Luce Semester Information Packet
Fall 2009

Independent Research Requirements

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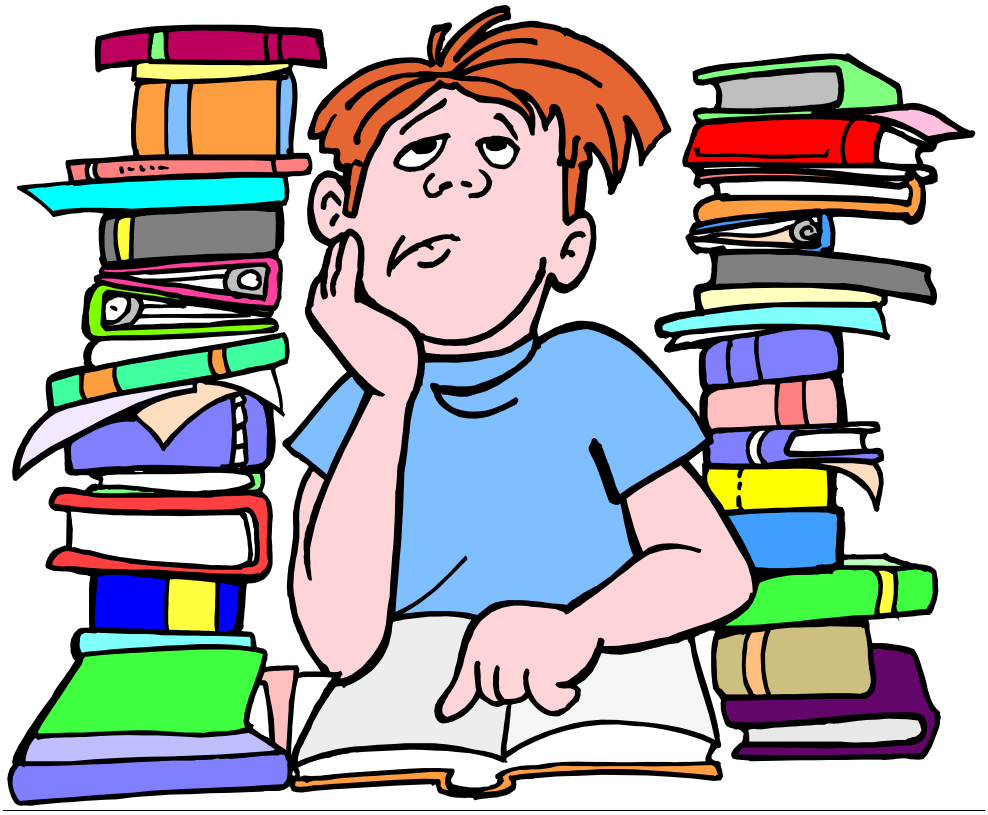
Citation Format and Writing Style Tips



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Independent Research

During the Luce semester, students will fulfill the College's requirement for a writing-intensive (WR) course. It is expected that all writing during the semester will contribute to fulfilling this requirement, but the focus on writing will be primarily based in the Independent Research project, co-curricular reports, and a reflective journal.

This document outlines for you the expectations for these requirements, as well as providing for you a guide to formatting and writing style. Please refer to this document throughout the semester, and use it to answer questions you might have regarding assignments and due dates, as well as formatting requirements.

All required written work for the course (except for co-curriculars) should be submitted using the Digital Drop Box on Blackboard (to save paper and speed review). Please make sure to save your document with a title that includes your last name and an abbreviated identifier such as "Proposal" or "Final Paper" (e.g. Jones IR proposal). Name and save the file first to your desktop then send it via Blackboard.

A. Nature and Scope of the Independent Research

Each of you will be involved in an independent research project this semester for a full course credit (ENVST 550). We will require that the research that you do be connected to an affected community. In most cases, you will be choosing your research topic from a menu of topics suggested by watershed associations and other community groups that have been partnering with ALLARM over the past few years. These groups have been asked to think about what kind of research they would like for students to do to support their work and to help fulfill their needs and goals. Our hope is that on-going projects initiated this semester will continue to be supported through student research and ALLARM logistical support in the semesters to follow.

As the project must be completed and available for public use at the end of the semester, you have to demarcate a manageable project by allocating your time and sticking to a tight pre-arranged schedule. Given that most of November we will be away on our trip to Louisiana, you should complete all of your fieldwork and data analysis before departure.

It is very important that you choose a topic that is of intense interest to you and yet also results in a project that doesn't just sit on a shelf gathering dust, but is of real value to some "stakeholder" group. Remember, if you are an Environmental Science major, and you want this credit to count towards your focus cluster, your research must be strongly scientific. For those of you interested in social science research, the Community Studies Center can advise you on basic social science methodology.

Projects will fall into three main categories, although we are open to other projects that are driven by community needs and that are done in conjunction with community representatives. Here are just a few examples of each of these three categories:

1) **natural science-based research**, such as studying nutrient loads from different land use practices, assessing the impacts of a point source on a biological community, or assessing the impact of different riparian zone practices.

2) **policy problems and solutions**, such as use of the PA Clean Streams Law to protect a watershed, guidance on new stormwater management regulations, local environmental impact of the production of corn- and soy-based biofuels, the spatial distribution of air pollution from specific sources such as power plants and truck traffic, and assessing state and federal regulation of natural gas extraction through hydro-fracturing from the Marcellus Shale formation.

3) **social science-based research**, such as conducting interviews with local watershed residents to determine attitudes, doing participant observation to understand people's practices and perspectives, designing educational materials, or conducting oral histories on issues of importance to the watershed groups.

Each student will have an academic advisor. We expect that students will work closely with this research advisor, and will attend at least one community meeting, if available. Each student will also complete at least one formal interview with a watershed member or other stakeholder.

The independent research project will result in a scholarly paper, and a poster presentation for lay audiences. At the end of the semester, we will host an evening of poster presentations for interested community members.

The scholarly paper will be the major piece that will fulfill the writing requirement for the College. As part of that requirement, students will submit a formal research plan, do a literature search, submit several drafts of the paper with proper formal citations, and be involved in several peer evaluations. In all cases, writing "counts" as part of the final grade for those assignments.

B. Assignments and Due Dates

1. Research Plan Proposal

Your research plan will be a summary of the proposed scope of your research, the rationale for your research, the context of the research in terms of the cited literature, and the study design, including a timetable of tasks. Here is an outline for your research proposal:

I. Statement of question(s) that you are asking and that you propose to answer. Another way to look at this would be a statement of your major objectives.

II. Your rationale for this choice. In one or two paragraphs, identify the community or stakeholder group(s) for which this topic is a concern and explain why you personally

find this topic to be of interest, why you think it will be an important issue to cover, and what you hope to gain by exploring this topic in depth.

III. The context of the project – In this section, you need to summarize the primary work done by others to date on these questions and/or the context wherein the issue you are investigating arises. In addition you should clarify how your proposed work will fit into this context. This is where you will first acknowledge background literature on the topic, citing at least six major articles (see below) that address this research context in some way. This section should be two pages in length. Identifying key resources at this stage is a critical goal of this section.

IV. Proposed study design – You will fill out (to the best of your ability at this point in time) the study design worksheets with which you will become familiar in the lab exercise on "Research Perspectives and Study Design." This is a working document and will be revised continuously throughout the semester. For this assignment, you will submit your first "pass" on a detailed study design.

V. References cited section – Following the Writing Lab instructions and the format described later in this manual, this section should contain at least <u>two</u> complete representative citations <u>from each</u> of the following:

- published peer-reviewed literature on the issue (science and/or social science)
- web-posted pages from stakeholders in the issue (environmental, industry, local resident, lobby, and trade groups, etc.)
- web or hard-copy citation from the official state, federal, and/or local government agencies responsible for regulation and/or monitoring of the issue in question

<u>Due dates for Research Plan Proposal</u>

- ☑ Wednesday, September 2. Research choices due by 3 PM.
- ☑ Monday, September 7. Two copies of the research plan proposal are due at the group meeting with your advisor. One copy is for group peer review and the other is for your advisor. The actual format of this meeting may vary from advisor to advisor. Individual consultations with your advisor will be scheduled following the group meeting.
- ☑ Tuesday, September 8, 5 PM**:** Final Research Proposal to project advisor, incorporating changes suggested by your advisor and peers.

2. Draft Research Paper: Project Introduction, Methods, and Data

The draft will consist of the first portion of your paper and will contain primarily background research placing the issue you are addressing within a conceptual and actual context. It will also explain your research methods. If you are at the point in your research where you have preliminary results, then these results should be summarized as well. The draft should be a minimum of 10 pages double-spaced, plus references. Below are elements that you will want to include in the draft:

- Introduction to the issue, including the community and geographic location of the research project, why this is an important issue for the identified stakeholders
- Map of the study area including scale, orientation, and appropriate reference if not drawn by yourself
- Literature review including relevant research done by others with a full citation system
- A full explanation of the methods employed in your research including data access and/or how you obtained the information
- Preliminary information or data acquired with relevant figures and tables.

Due dates for Draft Research Paper.

- ☑ Thursday, October 22, 5 PM: Draft Research Paper to peer reviewer and project advisor.
- ☑ Friday, October 23, 5 PM: Peer review to author and copy to project advisor.

3. Final Research Paper (See Final Paper Section for Suggested Format)

This is to be as complete as possible, representing your best possible effort, much as you might send the paper off for a conference. **Do not consider it a work in progress but rather an attempt at the finished product.** You will have a chance to reply to the comments we raise on this final paper (by incorporating suggestions into your Paper for Distribution), but we do not expect you to provide new information in the Paper for Distribution. In other words, this version should be a product of your completed research.

Due dates for Final Research Paper

- ☑ Friday, December 4, 5 PM: Final paper to peer reviewer and project advisor.
- ☑ Monday, December 7, NOON: Peer review to author and copy to project advisor.

4. Poster session

There will be a poster session on Monday, December 14 from 6-8 PM, during the last week of the semester. Students will be asked to prepare and present posters during this session. This session will be open to both the College and the general community, and we can expect that partner groups will be present. Students will be graded on their poster as well as the informal presentation of their posters to an interested audience. Details on this event will be given to you later in the semester.

Due date for Poster Preparation

- ☑ Wednesday, December 9, at noon to your research advisor. Plan to allocate some assigned time to print the poster before the session the following Monday.

5. Paper for Distribution

This is the final product of your research, as enhanced by your response to comments made by your advisor, peers, and your community advisor as you have moved through this process. This is the version of your paper that will be distributed to the interested community groups.

Due date for Paper for Distribution

☑ Friday, December 11, 5 PM.

C. Suggested paper format

The following is a suggested outline for your research paper. Each paper will differ in its focus, and this outline is presented as a guide only. If you feel that your research does not fit well into this format, please discuss this with your advisor, and customize the format to best serve your research results. Be sure to number the pages of any work submitted.

A formal research report generally consists of:

- a title page (unnumbered)
- an abstract (unnumbered)
- a table of contents (unnumbered)
- a list of tables and figures (unnumbered)
- where appropriate, a list of acronyms (unnumbered)
- an introduction which includes a statement of the objectives of the project, the context for the study, and a description of the study area (including map)
- a methods section, which includes a description of the sampling design and methodology used and/or how you acquired the data used for your report and what tools you used (if any) for data acquisition and analysis
- a report and discussion of the results and their significance
- a summary of the most important conclusions.

Title page

The title should be brief, but descriptive and comprehensive. It should be so phrased as to accurately delimit the subject under discussion and to promise no more than the investigation attempts to fulfill. A good rule is to include in the title the words and/or key phrases under which, in an index, a scholar would search for a paper containing the particular material included in the report. The title should be included on a separate title page, along with the author's name, the course number, and date.

Abstract

The abstract should be written last. It should be placed after the title page and before the table of contents. It is not a numbered page and does not appear in the table of contents.

An abstract is a paragraph-long summary, which is a concise but exact statement of the problem, the general procedure, basic findings, and conclusions. It should not be a vague hint of the topic covered, what you planned to do, or an amplified table of contents. Abstracts are used for interested readers to determine whether or not the article is of sufficient relevance to read in its entirety. As with conference papers, often only abstracts will be published and the reader must then order the entire article from the author. Therefore, your abstract should be extremely informative.

Table of Contents

The table of contents should include the section titles and page numbers. Many authors also find it useful to include a list of tables and figures, with page numbers, immediately following the table of contents. If you want to include figures and tables in the contents, then you must list them descriptively, that is, you cannot simply list "Table 1" or "Figure 10", but rather, "Table 1. Data on parameters measured at 16 sites in the study area."

Introduction

In the introduction of the paper state the objectives of the study and the nature of the problem being studied. This part of the paper presents the background, justification and relevance of the study, and places the study within a broader context, as determined through a literature review of relevant research done by others. You will also need to identify areas where you are making an original contribution (e.g. through field work, a synthesis or re-interpretation of research done by others, etc.)

The introduction should also include the exact location and a map of the study area. The map must have a scale and orientation, and a full citation if you did not draw it yourself. Moreover, give the time period (year, month, day, time of day) during which the work was done, if this is relevant to the type of data collected.

Materials and Methods

This section will vary according to the type of research undertaken. For empirical natural and social science research, you should report: (1) the overall sampling design, with a rationale, (2) the methodology used in the collection and analysis of data, and (3) the tools, instruments, hardware, and programs (software) used to collect and analyze the data.

If you use computer programs for calculations, refer to them by name and assume that the reader is knowledgeable about how they work (e.g. Microsoft Excel, SPSS, etc.). Any instruments or other equipment must be identified as thoroughly as possible, with model numbers, manufacturers' names, or other means of identification. Be sure to mention, and provide a proper citation for, other databases that you used, if applicable.

Results and Interpretation (Discussion)

The main body of the report consists of reporting the results obtained and discussing their significance. This is the most important and creative section of the report. To report the results, data may be summarized in tables, figures, and/or graphs, resulting in clarity and helping illustrate patterns or trends. You will also need to articulate the results in words, referring to the figures, graphs, and tables. Submit the table (used to make the graph) for each graph you prepare.

Then move on to the most important part of the paper -- the interpretation of the results. Tell the reader exactly how what you have found (such as patterns, trends or relationships) relate to the original objectives or hypotheses. Care must be taken that this section is genuinely interpretive, and is not just a rehash of results at some higher level of generality.

Figures and/or tables should be integrated into the text, following the first paragraph in which they are mentioned. It is convention to refer to all graphs, maps, pictures, and diagrams as "**Figures**," not "graphs," "charts," or "maps." Thus you always refer to a figure as "Figure 1," "Figure 2", etc., not "Map 1" or "Graph 1." The only exception is that the term "Table" is used for data reported in table form. Tables are numbered separately from figures. In addition, figures must be numbered in the order in which they are referred to in the text. Do not ask the reader to look at Figure 1 and then next look at Figure 20. Furthermore, do not include maps or figures to which you never refer in the text.

All pictures, tables, graphs, maps, and web images that you place in your report and that you did not prepare yourself must be cited with a text citation (author and date), followed by a full reference in the "references cited" section.

When the results have been interpreted, it is useful to devote some time to discussion what further studies (if any) should be done. In other words, you may want to speculate upon the broader meaning of the conclusions reached and to identify the next steps in researching the problem. Moreover, at this point you may also wish to suggest improvements in the methodology and identify sources of error and basic inadequacies of technique.

Conclusions

Most research papers end with a short section summarizing the most important conclusions that flow from the research. Do not include conclusions that have not been previously discussed in the interpretative section.

References Cited

The last section of your report lists the full citations for all references cited in the paper. (See below on format details for citations.)

Co-curricular, Field Notebook, and Journal Requirements

One of the skills that is important to develop as an active learner is keen observation, careful documentation, and clear reflection. Toward this end, you will be required to attend and report on two co-curricular events, keep a field notebook for recording and rewriting events observed in the field, and maintain a reflective journal. The co-curricular reports will be graded by Prof. Heiman and constitute 10% of your ENVST 330 grade. The field notebook may be collected by your research advisor and will contribute to your overall grade on research and fieldwork in ENVST 550. Your reflective journal will be collected and graded three times during the semester. Those grades will constitute 10% of your ENVST 335 and ENVST 330 grades, and 25% of your ENVST 310 grade.

As mentioned in the course syllabus, your co-curricular reports and journal entries will be part of your writing intensive experience in the Luce Semester. Although there is a specific format for the co-curricular reports, they are less formal than your independent research paper; the journal is the least formal of your writing requirements. Regardless of the formality of the assignment, all submitted work must be of the highest quality you are capable of without sacrificing content and unique personal style. There is room in all assignments for your creative muse to flourish. It is expected that you will proofread all of your work--even e-mail--for spelling, punctuation, and correct grammar. Bad habits and sloppy exposition (especially with e-mail) tend to carry over into other written work.

Co-Curricular Reports

Environmental education does not occur solely in the lecture hall or laboratory. It is an ongoing process whereby each of us is continuously being shaped by, and in turn shapes, the environment around us (be this intellectual and/or physical). The College offers a variety of opportunities whereby the campus community can broaden its environmental knowledge. These include department seminars (e.g., through Earth Issues sponsored by the ES Department or the Biology Department's weekly seminar series), special Clark Center presentations by visiting scholars, Common Hour presentations, events sponsored by the Center for Environmental and Sustainability Education (CESE), etc. In addition, there are a number of off-campus opportunities to learn more about some of the major themes we will be discussing this semester sponsored by groups such as the PA DEP, Citizens for Pennsylvania's Future, various watershed associations, at nearby colleges and universities., and at the forthcoming EPA Region III Volunteer Monitoring Conference held right here on campus over Fall Pause.

To encourage your participation in these co-curricular events, and to expand your horizon beyond the classroom walls, ten percent of your grade for ES 330 will be based on your attendance at, and preparation of a brief typed report for, two events that are related to environmental themes. These need not be the same themes that we cover in class this semester just as long as they deal with some aspect of the natural environment and/or human modification of that environment. Insofar as environmental affairs cross disciplinary boundaries, social science and even humanities departments might well sponsor these events.

The submission must include:

1. The important identifying information for the event: This normally includes the event's title; sponsor; name of the presenter(s) and organization they represent; and the date, time, and location of the event.

2. A concise summary of the event: This is more than just a list of details or a description of activity. Rather, a good summary should explain the context wherein the presenter works, the point-of-view and/or research results presented, the conclusions reached, any dissent from the prevailing view, etc.

3. Finally, please explain the relevance of the event to environmental study and provide your thoughtful response to the event's content and to the presenter's viewpoint or conclusions. This may include, and is not limited to, your opinion on the value of the event, your critique of the content covered, your understanding of the presenter's point of view and what might be motivating him or her, etc.

Your report should be concise and dense with information. Try to focus on the content rather than the style of the presentation, again paying particular attention to environmental science and/or other forms of environmental understanding. As this is part of the Writing Requirement for the semester, please pay particular attention to style, grammar, punctuation, and exposition.

For two of the co-curricular events that you attend, you must within ONE week submit a two-page(minimum), double-spaced report to Professor Heiman. On top clearly indicate your name, the title of the report, and whether this is your first or second required co-curricular report for the class this semester. With a proper initial identifying paragraph, a formal citation system is not necessary. Early semester submission is encouraged, especially as due dates overlap with other assignments.

The reports should be submitted directly to Professor Heiman's email: (heiman@dickinson.edu). Submit the report as an attachment in word format; do not include the report in the text of the email. The title line of the email should read: *co-curricular #x*, and the document should be called: *last name co-curricular #x* (where x is either 1 or 2). .

The first co-curricular must be submitted by October 16, 5 PM (before Fall Pause) and the second co-curricular must be submitted by December 11, 5 PM. Please see Professor

Heiman should you have any questions, particularly regarding the relevance of an event that you might attend outside of those advertised in class.

Conference Alternative: In lieu of two co-curricular events you may attend and report on a single conference or other major event (lasting a day or more). Forms to request Department support to attend such off-campus events (up to 50 dollars per student) are available from Mary Orr in the Department Office.

Reminder: If you miss one co-curricular report, your entire semester grade for ES 330 will drop by 5 points; two missed reports means a full grade drop (10 points).

Field Notebook

In your field notebook you will record field notes, observations, and data that you acquire in the field. You should bring your notebook with you on all class excursions, and you will use it to record field data for your independent research as well.

Entries in your field notebook should include the date and time of the experience, names of any speakers or hosts and their affiliations, notes on material discussed, sketches of field areas and/or apparatus/specimens, and data collected. After the experience, you should go back to the notebook and put the data into table format for easier access, as well as rewrite and polish any notes that require such. These notebooks will be a primary source of information for you to study for exams and to work on projects that rely on field information. For that reason, you should be sure that your notes are clear; rewriting field "scratches" or "jottings" so that the information is more accessible at a later date is a common practice among professionals in a range of fields whose work includes field experiences.

Reflective Journal[1]

Journal writing is well recognized as a valuable technique in almost all scholarly endeavors. The purpose of journal writing is to give us an opportunity to contemplate experiences and reflect on what we have learned. It is intended to promote synthesizing and internalizing the experiences by helping us identify the essential ideas, make connections between ideas, and finding relevance to our education and our lives. The discipline of writing forces us to make explicit our process of struggling to understand new ideas, and assists us in clarifying and refining what we think we know. The journal also serves as a record of how our perceptions, beliefs, and attitudes evolve over time.

Guidelines for journaling

[1] Much of this information on journals has been extracted from: Turner, Clark. 1997. *Journal Guidelines*, Computer Science Department, California Polytechnic State University, San Luis Obispo, CA. Available: : www.csc.calpoly.edu/~csturner/courses/302/302JournalGuidelines.html

A journal is not simply a diary. A diary is a chronological account of events. Although a journal often includes an account of events, it is also an attempt to understand the significance of events and their implications for us.

In a journal entry, you write your reactions and reflections to some "trigger" event. Trigger events can be things you read, ideas raised during class discussion, questions raised by lab activities or in conversation with other people, issues raised by our field experiences, and so on. You may reflect on an idea, principle, or issue that you find interesting, provocative, hard to believe, confusing or related to something else you have read or experienced.

In your entry, briefly review the content, idea, issue, or event you are reacting to, but go beyond an impersonal description of it. Comment on the significance of the event, and explain what meaning it has for you. You may discuss how relevant the idea is for you academically, professionally, or personally. Demonstrate that you have thought about the issue in some way that is not superficial, hopefully by relating it to other learning in this semester. Then consider the implications of what you have discussed, speculate on how the meanings or insights you've gained can be used for improvement or growth.

Insofar as the Luce Semester is a total immersion experience--academic as well as social-- you need not limit your entries to only academic subjects or events. Thus, on occasion, you might reflect on how you are adapting to the rigors of life on the road, working with your peers, including collaboration or even competition. Thus the journal is also an avenue for you to work through events, behaviors, and other "triggers" that have an impact on your experience, and maybe even life.

<u>Criteria for grading journal entries</u>

The following presents evaluation guidelines to journal authors. As you write in your journal you should ask, "how well are the following criteria being achieved?" These are suggestive rather than exhaustive guidelines for preparing a valid and high quality journal to meet course expectations.

(1) *Description / Observation*: This component assesses how clearly and concisely the author discussed the event, behavior, etc. which served as the "trigger" for writing the journal entry. It has sufficient but not an overwhelming amount of detail.

(2) *Connections*: This component assesses how well the author showed that the event discussed relates to some course concept, principle, issue, experience, etc. It assesses how well the author was able to show in a clear, concise, logical, and accurate way that the event does in fact explain, exemplify, control, predict, or provide insight into the issues being studied and/or the experiences being shared in the program.

(3) *Insight:* This component answers the critical question "so what?" That is, it addresses the meaning and implication of the connections made above. It answers the question "what have I learned, and why is it useful to have this knowledge?" Ideally

the discussion of insights gained should lead to thoughts about how you or others might think or behave differently in the future. How have I been affected by what I've learned and what does that imply for the future?

(4) *Authenticity of Involvement:* The journal entry should communicate in some way that it is the result of a real person genuinely engaged in a learning process. It should not sound formulaic, artificial, or contrived just to fulfill a requirement. It should convince the reader that the author really believed what they were writing.

Directions for journal entries

- Journal entries must be recorded in a bound composition book, unless another format has been pre-approved.
- It is expected that you will make journal entries frequently and consistently. On our extended field trips, it is suggested that you make at least one journal entry per day. During the times when we are not on extended field trips, several entries a week would be appropriate.
- Entries must be dated and recorded sequentially in the journal with no skipped pages.
- Entries should be legible and coherent. Write in ink. It is acceptable to cross things out if necessary but don't erase or whiteout anything.
- Entries must follow standards of good writing to the extent that the writing must be comprehensible. Journal entries are NOT expected to be polished writing, so occasional lapses in grammar or spelling are allowed as long as they are not severe enough to interfere with comprehension.
- Journals will be submitted for assessment three times during the semester.

If you would like to examine some examples of good journal writing, check out the 2005 and 2006 Luce Louisiana trip blogs at:

Luce Semester Fall 05: http://blog.dickinson.edu/?cat=469

Luce Semester Fall 06: http://blog.dickinson.edu/?cat=944

Luce Semester Fall 07: http://blog.dickinson.edu/?cat=1234

Due dates for Journals

- ☑ Friday, September 25, 5 PM
- ☑ Wednesday, October28, 5 PM
- ☑ Monday, November 30, 5 PM

You must bring your journal on all of the extended field trips, as there will be time set aside (and plenty of inspiration) for reflective writing.

Citation Format and Writing Style Tips

Dickinson College's Official Policy on Citing Sources and Plagiarism

> It is necessary for you to give proper credit to all of the resources you use in your research papers. Plagiarism is a violation of Dickinson's Student Code of Conduct, and is a specific form of cheating defined in the code as follows:
>
> 1) To plagiarize is to use without proper citation or acknowledgment the words, ideas, or work of another. Whenever one relies on someone else for phraseology, even for only two or three words, one must acknowledge indebtedness by using quotation marks and giving the source, either in the text or in a footnote.
>
> 2) When one borrows facts which are not matters of general knowledge, including all statistics and translations, one must indicate one's indebtedness in the text or footnote. When one borrows an idea or the logic of an argument, one must acknowledge indebtedness either in a footnote or in the text. When in doubt, footnote. (Academic Standards Committee, November, 1965)
>
> (from the library web page: http://lis.dickinson.edu/Library/Research/CitingRes/)

Reference Guides (for Styles and Citations):

http://www.chicagomanualofstyle.org/home.html: *The Chicago Manual of Style* (Online)

http://lis.dickinson.edu/Library/l p_find_info.html: Doing Research (Sphar Library website)

http://cfserv.dickinson.edu/styleguide/: The on-line Dickinson College style manual for campus publications

A. Format for Citations in the Independent Research Paper

1. Interviews

For persons formally interviewed, give "name, personal communication" in the text, and then list the individuals in a separate section after the bibliography. Be sure to include the person's full name, then title, date of interview, location of the person interviewed, and nature of interview (in person, by email, letter, etc.).

2. Citation Styles (To be covered during the writing lab on September 3)

The purpose of a citation system is two-fold: to give credit where credit is due for information and ideas that are not your own, and to allow your reader to verify and make use of your sources with a minimum amount of access effort. The material cited may be a reference to the work and ideas of others as well as to actual quoted material.

As noted above, whenever you state a fact or opinion that is not your own, or you provide something that is not common knowledge (not taken for granted), and where you did not do the research leading to this observation, you MUST provide a proper citation. This includes the author and date in the text (author last name(s), year), with a full citation in a separate reference section in the back of the report (the bibliography).

The alternative to the author, year reference in the text with a full citation in the bibliography is to use a footnote system. However this is quite cumbersome as footnote systems are generally reserved for adding parenthetical comments, as in legal writing where case histories are provided. For the purpose of this research project, you should not have to resort to footnotes.

Citations are also required with any quoted material. The material quoted must be placed in quotation marks. Note that the closing punctuation, be it a period, question mark, or exclamation point, goes within the quote marks.

For the text, use an author and date for the reference and then provide a full citation in the bibliography (works cited). For quoted material, provide appropriate page numbers with the in-text citation. Note that the in-text reference is part of a sentence. When placed at the end of a sentence the reference goes within the period mark. Nothing should be floating around in your paper that is not bracketed at the end by a closing punctuation mark.

When you rely on the same source for an extended series of statements, you need not put the reference at the end of every sentence. In place, you can inform the reader of your source in the opening sentence, working the reference into the text, so that it is clear that the material to follow (or preceding) comes from the same source.

While many science and social science journals have their own idiosyncratic requirements regarding form and method of citation**, all proper citation systems provide the same basic information. A citation system should lead the outside reader quickly and expeditiously (with minimum effort) to the sources of information that you used.** You must provide sufficient information to steer the uninitiated reader to your source (e.g., you can not assume that the reader is necessarily another Dickinson student or a professor who might know that the ES 132 lab handouts or manual are produced by the ES Department, or that Dickinson College is in Carlisle, PA). You should always provide citations that the audience is able to locate on their own and to check up on your source of information. **Following the author and date entry, the order of the required material is not as important as inclusion and consistency with presentation of all required components.** Some journals put the date at the end of

the entry and not after the author's name. You can do this as well as long as you are consistent.

Be sure to differentiate how the title of a periodical or book and the title of an article from that periodical or chapter from that book are handled. Thus if you decide to use italics or capitalization for the book, then do not use italics, or use lower-case lettering for the article or chapter (as in an anthology). Generally we handle the titles of major reports, books, and periodicals the same way, while the titles of articles, book chapters, and web pages are handled the same way but differentiated from the book or periodical title.

Hint: Take a look at a hard copy of a reputable peer-reviewed journal in a field you can identify with, be this in the natural or social sciences. Note the citation system used. Typically this is detailed in "advice to authors"--a section found at the end of the journal or periodically in the last issue of the year. You might find it useful to follow the specific instructions outlined, particularly to help you maintain consistency throughout your report.

3. With web citations:

A useful way to construct web site citations is to imagine how the reader might find the reference if the web site that you list changes addresses (a common occurrence). Hence, we need as much information as possible, akin to what you would provide for a written source. This includes the author of the web site if available, or the name of the sponsoring agency or organization (publisher) substituting for the author if none is available). In addition you have to provide the date (when the material was first published), the title of the material being cited, the name and location of the sponsoring agency or author (posting the web site), the web address itself, and whether the site is still accessible--typically indicated either by the word "Available:" followed by the web address or else the "Date Last Accessed:" followed by the web address.

Moreover, the web site sponsor may, or may not, be the same as the author of the web page. Finally, if you are pulling down articles and reports from a web site that the web site merely posts, cite the author and publisher of that article with the notice that the material is available through the web source you accessed, much as you would cite an article you got via Proquest.

The entries in the bibliography (including web-based information) are listed alphabetically by the author's last name. **If you do not have an author for an entry in the bibliography (such as for a web site), then the name of the organization sponsoring the web site is the author. With printed matter, use the name of the journal or paper in which the article appears for a missing author.** Please note, it is not necessary to provide very long and complicated web addresses for specific entries if you provide the address for the main page for the organization posting the entry leading the reader to a search engine whereby the entry can easily be retrieved.

4. Accessing an article over the web:

When given a choice between the html or pdf version of an entry on the web, go with the pdf file. This is a copy of the original and may be cited as the original (with volume, issue number, pages, etc.). A web address is not necessary if you are working with a true copy of the original. With an html version the original has been reformatted and thus the page numbers are usually absent or do not mean anything. . In many cases even the title of the article has been changed (common with newspaper entries). Thus, with an html version that has been reformatted, after the author, date, title, web address, and other components of the citation, you should list the search engine used (ex. Available through Proquest or Lexus/Nexus).

The minimum information required in a citation system is:

a. The **author** of the article, book, or paper. Alphabetize your entries by last name first. If you do not have an author, then the name of the sponsoring agency, department, or even the actual name of the periodical where the entry appears, becomes the entry.

   For entries by the same author, list these chronologically. Moreover, if you have two entries for the same year from the same author, list these, for example, as 2005a, 2005b, etc.

b. The **date** of the piece. This can come either after the author's name or else later in the entry. **The key is to be consistent with the order of the information.**

c. The **title of the article, book chapter, paper, etc.** This is often lower-case when the piece is a book chapter or an article.

d. The **title of the book or periodical** from which the article (chapter) appears. This is often in italics or (more common) upper-case for the first letter of each word in the title.

   However you wish to demarcate the material--be it through use of italics and/or upper and lower-case lettering--you must be consistent in the treatment of the material and differentiate between the title of books or periodicals and that of chapters or articles.

e. The **pages in the book** (or periodical) where the chapter or article appears (usually appearing before the book editor and title, or after a periodical title).

f. The **editor of the book** (if an anthology) where the chapter appeared. The abbreviation Ed. or Eds. appears before or after the names of the editor(s).

g. For an article in a scholarly journal--give the **volume number (and issue number)** if available. For newspaper articles, you need to provide the exact date (month and day) and page number.

h. For all books, manuals, reports, and web material, provide the **publisher** (name of publisher) and the **location of the publisher** (or source where the material came from).

Examples--Note--The style of presentation is not as important as consistency in treatment and order, as well as provision of all the requisite information

Newspaper article:

Sherzer, J. 1999. Trash facility facing less use. *The Patriot News* (Harrisburg): September 6, 1999, p. B-1.

Book:

Heiman, M. 1988. *The Quiet Evolution: Power, Planning, and Profits in New York State.* New York: Praeger.

Journal Article:

Denny, C. 2008. From bay to bayou: College students make cross-country environmental connections. *Save the Bay*, (Annapolis, MD: Chesapeake Bay Foundation) 34(3): 24-25.

Heiman, M. and B. Solomon 2007. Fueling US transportation: The hydrogen economy and its alternatives. *Environment*, 49(8): 10-25.

Howard, G. J., J. Schlezinger, and T. Webster. 2007. Interactions of TCDD with AhR partial agonists and a competitive antagonist: Implications for TEFs. *Organohalogen Compounds,* 69: 1065-1068.

Wilderman, C., and J. Vastine. 2005. Breaking the code: data analysis workshops. *The Volunteer Monitor*. 17(1): 11-14.

Wilderman, C., A. Barron, and L. Imgrund. 2004. From the field: A service provider's experience with two operational models for community science. *Community-Based Collaboratives Research Consortium Journal*. May 3, 2004. Available: http://www.cbcrc.org/php-bin/news/showArticle.php?id=32mei

Book Chapter:

Heiman, M. 2002. Power for the people: A comparison of the U. S. and German commitments to renewable energy. Pp. 403-411 in S.K. Majumdar, E. W. Miller, and A.

I. Panah (eds.). *Renewable Energy: Trends and Prospects*. Easton, PA: The Pennsylvania Academy of Science.

Ellison, James. 2003. "A fierce hunger": Tracing the impacts of the 1918-1919 influenza pandemic in southwest Tanzania. Pp. 221-229 in Howard Phillips and David Killingray (eds.)*, The Spanish Flu Pandemic of 1918: New Perspectives*. London: Routledge.

Web Citations:

American Wind Energy Association. 2001a. Federal power agency issues largest wind solicitation ever. News release, February 23, 2001. Washington, DC: AWEA. Available: http://www.awea.org/news

Heavner, B., M. Zugel, and D. Jacobson. 2001. *Affordable, reliable renewables: Pathway to California's sustainable energy future* (Report). Sacramento: California Public Interest Research Group. Available: http://calpirg.org/reports/renewablesreport.htm

Presented Papers and Posters:

Heiman, M. 2007. Hydrogen-based transportation: Infrastructure, net energy, and greenhouse gas concerns. Paper presented at the 103 Annual Meeting of the Association of American Geographers, San Francisco, CA, April 17-21, 2007.

Howard, G. J. and T. F. Webster. 2007. Contrasting theories of additivity, synergy, and antagonism in epidemiology and toxicology. Poster presented at the Society for Epidemiologic Research, Boston, MA, June 19-22, 2007.

Wilderman C. 2007. Models of community science: Design lessons from the field. Poster presented at the Citizen Science Toolkit Conference, Ithaca, NY, June, 2007.

Unpublished Material and Material in Press:

Wilderman, C. 2008. Introduction to the geology and land use in the Cumberland Valley Region. In C. Wilderman. *Environmental Science 131 Lab Manual* (Mimeograph). Carlisle, PA: Dickinson College Department of Environmental Studies.

B. Writing Style Tips

Reference: The University of Chicago Press. 2003. *The Chicago Manual of Style* (15th ed.). Chicago. While journals may have their own idiosyncratic styles, this "bible" of the reference world is the standard used by almost all US book publishers (and many journals). In addition to extensive discussion of citation formats, it provides information on word use, punctuation, spelling, capitalization, and most of the other style issues you will run into. An on-line version may be found at: http://www.chicagomanualofstyle.org/home.html

1. Punctuation

a. Be consistent with internal punctuation in citations (placement of commas, colons, parentheses, etc.).

b. In a series within a series, use a semi colon for the main separation and a comma inside the subsections. This goes as well with authors in a series. E.g.: Brown, James; Kirt Mossler; and Tammy Shawn. 1997.

c. Place a comma before the closing "and" in a series of three or more.

d. The closing period goes after the citation (author, year) at the end of a sentence. When you have a citation closing a sentence that ends with a quotation, the quote marks go after the quoted material but the closing period still goes after the citation for that quotation. In brief, nothing should be "floating around" or left loose in the text itself. All the text has to be "anchored" by a closing punctuation mark.

2. Spelling:

a. Hyphenate compound adjectives except those ending in "ly." Hence "three-mile trail," but "slowly spreading spill."

b. Do not capitalize the names of common chemicals such as oxygen, fluorine, phosphates, etc. These are not proper nouns.

c. Do not start a sentence off with a numerical number; spell it out or rearrange the sentence to avoid putting the number first.

d. We generally spell out numbers under twenty. However, stick with the numerical symbol for lower numbers if you have, in the same sentence or paragraph, numbers that are higher than 20 for which you have to use the symbol.

e. The possessive of it is its. It's is the abbreviation of it is.

f. Capitalize Twentieth Century, 20th Century, etc.

g. Proofread--Do not just rely on just spell check! Use a dictionary when necessary to look up any terms that you yourself can not define.

3. Word Use

a. Avoid such absolutes as "never," "always," and "it is a fact," as well as suggestions that "it is obvious," "as we all know," etc. You risk being shot down by the exception and/or insulting your audience for whom it may not be obvious. In brief, "never say never!"

b. In general, for formal writing avoid starting a sentence off with the word "Also." Try rearranging the sentence and/or using a substitute such as "Moreover," or "Furthermore." With informal writing you may start a sentence off with "And", "But", and even "Also."

c. For equations and actual science writing it is common to use symbols. However, for basic text in non-science writing we suggest avoid using the % and $ symbols--spell these out.

d. Make sure you know the difference between the words: cite, site, and sight. Moreover, their, there, and they're and its and it's should not be confused**.** Furthermore, data are plural, datum is singular, and affect is the verb, effect is the noun.

4. Sentence Structure

a. Simplify sentences--try to cut out the verbiage and condense to better make your point.

b. Shorter sentences are preferred to long run-on sentences separated by "and" or semicolons (;).

c. Avoid switching verb tense in the same paragraph. If you must, provide a transition sentence with both tenses.

5. Quoted Materials and Figures

a. On the use of quoted material: Quoted material should be very limited in your text and reserved for instances where it is absolutely essential to attribute the idea or information to a specific individual--for example when you are presenting contending perspectives and you do not share the viewpoint of the author. Where possible, the information provided should be put in your own words with appropriate reference (author, date) in the text as to the source of the information. The full information on the citation goes in the bibliography (references cited).

b. With a quote in the text, followed by an author and date reference, put the closing period after the reference itself and not inside the quote marks. If there is an exclamation or question mark with the quote, then include the mark with the quote and still put a period after the reference.

c. Use ellipse points in quoted passages to indicate missing words. Use three points (...) for missing words in the middle of a sentence or at the beginning, but four (....) placed inside the quote marks at the end of the sentence if the missing words close a sentence (actually three plus the period makes four). If there is a reference for the quote following the quote, then place three points at the end of the quote followed by the closing quote marks, then the reference in parentheses, and then the period after the reference itself.

d. Use double quotation marks for quotes and to highlight terms (““). The single quote marks are used for quotes or highlighted material placed within quoted material.

e. All figures that you did not draw yourself require a complete reference. If you use the author and year under the figure, make sure to add the page from which the figure comes and then provide a full reference in the bibliography as to the source.

f. For all maps, provide a scale and orientation (N, S, etc.).

6. Editing and Writing:

a. Define acronyms the first time they are used in the text (e.g. EPA. TRI. SARA, etc.). Provide a list of acronyms in the report if you extensively use acronyms.

b. **Unless instructed otherwise, you should use Blackboard to submit your work digitally (and save paper).**

c. Number the pages of any work you hand in. Provide a table of contents for your paper.

d. Symbols-- Editors use a double P (PP) to indicate where you might start a new paragraph in your text. A small pp. is the abbrev. for pages in a citation.

e. **Most of you would do well to visit the Writing Center** and get help for your next written assignment. We suggest you focus on what the Writing Center is good at, namely punctuation, grammar, sentence structure, and clarity of exposition (including sentence simplification). For a schedule and more information, visit http://www.dickinson.edu/departments/engl/writingcenter/ or call the Writing Center at 717-245-1620.