Instructor: Professor David L. Kimbrough  
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Meeting: 1 hour per week  
Office hours: GMCS-229A  
Course Prerequisite: Upper Division standing in Geological Sciences  
Recommended Text: Revising Prose (5th Edition) by Richard A. Lanham

Geol 498A prepares students to complete the Geol 498B senior thesis requirement in Geological Sciences. The senior thesis provides students with a quality collaborative research experience under the guidance of a faculty mentor and the Department has a long history – over 50 years - providing research experience for our undergraduate students, many of whom have presented their results at professional meetings and/or published papers in professional journals. Via this requirement students get to experience firsthand the process of scholarly research, are better prepared for graduate school, and are better equipped to make career decisions. Graduating seniors make an oral presentation of their project on “thesis defense day” at the end of spring semester and an alumni committee selects the outstanding thesis. Love Library houses many of our undergraduate theses.

For maximum benefit – students are encouraged to select a faculty mentor and thesis topic as early as possible in their undergraduate training – and in general at least two semesters prior to their expected graduation date. Settling all this by the end of the junior year - prior to summer - is an ideal situation that allows plenty of time to do a good job.

If you have a specific thesis topic in mind – this is great! If not, don’t worry because most students collaborate with faculty to define and develop a research topic. Students are responsible for initiating discussion with faculty members about possible thesis work. You can review faculty members research interests at: http://www.geology.sdsu.edu/undergrad/undergraduate_thesis.htm

Research Grant Application
The focus of Geol 498A is preparation of a research grant application on your thesis topic following the Geological Society of America student research grant template. This grant application has three sections:
• Clearly state the problem(s) to be addressed, the hypothesis or hypotheses to be tested, and the overall objectives of your proposed project. (1,200 character limit):

• Discuss the previous work on your problem(s) that (1) places the project in a disciplinary and, if appropriate, regional context and (2) documents the importance of your project. (2,500 character limit):

• Concisely state how you plan to address your problem(s) and test your hypothesis or hypotheses (2,500 character limit):

Research Grant Presentation
The scientific talk is an important communication forum in the scientific community. Each student in Geol 498A is thus required to give a 15 minute talk on their grant application. This provides training and experience on how to give a good talk and prepares them for their thesis defense. Students are required to critically evaluate each other’s talks and an evaluation sheet is provided for this purpose.

Learning Outcomes
After completing this course, students should be able to

• Analyze the purposes and requirements of designing and implementing a research study.
• Develop and analyze research questions relating to a specific research problem.
• Understand research proposal planning and development.
• Locate and review research literature relating to your research.
• Give a good talk