type: none"> • Meet 1-3PM in larger group (the time may change depending on schedules) • Class meeting link (click here) • Discuss writing the approach section • This week is being left mostly open to catch up, depending on how we are doing so far. Plan to meet with your subgroup to discuss any specific project/s, who needs feedback and/or is re-thinking anything. <p>Homework for next week</p> <ul style="list-style-type: none"> • Send an updated set of aims and significance to the group, using OneDrive • Start writing your approach section for your first aim • Send an updated version of your proposal, including the beginning of the approach, to the group at least 24 hours before class, using OneDrive
<p>Week of 10/26/2020</p>	<p>Small group meeting: Discuss approach section, part 1</p> <ul style="list-style-type: none"> • Meet with your subgroup (2 instructors and 5-6 students) at time that your group decides • One person at a time, discuss with subgroup for feedback on approach section. Which parts did people like; which were confusing? Take notes on feedback from your group. When not discussing your own proposal, ask questions and provide feedback to your classmates. • Instructors should shoot for ~20 minutes per person • We will probably not get through everyone this week <p>Homework for next week</p> <ul style="list-style-type: none"> • Incorporate suggestions into existing approach section • Work on drafting the approach for your other aim/s

<p>Week of 11/2/2020</p>	<p>Small group meeting: Discuss approach section, part 2</p> <ul style="list-style-type: none"> • Meet with your subgroup (2 instructors and 5-6 students) at time that your group decides • One person at a time, discuss with subgroup for feedback on approach section. Which parts did people like; which were confusing? Take notes on feedback from your group. When not discussing your own proposal, ask questions and provide feedback to your classmates. • Instructors should shoot for ~20 minutes per person • Goal is to finish editing the first part of the approach sections this week <p>Homework for next week</p> <ul style="list-style-type: none"> • Incorporate suggestions into existing approach section • Work on drafting the approach for your other aim/s • Send an updated version of your proposal, including a complete or near-complete approach section, to your subgroup at least 24 hours before class, using OneDrive
<p>Week of 11/9/2020</p>	<p>Small group meeting: the final stretch</p> <ul style="list-style-type: none"> • Meet with your subgroup (2 instructors and 5-6 students) at time that your group decides • We will spend the last two weeks discussing and editing the remaining approach sections. Get feedback from others, ask questions, etc.
<p>Week of 11/16/2020</p>	<p>Small group meeting (or in class meeting):</p> <ul style="list-style-type: none"> • Meet with your subgroup (2 instructors and 5-6 students) at time that your group decides • Discuss and edit the remaining approach sections. Get feedback from others, ask questions, etc. • Discuss strategies for finalizing the complete proposals • Final wrap