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Spring 2017

## Ignatian Pedagogy Certificate Final Project

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**IP Certificate Final Project**  
**G. Patrick Duffie**  
**Spring 2017**

This academic year my major teaching responsibilities have been the delivery of our general biology (Biology I & II) curriculum to incoming, first-year students. With over 1000 students currently enrolled across several General Biology sections we have a relatively rigid set of requirements and objectives that must be achieved by all of the instructors assigned to this course. Additionally there is a great deal of foundational information that must be presented by each instructor so that students will be prepared as they move into our 200-level core courses. These restrictions make it difficult for the instructors to go too far afield during the semester.

This spring semester my lecture section is relatively large with 120 registered students. Ideally for my final project I would have enjoyed developing a project in which each student would explore a topic of particular interest to them; however, with the limited available time in lecture this did not seem like a viable option. Fortunately my large lecture section has three smaller discussion sections that meet an additional 50 minutes each week. Even with this additional discussion time, and a smaller discussion class size of 40, it still did not seem feasible or optimal to have every student present an individual project. My solution was to create small group projects using the discussion periods for student-student interactions and ultimately presentations of their final projects.

With this project I have several specific goals in mind. First, I want my students to gain some valuable experience working in a small group. Reports from professional schools consistently identify the need for students to be able to work effectively in a group. Why not give these first-year students a chance to get their feet wet? Second, I want my students to move outside of our lecture textbook and explore a “biological” topic that is of personal interest to them. Finally, I want the students to explore some bioethical concerns relevant to their topic. By including the requirement for a bioethical component I want (hopefully) to give the students an opportunity to write a personal reflection about their overall project experience.

With respect to topic selection I allowed groups (4 students) to pick almost anything as long as it was “biological” in nature. I discussed with students my desire for them to explore some issue that impacted their lives either directly or indirectly. For examples I mentioned environmental contamination, cancer diagnosis or treatment, loss of biological diversity, food deserts, or any innumerable medical issues. In addition to the need to research and explain the biology of their topic, I included a requirement that their topic must have an ethical component which the group would discuss in their final paper and present to the students in their discussion section. I reminded students over and over again of my desire for them to explore something that interested them, not something to impress me.

Early in the semester I provided the class with specific guidelines for selecting their project and for writing their final paper. I have appended my guidelines to the students at the end of this document, but below are my essential starting instructions to the groups:

*Your paper is really just a long essay looking in detail at a specific issue/topic that interests your group. You will be asked to present a critical evaluation of what you have read and what you have learned. Your goal is to synthesize information, explore relationships, analyze, compare, contrast, evaluate, and organize your thoughts clearly and logically. A good paper will be one in which you interpret thoughtfully what you have read and*

*write something that goes beyond what is presented in a single article or book. Your goal is to come up with new and interesting thoughts or ideas and to inform our class on your point of view.*

*Begin by thinking about a general subject, nothing too specific; stay flexible and open minded. Initially you may encounter too many references, so you must be able to narrow your focus. For example, it is not feasible to write on the entire field of cancer. This topic is too large with so many different aspects and an overwhelming amount of literature. You may also find that your topic is too narrow and that you can't find enough information on which to write a paper. You will then need to broaden your topic or switch topics so that you will end up with something to discuss. Don't be afraid to discard a topic and try something new.*

*Choose a topic you can understand fully. You cannot write a good paper on something you do not understand. You are not trying to impress me with the complexity of the topic; I am looking for clarity and understanding. Simple topics are often the best ones.*

As expected from a class of first-year students the early stages of the project revolved around administrative questions like selecting an acceptable topic, or how many pages must we write, or what format should we use for references. Fortunately the guidelines I supplied to the class covered almost every concern. I was also happy that I provided a specific order for the schedule of presentations.

Before group presentations began this past week I expected to observe a large range of communication skills and group organization dynamics. After approximately one third of the class presentations my expectations have been validated. Some groups obviously worked very well together researching their topics and generating interesting and informative presentations, while others appear to have struggled a bit in focusing their topic and presenting the information in a cogent manner. Unfortunately, but not entirely unexpected, some groups did not work well at all. To date I have received emails from two groups expressing concerns about some of their group members who do not appear willing to work as a team. Fortunately the personality conflicts appear to have subsided.

I provided the class with a grading rubric (appended at the end of this document) that included instructions for evaluating their group members as well as their own effort. I am most interested in reviewing these individual evaluations at the end of the semester.

Even with some of these minor setbacks the student presentations have been interesting, diverse, and well received by the class. Here is a small sample of the group research topics presented so far: Animal Crossings, Abortions, Coral Reef Bleaching, BRCA Gene Mutations, Whaling, Physician-Assisted Suicides, Marijuana Use in Autism, and Designer Babies. I have been especially pleased that each group included a discussion of some of the ethical issues pertaining to their topic.

In the future I hope to continue using these small group writing projects in my General Biology lecture sections. The project gives first-year students an experience in group work and removes some of the anxiety of researching, writing and presenting a topic all by themselves. The project also serves the University mission of writing across the curriculum. Unfortunately in the life sciences the opportunity or requirement to write within the discipline is often limited.

Needless to say there also some issues I will need to work on to make the project more efficient and effective. First I should allot more time for the student presentations. This

semester I set aside two weeks of discussion periods but this was definitely insufficient. In the future I will need to be strict on presentation time limits for each group. I now realize that a great deal of time is lost between presentations as groups are setting up the computer or deciding who will speak first. Additionally it would be beneficial if students in the class had more time for discussion and questions. Unfortunately I have not yet received the final papers from the groups but I anticipate I will need to be more explicit in my directions about content and reflection.

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## ADDENDUM

### **A. Guidelines for Group Writing Project Biology 102 - Spring 2017 - Patrick Duffie**

*Our paper is really just a long essay looking in detail at a specific issue/topic that interests your group. You will be asked to present a critical evaluation of what you have read and what you have learned. Your goal is to synthesize information, explore relationships, analyze, compare, contrast, evaluate, and organize your thoughts clearly and logically. A good paper will be one in which you interpret thoughtfully what you have read and write something that goes beyond what is presented in a single article or book. Your goal is to come up with new and interesting thoughts or ideas and to inform our class on your point of view.*

#### **Why bother?**

*There are very good reasons to require this writing assignment. First, you end up teaching yourself something relevant to our biology course. Self-teaching is essential for success in college and in academic careers; it is a skill worth developing. In addition, you will gain experience in reading from a variety of scientific sources. You will hopefully gain insight into the nature of scientific inquiry and move away from the blind acceptance of stated facts and toward the ability to evaluate biological ideas. Writing is an excellent exercise in logical organization, effective presentation, and discussion of information, all of which should help you in your career. How fortunate you are that your Instructor (me) cares enough about your future to give you this assignment!*

#### **Getting Started**

*The first thing you (your group) must do is decide on a subject of interest. The subject is totally open to you; you are free to select any topic that relates to biology. Caution: Be sure to choose or develop a subject that interests you. It is hard to write on something that bores you.*

*Begin by thinking about a general subject, nothing too specific; stay flexible and open minded. Initially you may encounter too many references, so you must be able to narrow your focus. For example, it is not feasible to write on the entire field of cancer. This topic is too large with so many different aspects and an overwhelming amount of literature. You may also find that your topic is too narrow and that you can't find enough information on which to write a paper. You will then need to broaden your topic or switch topics so that you will end up with something to discuss. Don't be afraid to discard a topic and try something new.*

*Choose a topic you can understand fully. You cannot write a good paper on something you do not understand. You are not trying to impress me with the complexity of the topic; I am looking for clarity and understanding. Simple topics are often the best ones.*

#### **Researching Your Topic**

*You will need to evaluate information from a number of sources to come up with a new way to look at a particular topic. Your goal is to make a specific point, to convince readers that your point is valid. We will call this point the thesis statement of your paper. Developing your thesis statement may take a bit of time and mental effort on your part. Start your assignment now and try to spend several hours reading and thinking about a good thesis statement each week. If you wait too long to get started it becomes very difficult to get develop a good thesis statement.*

*I suggest beginning by reading appropriate sections in our textbook to get an overview of the general subject of your topic. From there you can move on to more specialized books which discuss the same subject but in more*

depth/detail. With adequate background you can move into the primary literature where you can find many interrelated papers on your topic. It takes time and a bit of patience.

Take notes on what you read. Be sure to understand what you have read. You need to be able to summarize your readings in your own words. As you are reading try answering some of these questions:

- What is interesting about this information?
- Why am I writing this information down?
- What puzzles me about what I just read?
- Can I see relationships between what I just read and what I have already read?
- What assumptions do the authors make?

As you read, note some ideas that you would like to know more about. Write down your own thoughts, this will stimulate more interest in the material. In time, you will come up with your own original ideas, things that you had not thought about before. Keep refining your thesis statement until you have one that really interests you.

### **Your Crucial First Paragraph**

Your thesis statement must appear near the beginning of your paper. The remainder of your paper should be devoted to supporting it. The direction of your paper must be indicated in the opening paragraph. The paragraph must state clearly what you are setting out to do and why. Every paragraph after that should be leading to your goal

Support your arguments. Try to compare and to contrast and give examples from what you have read. If you are referring to specific experiments, describe the key parts of the experiment and explain how the results relate to your thesis statement. In all of your writing avoid quotations unless absolutely necessary; use your own words and your own understanding. Try to be balanced and effective in your descriptions and arguments, covering both biological and ethical issues.

The closing paragraph of your paper should summarize the major points of your thesis. Never introduce new information in your summary.

### **Sources**

Your paper should include at least six reputable sources, but I encourage you to go beyond the minimum. The sources you select should be from reliable sources that are of good scholarly reputation; this applies to any websites or web links you use. Consider using official government websites and other major agencies or organizations. All sources should be fully and properly cited (See below).

Cite only sources that you have actually read and feel comfortable discussing.

At the end of your paper include a Literature Cited section listing all the publications referred to in your paper. List references in alphabetical order according to the last name of the first author. If you cite several papers written by the same author, list the papers chronologically.

### **Using the Correct Format**

#### Format for a Book References

Nybakken, J.W., Bertness, M.D. 2005. *Marine Biology: An Ecological Approach*, 6th ed. Pearson Education, Inc., CA, pp. 25-31.

#### Format for an Article from a Book

Thompson, S.N. 1997. Physiology and biochemistry of snail-larval trematode relationships. In: *Advances in Trematode Biology* (Fried, B., Graczyk, T.K., eds.). CRC Press, NY, pp. 149-195.

#### Format for Journal References

Twombly, S., Burns, C. W. 1996. Effects of food quality on individual growth and development in the freshwater copepod *Boeckella triarticulata*. *J. Plankton Res.* 18:75 – 82.

#### Format for items from the World Wide Web

Lawrence, R. A. A review of the medical benefits and contraindications to breast-feeding in the United States [Internet]. Arlington (VA): National Center for Education in Maternal and Child Health; 1997 Oct. 40 p. Available from <http://www.ncemch.org/pubs/PDFs/breast-feedingTIB.PDF>

### **A Few Words on Plagiarism**

Submitting anyone else's work under your name is **plagiarism**.

Presenting some else's ideas as your own is **plagiarism**.

Plagiarism is theft: a serious crime in the academic/university world.

You can prevent plagiarism by doing the following:

- Take all of your notes in your own words. Do not take notes or write while you are looking at a source. You can unintentionally plagiarize. If a source's words seem perfect to your paper be sure to enclose the material in quotations "- "and clearly indicate the source.
- As you take notes indicate which ideas are your own (e.g. "me") and which came from the source.
- Take notes in incomplete statements and in your own words; you are less to plagiarize.
- The possibility of plagiarism is greatest when you are taking notes on material you do not understand. Also avoid taking notes on the first reading of a source. Take time to understand the material.

### **Some Useful Websites for References**

(A Biologist Guide to Library Resources) - <http://www.ase.tufts.edu/biology/bgguide/>

(Searching the World Wide Web: Overview) - <https://owl.english.purdue.edu/owl/resource/558/01/>

(Choosing Search Tools You Need from UC Berkeley) - <http://guides.lib.berkeley.edu/evaluating-resources>

How to Cite Web Sources - <http://www.nlm.nih.gov/pubs/formats/internet.pdf>

### **DUE DATES**

Projects will be presented in our Discussion sections during the final two weeks of the semester: weeks of April 17th - 21st and April 24th - 28th. Each group will have approximately ten (10) minutes to present the major points of their paper.

A final copy (hard or electronic) of your paper must be submitted to me by **4:00 PM on Friday, April 28th**. If you send an electronic copy it is your responsibility to check that I have received it by the deadline. No late papers will be accepted.

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## **B. STUDENT GRADING & PERSONAL REFLECTION**

FULL NAME \_\_\_\_\_

Spring 2017

### **A. TEAMWORK (Check the appropriate line that meets your evaluation)**

\_\_\_\_\_ The group worked well together to achieve objectives. Each member contributed in a valuable way. There was a high level of mutual respect and collaboration.

\_\_\_\_\_ The group worked well together most of the time with only a few instances of communication breakdown or failure to collaborate. Members were mostly respectful of others.

\_\_\_\_\_ The group did not communicate or collaborate well. Some members would work independently without regard to objectives. There was a lack of respect and regard for others.

Which of your team members do you feel contributed the most to your project? (Who and why?)

Which of your team members do you feel contributed the least to your project? (Who and why?)

## B. INDIVIDUAL REFLECTION OF PROJECT

On a separate page or the back of this page, write a summary or reflection of your experiences from this project. In your reflection you should answer these general questions:

- *What were the challenges of this project?*
- *What went well?*
- *What did I do?*
- *I learned that:*
- *This learning matters because:*