Disciplinary Communication in the

Department of Earth and Planetary Sciences (EPS)

University of California, Santa Cruz

A Guide for Writing in EPS Classes Satisfying the DC Designation

Version 1.01

21 September 2010

I. Introduction

The Committee on Educational Policy at UCSC enforces rules to ensure that all departments satisfy campus-wide requirements, providing students with the opportunity to gain training and experience writing professional quality documents in their chosen major (Disciplinary Communication, DC). The Earth and Planetary Sciences (EPS) Department has secured approval from CEP for EPS majors to satisfy the DC requirement while simultaneously completing other requirements for the major.

This document summarizes the CEP-approved policy by which EPS majors can satisfy the DC requirement. In addition, we provide guidance on the preparation, editing, and revision of several kinds of written products. All EPS classes that satisfy part of the DC requirement will follow these guidelines, though individual instructors and thesis advisors will provide more specific information regarding course requirements, paper deadlines, and document content.

II. Disciplinary Communication Requirements

CEP directs that the DC requirement can be met by completing at least 25 pages of individual writing (including drafts) with no single assignment less than two pages in length. CEP estimates that 25 pages of writing corresponds to ~6,000 words in 12 point Times New Roman font, with double-spaced lines and 1.25 inch page margins. CEP further directs that ELWR/C1/C2 requirements are prerequisites to taking DC-approved courses to ensure that students have the intended preparation before completing the DC requirement. Departments may not approve substitutions for the DC requirement; requests for substitutions must come through the student's college for CEP approval. In addition, the DC requirement cannot be satisfied with transfer coursework. When the DC will be satisfied with a senior thesis (discussed in greater detail later), the student needs to enroll in a 5 credit course in order that there be a place in AIS to attach DC requirement satisfaction.

In the UCSC EPS Department, the DC requirement can be satisfied by passing at least two upper level elective courses that individually satisfy half of the complete DC requirement. As of Summer 2010, courses that satisfy half of the DC requirement include: EART 100, 101, 102, 104, 109, 116, 120, 125, 140, 146, 148, 150, 152, 160, 188A, and 195 (senior thesis). Students in the Earth/Education concentration must take at least one of the courses from the above list and EDUC 185L. Students wishing to complete the combined Earth Sciences/Anthropology BA must

satisfy two courses from the list for the Earth Sciences BS, with ANTH 100, 170, 194B, 194L, and 194Y added to the list of options. Finally, students enrolled in the combined EPS and Environmental Studies major should check with the latter department to determine current requirements, as Environmental Studies is the lead department for the combined major.

Many EPS majors complete three or more of the electives from the list above, so it should be possible to satisfy the DC requirement with little change to other course plans. Please note that many upper level EPS electives have one or more prerequisites. Interest in completing the DC requirement will not be considered justification for obtaining a permission code to enroll if prerequisites are not satisfied. Similarly, not all electives from the list above are offered every year, and quarters in which each course is offered vary from year to year. Please check with divisional advisors and individual faculty to determine when particularly EPS courses will be offered.

III. General Rules and Guidelines

The following guidelines must be followed unless different instructions are provided by your instructors. Assignments that do not meet the basic requirements discussed in this section may be returned without editing or grading, and you may be docked points (or even lose all assignment points) if a suitable document is turned in after the assignment deadline.

Document set up and organization

All written assignments should be typed using a word processor and a common serif font (e.g., times, times new roman, courier). Printing should be 12 point size, with 1.5 or 2 line spacing, and 1 inch margins all around. The line spacing and margins are essential as they provide room for making editorial comments. Minimize use of multiple fonts, font sizes, and bold or italic text. All pages should be numbered on the lower right corner.

Content and style

Instructors and teaching assistants will provide specific guidelines and instructions for individual assignments, but all EPS writing assignments are expected to be clear, concise, and factually correct. It is also essential in most writing assignments to separate the presentation and interpretation of data. Proper grammar, usage, and organization are expected (for more guidance, refer to the texts recommended in Appendix F). In particular, we encourage you to use active

voice construction as much as possible. Virtually all good technical documents will follow a narrative arc, a story that conveys key information in a way that is readily understandable to interested persons having some knowledge of basic topical concepts, but not necessarily experience with the specific results being presented. Spelling should be checked carefully, both with an automatic spell checker and with a dictionary, because spell checkers are not foolproof. All acronyms and abbreviations (e.g. MORB, K-T, Fm.) should be spelled out on first usage.

Many DC documents will have sections, but the organization and detail of these sections will depend on document length and purpose. The examples and templates presented later provide specifics for different kinds of reports, but one standard organizing system is: Introduction (includes general background, purpose and scope), Setting, Methods, Results, Discussion and Conclusions. Additional sections that may be needed include: Table of Contents, List of Illustrations, Abstract (appears before Introduction) and References. Your instructor may ask that you demarcate sections with headings and subheadings. Although many word processing programs provide tools for automated section formatting, we encourage that you disable automated formatting features and create section headings and related structures manually. This will provide finer control and avoid problems that can arise during editing of an automatically formatted document.

Revision

Some EPS writing assignments will be edited (corrected) only once by the instructor, teaching assistant, or writing tutor, but others will be handed back with the expectation that you will revise the original writing and submit an improved final draft. Section V of this document discusses standards for editing and explains use of common diacritical marks. When you turn in a revised version of your work, you are expected to also turn in the marked up original, so that persons grading the assignment can see how it has been changed in response to earlier editing.

Attribution and plagiarism

Most written communication in EPS DC courses will have a research component.   When researching a topic you should only use reputable published books, journal articles, maps, open-file reports, and *authored* internet information. You should *not* use information imparted by an

instructor in class or anonymous internet information (e.g. Wikipedia) as a basis for your research.

All EPS research assignments are expected to give proper attribution to the primary research sources. 'Proper attribution' means that reference citations must be complete and follow professional practice. One widely used protocol for in-text reference citations is illustrated in the following paragraph (modified after Beitler et al., 2003).

```
"Bleaching of red beds associated with the movement of hydrocarbons
through rocks was recognized as early as 1922 in Triassic Chugwater
red beds (Moulton, 1922). Since then, several published examples
document the spatial relationship of bleached red beds and the
movement of hydrocarbons through rocks (Levandowski et al., 1973;
Segal and Brown,1986; Surdam et al., 1993; Chan et al., 2000). Walker
(1979) showed that the red pigment in non-bleached beds is the result
of thin hematite grain coatings formed during early diagenesis, and in
experiments conducted by Shebl and Surdam (1996) pyrolysis of rock-
water-hydrocarbon mixtures altered red coloration in sandstones to
light pink, white, gray, or dark gray."
```

Other reference citation formats used widely in professional earth sciences journals are shown below, using the first citation in the paragraph above as reference:

```
(Moulton 1922)
(MOULTON 1922)
...in Triassic Chugwater reds beds[1]
```
(the final example indicates that the reference list at the end of the paper will order references according to the order in which they are mentioned in the text rather than alphabetically by last name of first author)

Proper use of reference citations is key to avoiding plagiarism. According to Webster's Collegiate Dictionary (2000), plagiarism is "the unauthorized use of the language and thoughts of another author and the representation of them as one's own". For all DC assignments *you* must be the author of each sentence in your paper, even though you will often be presenting the ideas of others. When drawing from published literature you can ensure originality by

a) giving full credit to the original author(s) by citing her/his/their work in both the body of your text and in the 'References Cited' list at the end of your paper

b) paraphrasing the ideas of others rather than 'borrowing' prewritten sentences or paragraphs, *even if you use quotation marks around the original text and/or cite the original reference;* using quotations rather than rewriting in your own words is both lazy and obstructive to the flow (and hence clarity) of your narrative

c) *thinking*; writing is work, work is good; if you are unsure about whether you are attributing reference materials correctly, ask an instructor

It goes without saying that use of text (or figures) from unattributed sources, including classmates and Wikipedia, is plagiarism. Any documents deemed to be partially or wholly plagiarized will at best be rejected (earning you an 'F' on the assignment) and could be submitted to the university as a basis for disciplinary action.

Figures, tables, plates and equations

Most written assignments are intended to be standalone documents. This means that referenced figures and tables should be part of the same electronic file as your written work, unless otherwise specified by your instructors. Plates are treated differently (see below). Generally, you should not refer in your text to figures or tables from other sources (such as sketches in your field book). However, in some cases you may want to direct your reader to the precise source of a key piece of data, as in: "The slip rate on the Really Big Fault increased between 1963 and 1987 (Black and White, 1993, Figure 3)".

Figures, tables and plates should be called out (referred to in the text). Each figure should be assigned a unique identifier (Figure 1, Figure 2, etc…) according to the order in which you mention it in the text. Figures can have multiple panels (A, B, C, etc.) but typically all panels from a single figure appear on a single page. Thus if you have to use multiple pages, you will also have multiple figure numbers. All figures must have captions. A caption is more than a title; it is brief summary that explains how the figure is to be interpreted, and detailed enough to allow the figure to stand alone (understandable even without the text of the report). If your figure is borrowed or modified from someone else's work, you should cite the original source at the end of the caption (and make sure to include the full reference in the 'References' section at the end of the report). For example: "***Figure 1:*** Endocast of an *Tyrannosaurus* braincase showing extreme enlargement of the lateral lobes, caused by excessive drinking and smoking (from Benson and Hedges, 2008)." In general, a figure caption should appear below the figure it describes.

All figures should be called out in the text, either *explicitly* or *implicitly*.

Explicit figure call out:

```
"The culvert draining the detention pond has a metal wedge glued
into the opening, effectively reducing its cross sectional area, as
shown in Figure 6."
```

<u>Implicit</u> figure call out:

```
"The Music Center facility is located in a small hydrologic basin in
the south central part of the UCSC main campus (Fig. 2)."
```

As shown in these examples, figure call outs are typically capitalized for easier identification. Call outs can appear in groups or ranges, e.g., "Figures 3 to 6" or "Figures 3, 5, and 9." Note, in the last example, Figures 1, 2, 4, 6, 7, and 8 must have already been called out since the example makes reference to Figure 9. Instructors will provide additional information regarding specific figure content and formatting requirements.

Rules for tables are similar to those for figures. Each table is to be assigned a unique identifier (Table 1, Table 2, etc…). All tables should have captions, explaining how a table is to be read and understood. Columns should have headings and any columns containing data should indicate the units of measure, if any. Many tables have notes at the bottom explaining the meaning of acronyms or unusual data values.

Plates are graphics that are larger than 8.5 x 11 inches, such as geologic maps, cross sections, stratigraphic columns and fence diagrams. Generally, plates should be folded and placed at the end of the assignment. You may attach them to a report with a clip or you may place them in an envelope glued or taped on the inside back of a report cover. Plates should *not* be stapled to documents or other plates. Each plate must be labeled with a clearly visible plate number and identifying title (e.g. Plate 3: Geologic map of the Scotts Valley Syncline). Like figures and tables, plates must have at least one call out in your text; however, since plates generally contain more information than a typical figure, you may find that multiple in-text citations are appropriate.

If you use equations, please either type set them using an equation editor or (if necessary) write the equations neatly using a pen on the final version of the assignment. All equations should be numbered consecutively and referred to by their number if discussed in the text. Any variables used in an equation or within the text must be defined when introduced. For example,

"The time of concentration (`$t_c$`) changed.." then later in the paper: "Other factors that can influence t_c include.."

IV. Forms and Formats of Written Disciplinary Communication Materials in EPS

A. Forms and Formats

There are many forms and formats for written communication in EPS DC courses, a few of which are summarized in this section. Please read assignment instructions carefully, and be sure to ask questions if you are not sure of what is expected. Consider the audience for whom each document is being prepared.

Many writing assignments will benefit from use of an outline to organize and edit your thoughts. Even an abstract, comprising a single page of text, will be improved if you outline it first. An outline can be a simple list of points that you with to make or topics that you plan to introduce. Outlining helps to make sure that your writing follows a logical and systematic plan, and that ideas discussed in section three are properly introduced in section one. When writing a relatively long and complex report, an outline can be "fleshed out" as part of the writing process, eventually being transformed into the final document. In other cases, you will keep the outline open as you write, referring to it to remind yourself about how you plan to move from topic to topic. In the end, outlining will help to make you a better writer, and will save time by keeping you on track throughout the writing process.

Most importantly: *do not wait until the night before a writing assignment is due to begin work.* Even a relatively short abstract can require many hours of critical thought, and all written documents will benefit from sitting for some time between revisions. All written documents that are intended to satisfy part of the DC requirement should go through at least one round (and generally several rounds) of self editing and revisions, as discussed in Section V of this document.

B. Abstract

An abstract is generally a brief distillation of a longer document, often containing just 200-250 words. *When prepared for this purpose, it is generally best to write the abstract last*, after all of the rest of the document is in nearly final form (after having edited and revised all the other parts). In other cases, an abstract is prepared as a stand-alone document, for example as a

submission for an upcoming meeting (in the hope of securing a speaking or poster slot at the meeting) and/or for inclusion in a proceedings volume. In general, abstracts do not contain figures, tables or citations (though there are exceptions to this rule, particularly as a result of electronic publishing). Although it may seem that an abstract is easy to write because it is short, it can be challenging to write an effective abstract. An abstract should make the reader want to read the rest of the document, or come to see the associated talk or poster. In many cases, the abstract is all that a (potentially) interested person will read, so it must be crafted carefully. Funding, publication, and other professional decisions are often made largely on the basis of abstracts (even when that is not the intention of the reader or reviewer) so give an 'abstract assignment' the attention that it deserves. For further guidance, read the chapter on abstracts in 'Geowriting' (Bates et al., 2004), listed in Appendix F.

A template and example abstract are presented in Appendix A.

C. Report or Research Paper

This is the most common and most flexible of the written DC assignments that EPS students will be asked to prepare. Thus it is especially important to read the assignment instructions carefully, to make sure that you understand the content, length, and format that are expected. In some cases, the assignment will be for a short report of only 1-2 pages having a single section (virtually an "extended abstract") whereas in other cases the assignment will comprise a 10–15 page report with multiple sections and subsections, edited, returned and revised multiple times. There are many possible formats for a report, but the one we often use for EPS written DC assignments is common and will suffice for many purposes.

Reports generally have multiple sections. The structure of the sections may be left to you, or your instructor or TA may provide detailed guidelines. Many people find it easiest to write the sections of a report in this order: Setting, Methods, Results, Interpretations, Conclusions, Introduction, and Abstract (if any). By waiting until late in the writing process to prepare the introduction, you can make sure to foreshadow key topics, and avoid topics that are not actually addressed by the report. In addition, it is generally a good idea to have completed drafts of all of the key figures and tables before you begin writing.

A template and example report are presented in Appendix B.

D. Proposal

A proposal is often the most difficult kind of written DC document to prepare. Writing proposals is common in many businesses and industries, including academia. A proposal shares many characteristics with a standard report, but it is generally even more structured than a report and has an additional goal: to convince the reader that your idea for a project should be approved and/or funded. This is particularly challenging when you consider that your proposal is likely to be evaluated by some people who know little about the topic or work being proposed, and others who are experts in the field. In some ways, a proposal is like a report on which (in the real world) you get either an A or an F ("funded" or "not funded").

Many proposals are written in response to a Request for Proposals (RFP, sometimes referred to as a "call for proposals"), and the RFP generally includes specific guidelines regarding document formatting, content, and structure. In addition, many RFPs require completion of forms (sometimes many forms), and generally uploading of numerous documents through a web interface. Documents that are not formatted correctly are rejected, and proposals that do not include all of the required documentation will not be considered. Often there are institutional, advisor, and/or supervisor signature requirements. Deadlines for proposal submission are generally firm, and exceptions for late or incomplete proposals are extremely rare. Thus it is essential to read the RFP carefully, consider your target audience(s), and leave plenty of time to write, edit, revise and rewrite your proposal before the due date.

Graduate students are often asked to prepare a research proposal before they are advanced to candidacy. The fundamental goal of this proposal is to convince a review committee of faculty and researchers that you are ready to undertake the planned research. This requires demonstration of an understanding of fundamental scientific issues and the historical and current literature on the topic. In addition, a graduate research proposal must include a detailed plan for completion of the work, a discussion of expected outcomes (including presentations at meetings and publications), a research schedule, and a plan for funding.

No template for a proposal is provided, as formatting and other requirements are generally specified by the RFP or by the department. Instead, an example RFP for a funding program is presented in Appendix C.

E. Thesis

A thesis is a specialized report. It is a highly structured document containing all of the usual report sections, and will often include an abstract, acknowledgements, an extensive bibliography, and one or more Appendices containing all of the data generated during completion of the project. The UCSC Committee on Educational Policy requires that all senior theses have a minimum of 25 pages of writing, which may include drafts.

Writing a thesis takes many students much longer than they anticipate. As a rule of thumb, you should allow at least a full quarter to write a thesis. This is a 10 week period that *follows* a thorough literature review, actual field and/or lab research, data acquisition, and all stages of interpretation. Preparing an acceptable thesis may require completion of dozens of figures and tables (not all of which will appear in the final document), reanalysis of results following discussion with your research advisor, and at least two (and possibly more) stages of revision and reformatting. The final thesis must be approved by the last day of classes in which you would like to be credited with the work (e.g., if you want to graduate in Spring quarter, the final draft must be approved by your advisor on the last day of classes of Spring quarter).

No template for a thesis is provided, as formatting and other requirements vary greatly by advisor within the EPS department, but we do include a template for a thesis cover page (Appendix D), and examples of good senior theses are available in Cathy Smith's office. Your thesis should be structured much like the report in Appendix B. See your research advisor or the departmental undergraduate advisor for examples of successful theses in your field of study.

V. Editorial Guidance

Few people write clear and concise prose as a first draft, making editing an essential part of the writing process. In fact, many professionals find that writing well is the most difficult part of their job. This includes people who are talented and experienced writers.

The most important editing is that which you do yourself. You should never turn in a first draft of an EPS DC document as a final draft. Instead, you should prepare draft materials, then edit and revise them multiple times before turning in a "final" draft. Some people edit their work on the computer screen, but others prefer to print out a hard copy and mark it up with a pen, then key in changes. You will need to find the editing approach that works best for you.

It is essential to leave sufficient time for editing and revision. In fact, it is often effective to write a full draft of a document, edit and revise it, then leave it for a day or so before editing it again. Having a time gap between writing and editing helps to look at the document with a fresh assessment of how well it meets your writing goals. If writing for a specific assignment or RFP, reread the instructions prior to editing to make sure you have addressed all the requested points. One of the most common and damaging writing flaws is not answering the questions asked, or not satisfying the requirements of the RFP.

Another useful strategy is to have a class or research group colleague edit your work, and you can edit theirs as well. Editing the writing of others can be helpful in editing your own work. Note that even if you expect to be edited by the TA, instructor, or your advisor, this does not mean that it is OK to turn in a sloppy first draft and get your most basic editing done that way. *Rough* drafts will be returned unedited and uncredited. Thus, do a thorough editing and revision job *before* turning in even a first draft writing assignment for formal evaluation.

Thorough and helpful editing takes time and is often done in stages. For example, if the first draft of a report that you turn in has significant organizational or data issues, the first set of edits may request major structural changes but neglect a detailed copy edit of grammar, usage, and figure call outs. Once the structural issues are addressed, the next round of editing may focus on other topics. Editing and revision is an iterative loop, and you should expect that many documents will require multiple rounds.

One of the reasons for printing your documents with 1.5 or 2 spaces between lines, and with 1 inch margins, is to leave space for editorial marks. These marks are a form of shorthand that helps to make editing efficient. Some of the most common editing marks are included in Appendix E of this document.

Appendices

<u>Appendix A. Abstract template</u>

    The following page contains an abstract template. Notice that the use of a standard serif font (Times New Roman), 1.5 line spacing, and 1 inch margins all around, as discussed earlier. Please review Section III. General Rules and Guidelines, before preparing your abstract, and be sure to verify the topic of the assignment and write for an appropriate audience.

This is an example of an abstract title, formatted as you should format your abstract title prior to submission for evaluation

Ima Student, Eart 123

23 March 2011

This is the first sentence of the abstract text, summarizing what was done and/or the key results. You should get to discussing key results by the second sentence, as there is little or no introductory material in an abstract. The content of the abstract should follow the content of the study being reported, except that there is generally little or no introductory material. As you write the abstract, have the rest of the paper (or key figures and tables that summarize the work, if this is a stand-alone abstract, e.g., a submission for a meeting) open in front of you so that you can follow the arc of the narrative. The text continues like this, generally as a single paragraph, until the entire abstract is nearly complete. The length of the abstract should be specified as part of the assignment. The final sentence of two of an abstract should include key results, conclusions, recommendations, and/or implications of the study.

Appendix B. Report template

    The following page contains a report template. Notice that the use of a standard serif font (Times New Roman), 1.5 line spacing, and 1 inch margins all around, as discussed earlier. Please review Section III. General Rules and Guidelines, before preparing your report, and be sure to verify the topic of the assignment and write for an appropriate audience. Please also play careful attention to instructions regarding figures, tables, and referencing. There are strict guidelines for these materials that help the reader to understand what you are trying to communicate.

    The report template that follows includes a cover page, but this is not always required. That said, a cover page is helpful in clarifying for the reader what is about to be presented, and it makes clear the intended purpose of the assignment. This may be especially useful for using a course report as an example of your writing capabilities for a prospective employer, professional degree program, or graduate advisor. The example template also does not include an Abstract or Executive Summary, but this may be requested. Please read the assignment carefully and ask questions if you are unsure about what topics or sections should be included in your report.

This is the Title of this Disciplinary Communication, Worded Appropriately to Convey the Topic of the Report and Perhaps a Key Result of the Work.

Ima Student

Date

A report prepared for partial fulfillment of requirements

for Eart123, Important Science

I. Introduction

   Describe the overall purpose of the report and the topic being reported, what kind of study this is, the nature of the study, etc…, without getting into specifics. Why did you evaluate this area (reasons other than for a class assignment!), what are your project goals/anticipated outcomes, etc. Explain how the rest of the report is structured, what the reader can expect to find. If there are key questions to be addressed, they should be introduced here. It is often best to prepare this part of the report after completing at least a full draft (if not a revision) of all of the later sections. This might be a single short paragraph or a page if more background information is needed. There could be a figure call out in this section, if there is some kind of generic diagram that is appropriate before you get to what you actually did.

II. Setting

This is a physical description of the field site (site location, conditions…). This section is likely to contain your first location map or project-specific diagram. This could be a single paragraph or it could run to several paragraphs. Writing a good setting (or Regional Geologic Setting) section may also require review and incorporation of the pertinent literature, depending on the assignment requirements.

III. Methods (include Sections and Subsections as necessary)

A. Field Methods

       1. Subsubsection heading (if needed)

       Some text here. Note: if there is a subsubsection 1, there must be a subsubsection 2. Otherwise, there was no need for the first subsubsection. Similarly, there is no text that appears before the first subheading or subsubheading. In this example, this means that there is no text placed after the header for section "III. Methods" and prior to subsection "A. Field Methods." These rules apply to the section hierarchy throughout the report.

       2. Another subsubsection heading

       etc…

B. Laboratory Methods

Description of lab and field methods (data collection), assumptions, equations used (including definition of variables)….

IV. Results (include Sections and Subsections as necessary)

Discuss your data with minimal interpretation, introducing information and results in the same order by which methods were discussed. Present results in a logical and systematic way. Be sure to highlight important results, but do not try and explain why you got those results. For example, in the results section you might write:

"Data presented in Table 1 demonstrate the change in time of concentration (t_c) for the 6-hour design storm in pre- and post-development conditions. Based on these calculations, t_c decreased from x to y, a z% decrease."

Your presentation of results should generally follow the same sequence as that used to present methods. Once again, use subheadings and subsubheadings as needed. The class assignment should provide guidelines as to what information is to be presented, and in what format.   When writing geologic reports, typical 'Results' subsections include 'Rock Descriptions' and 'Structure' .

V. Discussion (include Sections and Subsections as necessary)

Discuss what the results mean - this is where you make interpretations and explain your findings. No background or new information should be presented in this section, as these topics were covered in earlier sections. Your discussion should generally follow the same sequence as that used to present methods and results, although there may be implications and issues that are new or combine topics discussed earlier.

Once again, use subheadings and sub-subheadings as needed. The class assignment should provide guidelines as to what information is to be discussed, and in what format. In the case of geologic reports, 'Discussion' might be replaced by a 'Geologic History' section.

VI. Summary and Conclusions

This is a concise summary of key results and interpretations. Do not present (again) introductory material or any new data or interpretations. The sequence of this section should

generally follow the overall narrative of the complete document. Note: if you are also asked to prepare an Abstract for this report, it is generally a good idea to write that part after you have already drafted (or revised) the Summary and Conclusions.

VII. References

The references below represent a partial 'References' list. The works listed include books (Lee and Farmer, 1993; Manning, 1997), journal articles (Falkner et al., 1995; Hanson, 1995; Gaetani and Grove, 1998) , articles collected in a book (Hopson et al., 1981), government publications (Hem, 1992), maps (Brabb, 1989) and websites (Atwater, 2008). Note that format varies slightly by type of publication, even though the overall format it consistent. When submitting work for publication you must use the citation format specified by the intended journal or book, and these vary widely. However, when listing references as part of an EPS assignment you will be expected to choose a widely used format (such as the one below) or use an assigned format. Journal articles that can be accessed electronically should be listed as journal articles rather than internet sources, and you must take care when citing these that you record the year the article was originally published rather than the year you downloaded the pdf. In most cases, you should order your references by last name of first author, as shown below.

Atwater, T. (2008), N.E. Pacific and W. North America Plate History, 38 Ma to Present, UC Santa Barbara Educational Multimedia Visualization Center, online link: <*http://emvc.geol.ucsb.edu/animations/quicktime/sm02Pac-NoAmflat.mov*>

Brabb, E. E. (1989), Geologic map of Santa Cruz County, California, U.S.Geological Survey Map I-1905, 1:62,500.

Falkner, K. K., G. P. Klinkhammer, C. A. Ungerer, and D. M. Christie (1995), Inductively coupled plasma mass spectrometry in geochemistry, *Annu. Rev. Earth Planet. Sci.*, *23*, 409-449.

Gaetani, G. A., and T. L. Grove (1998), The influence of water on mantle melting, *Cont. Mineral. Petrol.*, *131*, 323-346.

Hanson, R. B. (1995), The hydrodynamics of contact metamorphism, *Geol. Soc. Am. Bull.*, *107*, 595-611.

Hem, J. D. (1992), Study and interpretation of the chemical characteristics of natural water, U. S. Geological Survey Water Supply Paper, U. S. Government Printing Office, Washington, D. C.,

234 p.

Hopson, C. A., J. M. Mattinson, and E. A. Pessagno (1981), Coast Range Ophiolite, western California, in *The Tectonic Development of California*, edited by W. G. Ernst, pp. 418-510.

Lee, C.-H., and I. Farmer (1993), *Fluid Flow in Discontinuous Rocks*, 169 pp., Chapman & Hall, London.

Manning, J. C. (1997), *Applied Principles of Hydrology*, 275 pp., Prentice Hall, Upper Saddle River, NJ.

Appendix C. Example Request for Proposal and Successful Proposal

Most Requests for Proposals (RFPs) include detailed proposal specifications. Some RFPs also include the metrics by which proposals will be evaluated, and a point system for ranking. Please review Section III. General Rules and Guidelines, before preparing your proposal, and be sure to verify the topic of the assignment and write for an appropriate audience. Please also play careful attention to instructions regarding figures, tables, and referencing. There are strict guidelines for these materials for many proposals.

<u>Appendix D. Senior Thesis Cover Sheet</u>

Please see Appendix B with information on reports. A thesis generally contains the sample general structure as a report, in addition to an abstract, acknowledgements, an extensive bibliography, and one or more Appendices containing data or other information. A cover sheet template is presented on the following page.

UNIVERSITY OF CALIFORNIA,
SANTA CRUZ

YOUR TITLE HERE…

A thesis submitted in partial satisfaction of the requirements for the degree of

BACHELOR OF SCIENCE

in

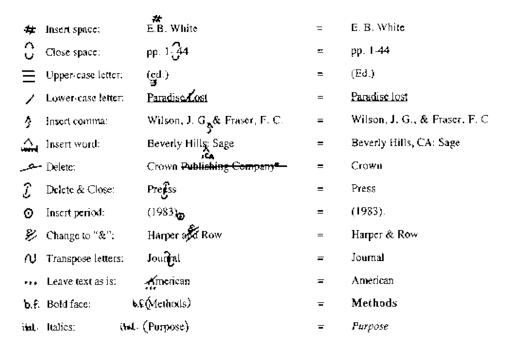EARTH AND PLANETARY SCIENCES

by

Youra Student
Month, Year

The thesis of Youra Student is approved by:

_____
Ima Advisor, Professor

<u>Appendix E. Common Editing Marks</u>

Here is a list of some standard (in the U.S.) editorial marks:

Mark	Meaning	Example		Result
⧣	Insert space:	E.B. White	=	E. B. White
⌒	Close space:	pp. 1-44	=	pp. 1-44
≡	Upper-case letter:	(ed.)	=	(Ed.)
/	Lower-case letter:	Paradise Lost	=	Paradise lost
⅋	Insert comma:	Wilson, J. G. & Fraser, F. C.	=	Wilson, J. G., & Fraser. F. C
△	Insert word:	Beverly Hills: Sage	=	Beverly Hills, CA: Sage
ℒ	Delete:	Crown ~~Publishing Company~~	=	Crown
ꝺ	Delete & Close:	Presss	=	Press
⊙	Insert period:	(1983)	=	(1983).
⅋	Change to "&":	Harper and Row	=	Harper & Row
∩∪	Transpose letters:	Jounral	=	Journal
⋯	Leave text as is:	American	=	American
b.f.	Bold face:	b.f.(Methods)	=	**Methods**
ital.	Italics:	ital. (Purpose)	=	*Purpose*

There are additional editing marks used commonly by copy editors and others who need to fix subtle formatting issues, but the examples above are some of the most common edits you are likely to see, in addition to marginal notations with broader instructions.

Appendix F. Recommended Texts

Alley, M. (1996), *The Craft of Scientific Writing* (3rd edition), 282 pp., Springer, New York.

Bates, R. L., M. D. Adkins-Heljeson, and R. C. Buchanan (2004), *Geowriting* (5th edition), 99 pp., American Geological Institute, Alexandria, Virginia.

Strunk, W. Jr., and E. B. White (2000), *The Elements of Style* (4th edition), 105 pp., Longman Press.