



# CTL Featured Assignment Form

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**Name & number of course:** ES 110: Environmental Studies as a Natural Science

**Name of assignment:** *The Final Four*

**Class size:** 30-40 students

**Last time class was taught & when it will be taught again:** I offer ES 110 each year. I last taught the class in the fall of 2014, and will teach it next in the spring of 2016.

**Description of the assignment (e.g., when you give the assignment, if you scaffold the assignment):** The inspiration that resulted in the crafting of this assignment came about while I was watching the NCAA Women's Basketball Final Four games! Hence the name, *The Final Four*.

In this exercise the class is given a list of 16 environmental issues facing our society, and through research, discussion and debate, must reach a consensus as to which one they feel is the most pressing and challenging. To begin the exercise, the class is divided into groups of two (some with three), with each group being assigned one of the issues. Four rounds of research and discussions are completed to make a final determination, with half of the issues being removed at each step (e.g. 16 to 8 to 4 to 2 to 1). After each round, groups merge becoming larger in size (2 to 4 to 8 to 16). It is not important to have a given topic reach the final round. Rather, the goal of each group is to be sure that their topic is well represented so it can be fully evaluated along with the other competing topic at each round.

As outlined below, the first two rounds (going from 16 to 4 issues) are completed outside of class, and the final two rounds are held in class (*The Final Four*). There are writing assignments due at the end of each of the first two rounds that are critiqued by the instructor, returned, and used to further aid research and discussion for the next round. *The Final Four* rounds commence with each of the four groups giving a presentation introducing their topic (with PowerPoint or Google Sides).

I aim to start the assignment at approximately week 6 in the semester. By then, the class has been introduced to key environmental issues from scientific, social, economic and political points of view. I ask them to consider these different disciplines while researching their specific topics. The first two rounds are held (roughly) between week 6 and 10, and *The Final Four* in class during week 11. Details of the assignment are given in the attached file. Briefly, the steps are as follows:

1. Round 1: Each group researches their topic and prepares a short paper (paper #1) summarizing their findings and conclusions. The papers are handed into the instructor and exchanged with their opposing group. The instructor returns the papers with comments. The groups convene a meeting, discuss both topics, and reach a consensus as to which of the two issues will move onto Round 2. The combined (larger) group, then devises paper #2 again summarizing the key points for each topic and adding reasons why they selected the one topic to move onto Round 2. These papers are critiqued by the instructor and returned.

2. Round 2: Opposing groups for Round 2 exchange paper #2, convene one (or more) meetings to discuss the topics, and reach a consensus on which of the two issues will move onto Round 3. Essentially, they repeat what they did in Round 1. Each group (eight students) prepares paper #3 summarizing their reasoning for advancing the selected topic. Each group also must prepare a 10-15 minute presentation to be given in class at the start of Round 3. The presentation should briefly summarize each of the four issues that were considered within their group (Rounds 1 and 2), including advantages and disadvantages, and a clear summary on why they selected the issue to present for the final rounds.

3. Rounds 3 and 4 (class day #1): Presentations are given by each of the four groups to the entire class. This is followed by a class-wide question and answer period aimed at better understanding each of the four remaining issues.

4. Rounds 3 and 4 (class day #2): The four remaining groups divide into their semi-final pairings (e.g. groups 1 vs 4; 2 vs 3). Within each pairing the students mix (e.g. 1/2 from group 1 with 1/2 from group 4 in one group, and the remaining students in a second group) and discuss the topics for 20 minutes. Next, all (16) students from each semi-final pairing convene, exchange ideas and try to come to a consensus (technically, the end of Round 3). The last 20-30 minutes is then devoted to a class-wide debate on the remaining two topics (Round 4), with the goal of deciding one final topic!

Final Notes: The 16 topics used last fall are listed on the attached assignment, along with the pairings and grading rubric. More points are given for the first paper where the bulk of the initial research is completed, giving slightly more emphasis on the work done in smaller groups. In case you are wondering, limiting fracking for natural gas emerged as the #1 issue.

**Learning goals of the assignment & briefly how they relate to the goals of the course:**

The primary goal of *The Final Four* assignment is for students to sharpen their research, writing, presentation, and discussion skills, while examining and analyzing a suite of crucial environmental issues not directly covered in class. A secondary goal is for each student to gain experience (advantages and potential problems) working in groups of varying sizes (two, four and eight). A primary goal of the course is for students to be able to critique an environmental issue from multiple points of view. A focus of ES 110 (as opposed to ES 111) is being able to understand and evaluate the science that underlies a given topic. However, social, economic and political points of view are also of importance and must be considered along with the science. I believe *The Final Four* assignment gives the students significant experience in integrating and balancing all sides of an issue. It also pushes them to make decisions.

**What you like about the assignment & why you think it is effective:**

The part of the assignment I came to appreciate the most was the dynamic between students within a given group. Some students focused primarily on the science, others were passionate about the social consequences, and still others were most interested in the economic outcomes. I think the students learned how different the viewpoints of some of their colleagues were relative to their own, and while frustrating or not, had to compromise. I hope all of them came away with a better appreciation for all sides of an issue and that they gained valuable experience on how to address, and hopefully improve, critical issues facing our society.

Next year I plan to add a session with a librarian liaison to strengthen the student's research skills, especially in regards to distinguishing between reputable, peer-reviewed literature versus the many opinions and non-peer reviewed documents found on the Web. Lastly, common problems often faced with group assignments, such as some students work harder than others and getting students to agree on meeting times, can be challenging. I met with groups, as needed, during each round to address these concerns. Although last year I did not receive any complaints regarding effort by group members, I plan to add a group (and self) assessment evaluation. I did have to aid one group with selecting a meeting time. Knowing none of them had an 8AM class, I had the group meet at that time! They actually worked well together once they had a common meeting time.