Instructor: Professor David L. Kimbrough  
email: dkimbrough@mail.sdsu.edu, office: 619 594-1385  
office hours: by appointment

**Course Prerequisite:** Advancement to candidacy for the Masters of Science degree in Geological Sciences


**Recommended Reading:** Day RA & Gastel B 2006. How to write and publish a scientific paper. 6th ed. Cambridge Univ. Press; Cargill M, O’Connor P 2009. Writing scientific research articles. Wiley-Blackwell

**Objectives of the course:**  
The objective of this course is to introduce participants to the details of writing scientific publications. Written material is the primary mechanism by which new advances are disseminated...and from which inspiration for further advances is derived. Being a good writer is part of being an effective researcher. The emphasis in this course is on preparation of peer-reviewed journal publications.

**Learning outcomes and competences:**  
At the end of the course the student should be able to:

- Write a scientific manuscript that conforms to the rules and requirements
- Invent the contents of a manuscript through research and reflection.
- Compose effective sentences.
- Evaluate potential publication forums
- Deal with scientific editors, and others involved in the scientific publishing process
- Design and use tables, graphs, and technical illustrations.
- Communicate in an ethically responsible manner.

**Course contents:**

- Objectives of scientific writing
- Important issues in writing
- Strategies for effective writing
- How to decide where to publish
- The publication process (manuscript preparation, submission, dealing with editors, technical editing and printing)
- Requirements of grammar and style
- Principles of preparing figures and tables
Important Issues in Writing
What makes scientific writing “good?”
- “Tell a Story!!”
- Organization and logical flow
- Accessibility and scope
- Completeness
- Clarity

Strategies for effective writing
How to begin?
- Consider: What do you want to say? What message do you want your reader to take away?
- An outline can help you establish an initial, basic organization and structure
- Do not worry about all the details at first; you can fill in the holes later. Get the main ideas down in whatever form comes to mind
- Do not try to start at the beginning and write everything in order! Write what you can first. The introductory material is often the hardest to write!
- Don’t let yourself get stuck agonizing over a word or detail; make a note to come back to it and continue

Basic principles:
- Motivate, excite the reader at the beginning
- Build up the story in a logical sequence
- Do not refer to ideas until after they have been introduced
- Use sections and subsections to organize and highlight the key points and flow of ideas
- Try to give each paragraph one main point
- Sentences within a paragraph should lead into one another in a logical way

Organization and logical flow: A basic template
- Abstract
- Introduction – motivation, background, purpose motivate, recount what is known and why it is not adequate, review what you will do and how it will add to knowledge in the area – this can be the hardest part to write.
- Background – summary of what is already known that is related, important
- Methods and results
- Conclusion/Discussion – restate purpose, interpret your new data in light of existing knowledge, mention possible topics/ideas for future
- Acknowledgements – include support from funding agencies
- References Cited