

## **MCB 540 Fall 2019**

Tuesdays 3:30-4:50 113 Gregory Hall

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Office hours: Please use workshop time to discuss individual questions with us. If a concern/question needs a more in-depth discussion, email to make an appointment.

Class website: Moodle

### **Required Text:**

Scientific Writing and Communication: Papers, Proposals, and Presentations. Angelika H. Hofmann. Oxford University Press, 2010. Available on Amazon.

### **Recommended Text:**

The Grant Application Writer's Workbook by Stephen W. Russell and David C. Morrison. NIH Version. All Cell and Developmental Biology labs have a lab copy of this book available for student use.

### **Suggested Texts:**

Houston, We Have a Narrative. Randy Olson. The University of Chicago Press, 2015. Available on Amazon.

Elements of Style by Strunk and White (Classic and only a few dollars-strongly recommended)

**Course Overview:** Students are at different points in their careers with different writing backgrounds. This class is designed to be flexible so as to help everyone move forward regardless of where they are starting. Students also have different immediate writing needs, depending on where they are in their different Ph.D. programs. Although this course will focus on grant writing for most written assignments, we will also cover manuscript writing and briefly touch on preparation of figures and oral presentations. As you will see, basic concepts for all presentation styles overlap significantly. We will also stress writing fundamentals, which will help for all types of scientific writing.

**Class Format:** Each class will be a mixture of formal lecture, writing exercises, discussions, and group editing workshop. The lectures will cover grammar, writing mechanics, narrative, as well as specific types of scientific writing or grant components. In small groups we will work on writing exercises as well as reading and editing working drafts of grants. You will need to bring into class sufficient hard copies of your writing assignment for that week to distribute to all group members. During the group session you will read and comment on other group members' assignments. Then as a group you will discuss the drafts. We expect these drafts will be a work-in-progress. Do your best to critique each other's

assignments constructively. This critique will be part of your grade.

**Groups:** We will try to group you by scientific interest so the focus in the group discussions can be on the writing and not questions about the science.

**Grading rubrics:** We will hand these out before you write an assignment. They will give a sense of what we will look for when we evaluate each assignment. Use them as a guide when commenting on each other's writing.

**Graded Writing Assignments:** Several assignments will be handed in to us after you have had a chance to make revisions based on your classmates' comments. We spend a lot of time with each writing sample and comment extensively – don't be discouraged by these critiques as everyone is in the same boat, even the course instructors who get written, often brutally honest, critiques for each of their NIH grant applications. Our goal is to move each person forward in terms of their scientific writing abilities, regardless of their starting point.

**6 graded writing assignments:**

1. Abstract: We will use this assignment as a benchmark to see everyone's starting place.
2. Specific Aims page: We spend a great deal of time on this section because it is so important!
3. Significance
4. One Aim of the approach section of a grant
5. A manuscript introduction
  
6. Final project: A grant proposal, NIH-style. The weekly writing assignments and graded assignments will build toward your final project.

**Mock Study Section:** In place of a final exam, we will conduct a mock NIH study section. Participation will count toward your final grade. This has been a lot of fun and very informative in past years. Your grants will have primary and secondary reviewers and we will discuss proposals as a group. You will not be on the study section that reviews your proposal.

**Syllabus:**

August 27	<u>Lecture topics:</u> Class organization, Approach to writing <u>Reading assignment:</u> Hofmann Chapter 1
August 29	<u>Lecture topics:</u> Principles of narrative <u>Reading assignment:</u> Olson Chapter 7
September 3	<u>Lecture topics:</u> Concise writing; run-on and compound sentences <u>Reading assignment:</u> Hofmann Chapter 4

- September 5      Lecture topics: Sentence structure, scientific jargon  
Reading assignment: Hofmann Chapter 2
- September 10     Lecture topics: Paragraph organization I, punctuation, abstracts  
Reading assignment: Hofmann Chapters 6 and 14
- September 12     Lecture topics: Redundancies in writing, overusing words; What happens in an NIH study section  
Reading assignment: NIH review criteria and instructions  
Written assignment due: Abstract draft 1, to review in groups
- September 17     Lecture topics: Paragraph organization II: transitions and signposts  
Written assignment due: Abstract draft 2, to review in groups
- September 19     Lecture topics: Specific Aims I: setting the framework and stating the problem to be solved; Verb tense  
Reading assignment: Chapters 7 and 8 in Grant Writer's Workbook  
Written assignment due: Final Abstract uploaded as a Word document to moodle site
- September 24     Lecture topics: Specific Aims II: Conveying your objective and hypothesis; Active vs passive voice in writing  
Written assignment due: Draft of opening of Specific Aims to review in group
- September 26     Lecture topics: Specific Aims III: developing your aims; Parallel writing  
Written assignment due: Draft 2 of Specific Aims (partial) to review in group
- October 1          Lecture topics: Specific Aims IV: broader impacts; Singular vs. plural in writing  
Written assignment due: Draft 3 of Specific Aims (partial) to review in group
- October 3          Lecture topics: Significance I: Significance/Innovation, Scientific Premise and Rigor of Prior Work; Citations  
Reading assignment: Chapter 10 (2016) and Chapter 9 (2011) in Grant Writer's Workbook  
Written assignment due: Final draft of Specific Aims to review in group
- October 8          Lecture topics: Significance II; that/which/this

- Writing assignment due: Final Specific Aims uploaded as a Word document to moodle site
- October 10      Lecture topic: Approach I – overall structure and introduction; Split infinitives  
Reading assignment: Chapters 10 and 11 of Grant Writer's Workbook (2011)  
Writing assignment due: Draft of Significance to review in group
- October 15      Lecture topic: Approach II - justification and feasibility  
Writing Assignment due: Draft of Significance for groups
- October 17      Lecture topics: Figures, legends, ethics of image manipulation, Hyphenated adjectives  
Writing Assignment due: Upload final Significance to moodle site; Draft of one aim of approach to review in groups
- October 22      Lecture topic: Approach III: research design, rigor and reproducibility  
Writing Assignment due: figure + legend to review in group
- October 24      Lecture topic: Approach IV: expected outcomes, potential problems, and alternative strategies  
Writing Assignment due: Draft of one aim for group
- October 29      Lecture topics: Future Directions and Timeline  
Writing Assignment due: Draft of one aim for group
- October 31      Lecture topic: Remaining grant components, including biosketch and training plan  
Reading assignment: Skim chapters 12-20 of Grant Writer's Workbook  
Writing Assignment due: Final draft of one aim for group
- November 5      Lecture Topic: Ethics  
Writing Assignment Due: Final of one Aim uploaded as Word document to moodle site
- November 7      Lecture Topic: Manuscript Introductions  
Reading assignment: Hofmann Ch. 10
- November 12      Lecture Topics: Manuscript Introductions II; Materials and Methods  
Reading assignment: Hofmann Ch. 11

November 14	<u>Lecture Topics:</u> Results; How to state conclusions <u>Reading assignment:</u> Hofmann Ch. 12 <u>Writing assignment due:</u> Draft of introduction for group
November 19	<u>Lecture Topic:</u> Discussions <u>Reading assignment:</u> Hofmann Ch. 13 <u>Writing assignment due:</u> Draft of Specific Aims for group; Final of Introduction uploaded as Word document to moodle site
November 21	<u>Lecture Topic:</u> Submitting manuscripts, interpreting the reviews <u>Writing assignment due:</u> Draft of Significance for group
December 3	<u>Lecture Topic:</u> slides and presentations <u>Writing assignment due:</u> Draft of <u>all aims</u> of approach for group
December 5	<u>Lecture Topic:</u> N/A <u>Assignment due:</u> Bring one slide to help with elevator pitch
December 10	<u>Lecture Topic:</u> Study Sections <u>Writing assignment due:</u> Draft of final project for group, or whichever part with which you'd like last-minute help
Date TBD	Final Project Due, upload as one document (Word)
Date TBD	Mock study section. You will be sent your reviewer assignments by email

**Summary of graded writing samples due, email Word document**

September 19	Abstract
October 8	Specific Aims
October 17	Significance
November 5	One Aim of Approach
November 19	Manuscript Introduction
TBD	Final Project Grant Proposal

**Grading**

- 10% Each graded writing assignment (5 total)
- 15% Thoughtful writing critiques
- 10% Class participation
- 15% Final project
- 10% Study section participation