ENVIRONMENTAL STUDIES

GUIDELINES FOR THE SENIOR COMPREHENSIVE REQUIREMENT

INTRODUCTION

These guidelines will assist you in selecting the Senior Comprehensive Requirement (SCR) that will satisfy your goals. They provide some simple rules to follow, emphasize a level of consistency and professionalism that all students in the Department are expected to achieve, and identify some common problems. Your SCR will say something about you in academic terms and about your potential professionalism and ability to present yourself to others. Although it may seem like an intimidating process, it is an excellent opportunity to demonstrate what you have learned, and the final product can be invaluable to your future. There are different choices for the SCR and they each require students complete an independent project that includes research, critical analysis and writing, and asks students to apply the skills and knowledge that they have learned in the major to an environmental issue.

SENIOR COMPREHENSIVE OPTIONS: *Capstone, Senior Seminar, Senior Thesis, Senior Internship*

There are four possibilities for meeting the SCR requirement. They include opportunities for team and individual work. To some extent the type of student you are might affect your choice. If you feel you would benefit from a more structured SCR process, you might prefer to take Capstone (ENVS 190) or Senior Seminar (ENVS 196). The majority of environmental studies students choose these. If you feel comfortable working independently with a flexible amount of supervision and are prepared to commit two quarters to research and writing, you might prefer to do a senior thesis or senior internship. Archives of student theses are available to view online. Instructions to view them can be found at the ENVS main office. A Senior Internship is a project at one sponsoring agency for 2 consecutive quarters.

CAPSTONE COURSE (ENVS 190) – offered in Spring quarter and summer session. Students work in a groups of three or four on an interdisciplinary problem solving project of their choice, and each student writes an individual paper on a component of that project to satisfy the SCR. This is done in conjunction with a review and synthesis of skills necessary for all aspects of environmental studies, including writing, critical analysis, research, teamwork, and verbal communication. This is a large course that provides focus and structure for students to do individual work.

SENIOR SEMINAR (ENVS 196) – enrollment by permission only. Application period in Fall for Winter and Spring offerings; for Fall offerings, applications accepted in late Spring. The material of seminars is topically focused and most courses require specific upper-division electives as prerequisites. Students work on individual research papers or projects, based on literature or field research within the topical area of the seminar. All papers and projects require research, critical analysis and writing multiple drafts of a paper, but these papers are completed during the course of one quarter and are less extensive than senior theses. Topics of senior seminars and the faculty teaching them change annually. Please see the annual departmental course list. Due to the limited size and number of senior seminars, enrollment preference will be given to students who have not previously completed their SCR. However, the Department cannot guarantee that all students wishing to take a particular seminar will be able to do so. Students must apply to the instructor to be admitted to a senior seminar.

SENIOR THESIS (ENVS 195A & 195B): A SENIOR THESIS is a substantial, comprehensive, formal research paper or essay written upon a specific theme. Its purpose is to demonstrate your grasp of a scientific approach or rational argument; your capability to collect original data or reliable information in the library or in the field; and your ability to propose a sound hypothesis and follow it through to its logical conclusion. It should show that you can write in clear, direct English; that you can differentiate factually based argument from assertion or rhetoric; and that you have a mastery of some of the important principles of environmental studies. All theses are original field or library research. Students who wish to produce creative work such as photo or video documentaries, curricula which are implemented, art exhibits, or training manuals, may satisfy the SCR with a SENIOR PROJECT. A senior project must be

accompanied by a written narrative that describes the project, the background conceptual framework for the project, the process of carrying it out, and what was learned from the project. Whether you write a thesis or do a project and written analysis, the **work must be interdisciplinary**. For example, a thesis based on a field study on ecological restoration must include an analysis of the management and policy issues involved. Conversely, a thesis discussing conservation policy must examine the biological and other natural science factors that constrain that policy.

Senior theses and projects require exceptional motivation and organization on your part and a great deal of support on the part of a faculty sponsor. You cannot assume that once you've written a thesis proposal it will automatically be supported by one of the faculty. Because of the time involved in guiding thesis work, faculty are selective and often set limits on the number of theses they will sponsor. As soon as you think you would like to undertake a thesis or project, talk to potential sponsors about feasibility and how best to develop your ideas. Many faculty have ongoing research to which undergraduates can contribute a thesis project. Do keep in mind that once a faculty member has accepted your proposal it will take a **minimum of two quarters** for you to research and write a thesis. You will enroll in ENVS 195A (Thesis Prep) the first quarter and then ENVS 195B (Senior Thesis) the second quarter. Faculty have the discretion to decide during or after ENVS 195A whether or not you will proceed to ENVS 195B; if you do not go on to ENVS 195B, you will need to complete your SCR by taking ENVS 190 or ENVS 196. Also, senior theses/projects **must be submitted in final electronic form to the ENVS office by finals week of the quarter** in which you expect to graduate. That means you have only a few weeks at the beginning of the 2nd quarter to complete and turn in your final draft to your faculty sponsor.

SENIOR INTERNSHIP (ENVS 183A & 183B): The student creates a project for, and by agreement with, the agency with which he or she is interning. Senior internships are ten-unit projects and are much more in depth than a standard internship. ENVS 183A is taken in the first quarter and ENVS 183B in the 2nd.

INTERNSHIP OR THESIS?

A senior internship is a 10-unit commitment (183A and 183B). A Thesis (195A and 195B) is also a 2-qtr commitment. **A 183B senior internship differs from a 195B thesis in that:**

(1) The research takes place within the agency/community context.

(2) A substantial, professional product is produced **for the agency**.

(3) A comprehensive analytical paper is produced and must be submitted to the department along with a copy of the product itself. This paper must describe what you have learned in your internship and put it in a theoretical or broader analytical context. It follows the submission guidelines and format required of a thesis (see above).

(4) Both the faculty sponsor and the agency sponsor guide the student and give feedback.

For example, you may have an internship with Advanced Biotechnologies working on a project concerning pheromones. Your internship may require an overview of all the work done at this agency, but with the concurrence of your agency sponsor you may simultaneously be conducting interviews with agency staff members, some of their clients, and local farmers with a view to writing an advanced paper on the role of manufactured pheromones in organic apple production. Although the agency sponsor may provide much help and even be a reader, the general supervision and evaluation of writing and methods will be provided by your internship/SCR faculty advisor.

YOUR MENTOR/SPONSOR/ADVISOR

Your SCR advisor is the person teaching the class if you choose to do a 190 or 196. For all other SCRs you decide which faculty person to ask for sponsorship. The most important consideration in picking an SCR advisor is matching your interest with a faculty person who is knowledgeable in the same area and thus can provide informed guidance and evaluation. Think about who taught the courses you have taken in your chosen area and talk to them about possible topics and potential sponsorship. Potential advisors are there to help you, but can't make decisions for you. **Prepare before going to your initial meeting with them**. Write out your ideas and questions; this will turn into your proposal. If your preferred advisor is not able to work with you, ask for a referral and try again with another faculty member.

Your SCR advisor **must be a member of the Environmental Studies faculty or an officially "affiliated faculty" member.** If you would like the input or assistance of a faculty in another department, consider enrolling in an individual study with that person.

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SENIOR COMPREHENSIVE HONORS CRITERIA

A senior comprehensive paper will receive honors if it:

- Exemplifies advanced interdisciplinary work (analysis and natural/social science integration)
- Is accompanied by exceptionally well-written product (concise, accessible to a broad interdisciplinary audience, grammatically correct, clear)
- Demonstrates the application of concepts to problem solving
- Is more than excellent upper-division course work – it needs to take that extra step to stand out. It could be original research, publishable work, and/or a product of high professional quality.
- Must have a second faculty reader who concurs that the work is of honors quality.

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GETTING STARTED

If you are doing a thesis, project, or internship it is never too early to start**. You should expect to spend at least two quarters on these**. You need at least one quarter to do your research, collect your data or do your internship; you should consider doing an independent study in your junior year to begin. You need another quarter to write it all up (ENVS 195B or 183B). Start by being realistic about time. Talk about your ideas with a potential advisor in your junior year.

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WRITING STYLE

There is no particular style that is specific to environmental studies. To be understandable to scientists, policy makers, lay people and environmental advocates, simplicity and clarity are essential. Slang and a chatty informational style are usually not appropriate, and you should avoid passive voice constructions. Aim at a level somewhere between good conservative journalism and scholarly writing. Another style you might keep in mind is less formal environmental reporting, exemplified by the prose of John McPhee's *Coming into the Country* (1979) and other works by the same author. Gary Nabhan's works also provide an excellent example. Consult with your advisor on a style appropriate for the topical area in which you are working.

There are professionally written manuals to help you. The classics in the field include *The Chicago Manual of Style: The Essential Guide for Writers, Editors, and Publishers* (1993) and *The Elements of Style*. Also recommended are *How to Write and Publish a Scientific Paper* (1998), and *Pocket Style Manual: Updated With Mla's 1999 Guidelines* (1999). The possession of a good dictionary (not a spell check program) is essential, and Roget's *International Thesaurus* (1992) is very useful. Finally the writer must have a book on English usage. A classic is Fowler's *Modern English Usage: Second Edition* (1983). If you do not have such a book, buy one.

Your course instructor or SRC advisor may have different preferences for writing, formatting or the use of citations. If that is the case, follow that advice and use these guidelines only to complement those recommendations.

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FOCUS AND OUTLINE

When you have your topic and your advisor, design an outline that focuses your thoughts and provides a preliminary structure. With revisions, this may ultimately become the Table of Contents for your final paper. Another way to focus your work is to ask yourself, "What one question am I trying to answer?"

As your work proceeds you will go through a series of modifications and the outline or questions you are trying to answer will change. But if you start with these, you will always have something to work from and the final product has a greater chance of being more logical and coherent than it would have been had you allowed the work to just evolve.

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FORMAT

1. **Title Page Requirement.** All Theses/Internships MUST include standard content and format on the first page, as shown at the end of this document. Title page information will all be included in the searchable Endnote Web database. Theses with title pages that do not include the required content and format will not be accepted. Please print the Title page, sign the copy write indication it and scan a copy to envs1@ucsc.edu.

2. **Paper and electronic submission.** The campus no longer archives printed theses. You are required to submit one paper version of your thesis for review by your faculty advisor (unless the advisor gives prior permission for electronic submission only). You are required to submit the final version of your thesis on by email to the ENVS office. Envs1@ucsc.edu. The email should include both a word doc and a pdf version of your thesis. The pdf file must be smaller than 1.5 MB, unless you have prior permission from the ENVS Academic Services Coordinator or ENVS Undergraduate Advisor. This means that you should reduce the resolution and size of all figures in your thesis to the minimum size while retaining quality. Do not include full-sized photos of several MB; export them as reduced .jpg files to a few hundred KB before including in your documents. If you think you can't possibly reduce your thesis to such a small size, consider that the pdf reprints of most scholarly journal articles are less than 500KB. Save your file in pdf format. On a Mac, simply choose File:Print:PDF:Save as PDF. Call your file by your last name, first initial, and year with the .pdf tag (e.g., smithk2008.pdf). From a PC, you can create the pdf using any of a number of free PDF writers, or using Adobe Acrobat Pro software.

(a) *Table of Contents*

The different sections of the paper should be noted by page number in the Table of Contents.

(b) *Front matter, including abstract:* All the material before Chapter 1 is called front matter; these pages are numbered by small Roman numerals in the Table of Contents. If your SCR contains illustrations, figures, maps, graphs, or tables, you might include a "List of Tables, Figures, etc." in this section. All figures should be professionally drawn or look as though they are.
An ***abstract*** is a very brief summary of the introduction, methods, results and conclusion of the paper. It should be designed to stand alone, to give the reader an overview of the entire paper, not just introduce the question that will be addressed in the paper. This is a critical component of a scientific paper. You may copy the text from this abstract onto the *Cover Sheet*, described above in item (1).

(c) *The Text*

- *Introduction*
  An *introduction* provides general background information about the subject of the paper and sets the stage for your work.

- *Main text*
  What is included in the body of the text is up to you and your advisor. You may want to divide it into chapters or sections. For a library research project, you normally set up the question, give the context, do an analysis, and draw conclusions. Scientific papers require discussion of research methodologies and results of experiments. For a senior project or internship, the main text may be your actual product or your description of it.

- *Discussion*
  Always leave plenty of room for the *discussion.* The discussion, more than anything else, represents you -- your analysis, your interpretation, your originality and your conclusions. It should be substantiated by the materials presented in the main text.

(d) *Back Matter and the Bibliography*

All the material after the conclusion is called reference matter or back matter. The list of references or bibliography finishes the work. This is a very important section. It should be consistent in format, in alphabetical order by author, and include all pertinent material necessary for future researchers to quickly find the same sources. Every citation made in the body of the text must appear in this list. For format, refer to the style guides mentioned in the Writing section of these guidelines, or follow the format of a journal in the field. References consulted but not cited do not need to be included.

OTHER POSSIBLE CONTENTS

The headings listed below are also possible components of an SCR paper. Which ones you choose will depend largely on the nature of your project, with some being very specific to one type of paper or another other. Work with your advisor to select the best set of components for your paper.

Other Front Matter

Acknowledgments

Reference may be made to people who provided information or helped in the research or writing. You may want to mention advisors and those who read or edited the text. You should acknowledge any individual or group that provided material assistance or financial support including awards, scholarships or fellowships. This is a place to be brief and to the point. This is not the place for personal communication only of interest to the author.

Dedication
Preface

Other Text Components

Literature Review
Background/History
Case Studies
Results/Findings
Recommendations
Perspectives

Additional Back Matter

Epilogue/Aftermath
Recommended Readings
Footnotes
End Notes

Extensive comments that are necessary for a reader to understand the text fully can be included as end notes if you do not use footnotes on each page.

Glossary

If the topic includes many technical terms that appear repeatedly, a short glossary should appear in this section.

Appendices

Anything that you consider absolutely essential, but if included in the text would prevent the even flow of reading and understanding, should go into the back matter as an appendix which might include:

Supplemental legal or statistical material
Raw data
Photos

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COMMON QUESTIONS, PITFALLS AND PROBLEMS

Starting with the Answer instead of the Question

Environmental studies students care deeply about the environment and are eager to remedy the problems they see. This sometimes results in an agenda or quick judgments about what should be done. Starting with the answer limits what you can learn, and is usually dualistic in approach, i.e., something is good, something else is bad. Starting with the question opens up your research and allows the possibility of making a contribution to the field.

Length

In general terms there is no special length for an SCR paper; in total students must do 15 pages minimum to meet their Disciplinary Communication requirement, but most students write more. The material, time available, extent of fieldwork, if any, and goals determine length. A highly technical paper, one based on statistical analysis, or a senior internship analytical paper may be far shorter than one based on a literature search. Talk to your advisor. Papers generally run between fifteen and fifty pages. You should consult with your SCR advisor about a suitable length—some advisors may have a maximum.

Most students end up with much more material than they can usefully handle. Usually the scope of a paper as perceived by the student is far too great and a good rule of thumb is to limit the work to one or two important aspects of the topic. It is far better to have something focused and of substance than something discursive and insubstantial.

Saving the Writing until the End

Don't save the writing until the end! Writing should accompany all stages of your work, starting with your proposal, notes, and outline. Free writes will help you sort your thoughts along the way and will turn into the first draft.

Hoping the First Draft Will Do

Good writing isn't written – it's rewritten. Your professors and TAs rewrite articles many times and get comments from other readers before they publish them. You will probably have at least three drafts before you are finished. Never skimp on the editing and proofing and know that it is almost impossible to edit your own writing. (This manual had several drafts and five editors!) Computers help make the process of revision easy. This technical ease of writing allows you to get started early. Sit down and write that first chapter now! Just knock it off, get it written, and then start revising. Only you will see it at this primitive stage and the process has given you momentum. Don't try to start with the introduction; write it after you have finished the main text.

Before taking a draft to your advisor, go back and rewrite and do as much polishing as possible. Submitting a section full of grammatical and spelling mistakes makes it difficult for any reader to understand what you are trying to say. Have someone such as another thesis student, a writing tutor, or even a professional editor, help you**. Don't expect your faculty sponsor to edit grammar or proofread.** Remember, your advisor is likely doing similar work with seven or eight other students; doing your part to save time and be clear will ensure that your advisor's energies may be concentrated on important elements from which you will derive the most benefit.

Spelling

To check spelling, use another reader, your dictionary, a word guide, and a spell-check program. Remember: spell-check will not pick up variations of the same sounding word (such as their and there), nor will it do anything for precise usage (such as its and it's).

Questionable Usage

There are numerous inappropriate and overworked words in environmental writing. Be careful of "pristine." It's overused and means little scientifically. "Fragile" is in the same category. Particular care also has to be used with "sustainable," if not applied to development or agriculture. "Unique" could almost be dispensed with as all environments are unique and the use of the word on its own, or strengthened incorrectly as "very unique," means nothing.

The Soapbox

Almost everyone has an area of intense personal interest where they feel strongly that changes should be made. Beware of this emotional involvement. Resist the temptation to mount your personal soapbox. Most readers want to be swayed by sound argument, not by personal sermons that do not belong in a paper.

Use the words "must" and "should" sparingly. To say the "community must" or the "government must take the following steps" could be considered presumptuous, especially as it may only reflect a personal belief. To strongly recommend that something be seriously considered, is quite different from the judgmental "must" or "should."

The Internet as a Source

Be critical of sources found on the Internet. Think about who produced the information, their credentials, their agenda. Since there is no overall quality control it is up to you to check the reliability of the information and whether or not it is refereed. If you end up using material from the Internet it needs to be cited in your bibliography. Give preference to refereed publications such as books and journal articles rather than those found on the Web.

Citing and Plagiarism

Identifying ideas or quoting passages, including information taken from the Internet, to strengthen arguments and to acknowledge sources is essential and is the hallmark of scholarly work. Any writing which is directly copied or any idea not your own must be identified and cited. Not to do this is plagiarism, and is unethical. It is also a violation of the campus' honor code and could subject you to discipline and a failing grade for the SCR project. Essentially this is how scientific and scholarly writing differs from journalism: sources must always be disclosed for the purpose of verification. Acknowledgments must also be made for maps, tables, figures, and text, if they are copied.

Citations of sources can be made in the body of the text in parentheses where the author's name or Internet site appears with the relevant year and page number or numbers:

> At the same time the World Bank was funding the construction of the very roads that were causing the problems (Gibson and Hodges 1982:361). This was not the first time such things had happened. Accounts of such mismanagement have appeared in various reports (UNESCO 1971; Goodwrench 1987; UNDP 1988). It might be noted here that similar cases, common a decade ago, occur much less frequently now.

This can also be done with footnotes, or end notes.

Quotations

Don't over use quotations. Well chosen, they can strengthen arguments, provide lively description, or make a telling point. Think of using quotations when the **way** someone says something is just as important as the actual content. Generally, you can probably rephrase points more succinctly than quoting verbatim.

Normally a short quotation is presented within quotation marks in double-spacing. A quotation longer than two sentences is set off as a block on its own, indented, in single spaced typing and not within quotation marks. The paragraph in the previous section is an example of a block quotation.

A quotation may be shortened by omitting irrelevant material. This is done by using ellipses – three equally spaced points or periods. For example, "Land use was most extensive in the south...[became] intensive as one approached the alluvial soils...[and] was barely apparent on the skeletal soils of the highlands (Tuimono 1991:23)." The ellipses show that something has been omitted and the square brackets [ ] are used to show that the present author quoting the passage has injected material not in the original. Ellipses at the end of a sentence should have add a period at the end of the three ellipses.

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CONCLUSION

If you still have questions after reading this guide, consult with your faculty SCR sponsor. Writing a comprehensive paper may be one of the toughest projects you've tackled as an undergraduate. Many students find it is also the most satisfying. Good luck.

BIBLIOGRAPHY

Day, Robert A., ed.
1998 *How to Write and Publish a Scientific Paper.* Phoenix: Oryx Press

Gowers, Sir Ernest, ed.
1983 *Fowler's Modern English Usag*e. Oxford: Oxford University Press.

Hacker, Diana T.
1999 *Pocket Style Manual: Updated With Mla's 1999 Guidelines*. Boston: Bedford Books

Holling, C.S. and Stephen Bocking.
1990 "Surprise and Opportunity: in Evolution, in Ecosystems in Society." In *Planet Under Stress.* Constance Mungall and Digby J. McLaren eds. 285-300. Toronto: Oxford University Press for the Royal Society of Canada.

McPhee, John.
1979 *Coming Into The Country*. New York: Farrar, Straus & Giroux.
1980 *Basin and Range.* New York: Farrar, Straus & Giroux

Nabhan, Gary.
1987 *The Desert Smells Like Rain : A Naturalist in Papago Indian Country*. North Point Press
1991 *Enduring Seeds : Native American Agriculture and Wild Plant Conservation*. North Point Press

Roget, Peter Mark
1992 *Roget's International Thesaurus*, revised by Robert L. Chapman. New York: Harper & Row.

Strunk, William, Jr. and E.B. White.
1999 *The Elements of Style.* Boston: Alyn and Bacon.

The University of Chicago Press.
1993 *A Manual of Style*. Chicago: University of Chicago Press.

***Sample Title page**: Please follow this format and content. The abstract should be 350 words, max. Provide 3-8 keywords, separated by commas, that will help people find your thesis in the database. Everything must fit on one page.*

UNIVERSITY OF CALIFORNIA, SANTA CRUZ

THE CONSERVATION PRISM: AN ANALYTICAL FRAMEWORK FOR THE DEVELOPMENT OF CONSERVATION STRATEGIES

A Senior Thesis submitted in partial satisfaction
of the requirements for the degree of

BACHELOR OF ARTS

in

ENVIRONMENTAL STUDIES

by

Joaquin Balboa Sapien

June 2016

ADVISOR(S): Gregory S. Gilbert, Environmental Studies

ABSTRACT: The "conservation prism" is an interdisciplinary analytical tool designed to help improve conservation strategies. The conservation prism is comprised of four lenses. Each lens is associated with a different discipline I believe necessary for a well-rounded conservation project: ecology, culture, politics, and economics. The thesis analyzes reasons for biodiversity loss in Costa Rica, justifying the need for the conservation prism. The necessity of local community involvement in conservation projects is a recurring theme throughout the analysis. The conservation prism thus helps to create strategies to aid community integration. The conservation prism is applied to the Area de Conservacion Guanacaste (ACG) in Costa Rica, proving the need for and effectiveness of the interdisciplinary approach.

KEYWORDS: Costa Rica, Guanacaste, Latin America, Community based conservation, deforestation, tourism, development, tropical dry forest

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Student signature *Date*