ERTH 616 -- How to Write a Scientific Paper  
Fall 2019

Meeting times: twice a week for 1 hour, 15 minutes, MW at 2:30 to 3:45 pm

Prerequisites: ERTH grad student status with a data set and ready to start writing a paper

Instructor: Michael Garcia, Email: mogarcia@hawaii.edu, Office: POST 617D; Phone: x66641

Books for class: Writing Science, Joshua Schimel, 2012, and How to Write and Publish a Scientific Paper; Gastel and Day, 2016 (other editions are fine). Both are available at Amazon.com. Old copies of Day’s book will be available so you do not need to buy a copy.

Course Content:
Scientific journal writing skills are absolutely critical for all graduate students to effectively communicate knowledge they have acquired and for advancement of their careers in academia, government and/or industry.

This course focuses on the mechanics of how to write a scientific journal paper. Each week will include a presentation by the instructor on some aspect of writing and a discussion with of your writing with constructive reviews. All the major issues related to submitting a scientific paper are introduced by lecture (e.g., methods, results, discussion, introduction, abstract, etc.) as well as issues of ethics, who should be a co-author, how to submit a paper, dealing with editors and reviewer comments, etc. All course participants are expected to write daily and come to class prepared to discuss their work after sharing it with other students prior to the seminar.

All students are expected to produce a draft of a submittable paper by the end of the semester.

Topics to be Discussed:

What is a valid scientific paper? Gray literature; Where to submit your paper; Who should be a co-authorship (who and why); Defining your message/story; Ethics (Originality; Citing others for ideas and data; Shingling); Picking a journal for your paper (Right audience and prestige); Getting started (organization of paper parts); Picking a title (start with 3 options); Organizing your data into tables; Making effective illustrations; Writing the various parts of the paper (introduction, methods, results, discussion, etc.); Avoiding errors and jargon; Making constructive reviews; The 3 R’s of Writing (Revise, revise, and revise); Picking Reviewers for your paper; The Cover Letter to Journal; How to submit your paper to a journal electronically; Copyright: What is it? Your rights and benefits; Responding to the Reviewers and Editor Making changes to your paper (which are necessary?) How to convince the editor that other changes are not needed); Reviewing proofs of your paper prior to publication

Assessment and Grading: Students are evaluated on their preparation for class, quality of their weekly written work, their constructive reviews of other students work and their final paper.
Course Goals: To learn how to write and submit a scientific paper to a journal of your choice.

Earth Sciences Student Learning Objectives (SLOs):
The Earth Sciences Department has defined four learning objectives for the MS and five for the PhD graduate degree programs, relating to technical knowledge, the conduct of science, oral and written skills, and professional skills. This course directly incorporates content relevant for communication of geological knowledge, enhancing understanding of the scientific method and expertise in a sub-discipline. The SLOs for the M.S. and Ph.D. programs for this course are:

M.S.
Scientific method M.S. graduates are able to (a) construct scientific hypotheses, (b) define and carry out research to evaluate them in a timely manner, (c) analyze and synthesize the results of their research, and (d) derive conclusions that help advance the fields of geology and geophysics.

Communicate geological knowledge M.S. graduate are able to effectively communicate the findings of their research in writing at a level comparable to that of a scientific journal publication, and defend it orally to the satisfaction of a scientific audience. They are also able to communicate orally about Geology though seminar or conference presentations.

Ph.D.
Expertise in a sub-discipline. Ph.D. graduates are able to comprehensively synthesize, evaluate, and interpret relevant fundamental knowledge in her or his sub-discipline.

Scientific method Ph.D. graduates are able to independently (a) construct scientific hypotheses, (b) design and carry out research to evaluate them in a timely manner, (c) analyze and synthesize the results of their research, and (d) derive conclusions that advance the fields of geology and geophysics.

Communicate geological knowledge Ph.D. graduates are able to effectively communicate the findings of their research in writing at a level comparable to that of scientific journal publications, and defend it orally to the satisfaction of a scientific audience. They are also able to communicate orally about Geology though seminar or conference presentations.