

MIP 666
Writing Scientific Manuscripts
Fall Semester 2012

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Time: 12:30 – 1:45 Tuesdays and Thursdays

Overview

Language, at its heart, is ambiguous, lumpy, and untrustworthy. It is rotten with metaphors, swampy with similes, and ringing with tintinnabulations. Not the sort of stuff that any scientist, given a choice, would choose to convey his or her science. Science, after all, is the stuff of objective reality and absolute reproducibility. But we have no choice. Language, lumpy or not, is all we have.

In spite of its shortcomings, though, language has powers that stretch our imaginations. Words have taken us beyond Darwin and into the realm of Lamarck. They have created gods, destroyed demons, raised the dead, and spread the laws of science where once there was only mystery and superstition.

Without language, even the great truths of science would have died, locked up inside dingy laboratories, forgotten. Language is our link to one another, our conduit to the world, and our only key to the riches of our pasts – including our scientific past.

And it is the key to publication, to funded grants, and to long and productive careers in science. As a practicing scientist, ninety, perhaps ninety-nine, percent of those who will come to know you, will come to know you only through your written words – your manuscripts, your grant applications, your reviews, and your abstracts. If the words you write can't carry the force of your science, you might as well not bother. Science without the words isn't truly science at all.

I have designed this course specifically for writers of biological science manuscripts for publication in primary research journals. And I have chosen the topics to provide an overview of the tools and talents needed for writing well. At the end of the semester each student will understand the structure and function of scientific communication and will appreciate the skills required to effectively construct, revise, and publish technical scientific manuscripts.

Course Structure:

The heart of the course will focus on development of writing and editing skills specifically related to the preparation and publication of technical scientific

manuscripts. To this end, each student will distribute each of his or her writing assignments to all participants. Each student and the instructor will then provide both written and (during in class discussions) oral feedback and critique for the author's consideration. These interactions will provide instructor-supervised, essential audience feedback on the structure, the accessibility, impact, and the style of each student's writing.

Student Learning Objectives:

- Students will understand concepts of grammar, sentence and paragraph structure, and personal style
- Students will comprehend the reasons for the character of scientific communication
- Students will learn how to write and what to include in abstracts, introductions, materials and methods, results, and discussion sections
- Students will understand the importance of structure to communication
- Students will learn to identify a journal and the importance of style guides.
- Students will gain skill in editing their own manuscript and those of others.
- Students will understand and anticipate the expectations of editors and how to respond to editors and reviewers.

Grading:

Complete list of graded assignments

Assignment 1- Contribution and discussion of selected scientific manuscripts	5%
Assignment 2- Outline of proposed manuscript	10%
Assignment 3- Introduction of proposed manuscript	10%
Assignment 4- Materials and Methods	10%
Assignment 5- Results	10%
Assignment 6- Discussion	10%
Assignment 7- Abstract	10%
Assignment 8- Revised manuscript	10%
Assignment 9- Editing others work	25%

Final grades will be assigned according to the following standards:

90-100% = A
80-89% = B
70 – 79% = C
0-69% = U

Description of Graded Writing Assignments Related to Manuscript Preparation:

Outline

1-2 page outline of the proposed manuscript, including a list of headings or topics for “materials and methods,” “results,” and “discussion” sections of the final manuscript

Introduction

2-3 pages of “introduction” section focusing on own research project of provided topic.

Material and Methods

4-6 pages of “materials and methods” section focusing on own research or provided topics.

Results

4-6 pages of “results” section focusing on own research or provided topics.

Discussion

3-5 pages of “discussion” section focusing on own research or provided topics.

Abstract

150 words succinctly describing all of the material presented in the three sections above

Revised manuscript

Complete manuscript revised to incorporate instructor and student-critique of each section.

Participation:

All students will participate in classroom discussion and editing of other students' writings.

Enrollment: Limited to 12

Class Schedule

Week 1:

Tuesday: Aug 26

Discussion: Introduction and overview

Assignment: Pick out one “good” and one “bad” example scientific manuscript; e-mail to everyone.

Thursday: Aug 28

Discussion: The purpose and the power of scientific communication

Assignment: Read introductions and abstracts to all student examples

Week 2

Tuesday: Sep 2

Discussion: What makes a scientific paper “good” or “bad,” plus discussion of student examples

Assignment: Read all student examples

Thursday: Sep 3

Discussion: Consideration of writing examples

Assignment: Read student examples

Week 3

Tuesday: Sep 9

Discussion: Consideration of writing examples and discussion of techniques of outlining

Assignment: Write introduction, Writing Exercises – Grammar (1-4),

Thursday: Sep 11

Discussion: Writing Exercises -- Punctuation (1-3) Usage (1,2, and 4), and Style (Style) and student examples

Assignment: Write introductions and e-mail to all

Week 4

Tuesday: Sep 16

Discussion: Evaluation and discussion of manuscript introductions

Assignment: begin writing materials and methods

Thursday: Sep 18

Discussion: Evaluation and discussion of manuscript introductions

Assignment: Read and critique all Introductions

Week 5

Tuesday: Sep 23

Discussion: Evaluation and discussion of manuscript Introductions

Assignment: writing Materials and Methods

Thursday: Sep 25

Discussion: Evaluation and discussion of Introductions

Assignment: e-mail Materials and Methods

Week 6

Tuesday: Sep 30

Discussion: Evaluation and discussion of Materials and Methods

Assignment: Continue writing results

Thursday: Oct 2

Discussion: Evaluation and discussion of Materials and Methods

Assignment: Complete writing Results and e-mail

Week 7

Tuesday: Oct 7

Discussion: Evaluation and discussion of Results

Assignment: Begin Writing Discussion

Thursday: Oct 9

Discussion: Evaluation and discussion of Results

Assignment: Begin writing Discussion

Week 8

Tuesday: Oct 14

Discussion: Evaluation and discussion of Results

Assignment: Continue writing Discussion

Thursday: Oct 16

Discussion: Evaluation and discussion of Results

Assignment: e-mail Discussion

Week 9

Tuesday: Oct 21

Discussion: Evaluation of and discussion of Discussion

Assignment: begin revision

Thursday: Oct 23

Discussion: evaluation and discussion of Discussion

Assignment: continuing revising

Week 10

Tuesday: Oct 28

Discussion: Evaluation and discussion of Discussion

Assignment: continue revision

Thursday: Oct 30

Discussion: Evaluation and discussion of Discussion

Assignment: Continue Revision

Week 11

Tuesday: Nov 2

Discussion:

Assignment: Continue Revision

Thursday: Nov 4

Discussion:

Assignment: Mail out revision

Week 12

Tuesday: Nov 9

Discussion: Evaluation and critique of revised manuscripts

Assignment: begin writing abstract

Thursday: Nov 11

Discussion: Evaluation and critique of Revised Manuscripts

Assignment: Continue writing abstract

Week 13

Tuesday: Nov 16

Discussion: Evaluation and critique of Revised Manuscripts

Assignment: Continue writing abstract

Thursday: Nov 18

Discussion: Evaluation and critique of Revised Manuscripts

Assignment:

Week 14

Tuesday: Dec 2

Discussion: Evaluation and critique of revised manuscripts

Assignment:

Thursday: Dec 4

Discussion: Evaluation and critique of revised manuscripts

Assignment: E-mail abstracts

Week 15

Tuesday: Dec 9

Discussion: Evaluation and critique of abstracts

Assignment:

Thursday: Dec 11

Discussion: Evaluation and critique of abstracts