Geology 554
Environmental and Exploration Geophysics 2
Term Report Guidelines

Term Report - The written term report is a minimum of 12 pages not including figures, lists of figures, cover page, table of contents, references, etc. Your report should be typed on a word processor using double line spacing (with exception of the abstract) & Times Roman 12 point font. Borders on the top and bottom should be no more than one inch; borders on the left and right sides, no more than 1.25 inches.

YOUR TOPIC: There is a lot of flexibility in what you undertake for your term report. You can work on the Imperial Barrel data set or report on a geophysical topic of interest to you. The later would require you to search through the literature on the topic and prepare a comprehensive overview of geophysical applications or theory relevant to your topic. What you decide to do should be discussed with me before mid-term. The geophysical topic does not have to be restricted to seismic or ground penetrating radar methods. You could choose to discuss some basin and provide an overview of the different kinds of geophysical data that have been used to gain a better understanding of the basin architecture. You could also choose to research some specialized area in seismic interpretation such as AVO methods, use of restricted azimuth stacks for fracture detection, edge detection methods, attribute analysis, use of neural nets to derive pseudo geophysical logs from seismic attribute analysis, etc. Alternatively you may wish to explore the uses of geophysical methods related to some aspect of your thesis research. The general intent is to give you a lot of latitude and flexibility to choose a topic that will be of interest to you.

Mid Term Deadline - A three page description of your project including a preliminary list of references will be required at mid-term.

Your mid term summary should consist of

Overview – In an abstract format (~200 words) describe what you hope to do and accomplish in your term report effort. (half a page)

Background – In brief, what have you found out about your topic? What are the main points (issues, techniques) you plan to examine in some detail? Briefly mention relevant papers encountered in the literature. This should consist of a couple pages.

References - Present a preliminary list of references.

Figures – Are not required, but can be presented to supplement the foregoing discussion.

Due in my mailbox by Friday March 5th

Term report oral presentations will be made during the final week of regularly scheduled classes. A paper copy of your term report will be due at the time of the regularly scheduled exam for the class.

Report Structure: The general outline of your final report will vary depending on the subject material, however, as a general rule include the following:

ABSTRACT summarize the main results/outgrowths of your project in a succinct manner 200 to 300 words single spaced.

DATABASE If you are working with Imperial Barrel (or other) 3D/2D data sets, describe them: What is the source of your data? What kind of data is it? What coordinate system(s) are you using? What were the acquisition parameters, etc. Present other details and acknowledgements of data sources here. Note problems and difficulties associated with data formats.

BACKGROUND: Again, content depends very much on the topic you choose to report on. For example: Provide a basic discussion of the geology of your project area. What is the motivation for your study? What questions do you hope to answer as a result of the analysis conducted for this project? Provide background and discussion of previous uses of the method you choose to report on. This could be in the form of a comprehensive review of the literature on the subject.
If your data is being used as part of your thesis research, describe the longer term goals that will result from the initial project conducted as part of this course.

OBJECTIVES: In all cases describe the purpose and main objectives of your effort. Why are you doing this? Is it related to some particular interest of your? What main things do you hope to get from this effort?

ANALYTICAL APPROACH If you are working with a specific dataset, explain how you plan to evaluate your data? What questions motivate your study? Describe what maps you will generate and why. How will the data be integrated?

- Team efforts are permitted; however, the division of efforts must be clearly defined. There has to be a good reason for doing this. Group activities have been undertaken in the analysis of some data sets. If one or more of you decide to work on the Imperial Barrel data set, different tasks can easily be defined. Clearly describe the cooperative arrangements between team members. Did you work independently with the entire database and then try to reconcile differences of interpretation in later discussions/comparisons of results? Will each member share the data at some point and then make separate interpretations of the entire data set? Alternatively will you work together on the early stage interpretation but pick different areas of the analysis to focus on. Those working in groups need to advance their work quickly enough to allow time for this discussion, comparison, and integration period. These issues need to be addressed and defined in your mid-term report.

- If your project is not concentrated around database development, mapping, interpretation and play development efforts then you may not have an analytical approach section. More likely, you will have a methods section.

ONE OR MORE OF THE FOLLOWING SECTIONS> METHODS OR SPECIFIC APPLICATIONS OF INTEREST Describe the technique you are focusing on: amplitude variation with angle, attribute analysis, …. This could also be a more specific background section. In the mining environments, perhaps you are going to focus on one or two geophysical techniques: radio imaging tomography, high resolution seismic, in-seam seismic methods, etc.

INTERPRETATION OF RESULTS Present various maps, cross sections, logs, etc. (relevant to the nature of your database). Describe how these maps, cross sections, logs, seismic interpretations, etc., answer the basic questions motivating your study. Again, if you are not doing a database mapping effort then the following section heading may be more appropriate for you.

DISCUSSION OF THE APPLICATION AND RESULTS This will be geared more toward pertinent discussions of the method or specific applications you have chosen to report on. You could present case histories of the method if this is more of a literature review type effort. You could present calculations if you are actually involved in doing some of the work.

EVERYONE WILL NEED A CONCLUSIONS SECTION

CONCLUSIONS The conclusions can consist of summary, discussion, and recommendations sections, or be presented simply as conclusions. In the conclusions you will want to summarize the main results and findings of your project and offer some discussion of why you feel the data support a particular interpretation. Of particular importance to those undertaking these projects as preliminary efforts in their longer term thesis research, you will want to “recommend” additional analysis. Perhaps you can address these kinds of issues in a separate “Future work” section. However such a discussion should be no more than one page.

If you selected a literature review type topic or are conducting analysis of fracture data and have some actual applications to show, then you may want to summarize the major outgrowths of your review and then discuss areas where additional work is needed on the subject.

THESE GUIDELINES ARE GENERAL AND INTENDED TO GET YOU THINKING ABOUT THE STRUCTURE OF YOUR PAPER AND PRESENTATION. THERE IS CERTAINLY A LOT
OF FLEXIBILITY IN THIS, BUT YOU WILL NEED TO BRING OUT SOME OF THESE IDEAS AS PART OF YOUR MID TERM REPORTING EFFORT.
THE ORAL PRESENTATION

PRESENTATION HANDOUTS: The oral presentation is to be accompanied by a handout for all members of the class. This handout will consist of

1) the abstract to your report,
2) The major outgrowths of your effort. This could be a draft copy of your conclusions
3) significant references (not all of them) and
4) significant figures (~2-4) from your written reports.

This provides each class member with a future reference to the subject you are discussing. **Your oral presentation should not exceed 15 minutes. Practice** your presentation before giving it to the class and pay particular attention to the timing. This is good experience. Presentations at professional meetings or in the workplace often have a time limit. Learn to cover the main points of your effort in the allotted time frame. 3 minutes will be allowed for questions. Out of courtesy for others in the class, keep your presentation down to no more than 15 minutes (no less than 10).

- Please provide a copy of your power point slides to me the morning of the talk. The results of your project will be posted on the class web site for future reference. This will also eliminate the need to log on and off the computer between presentations.