

During the Fall 2016 Backwards-By-Design retreat, one recommended strategy for improving writing assignments that I learned about was making clear who the target audience for the paper is. That still felt somewhat artificial, however, since ultimately the professor is still the one reading and grading the assignment. Later in the retreat, I realized that my class schedule during the upcoming year provided me an opportunity to have students in my writing intensive class truly write for an audience besides myself: the students in the other class I would be teaching at the time.

In Spring 2017, I taught two classes: Econ 482 (Advanced Topics in Environmental Economics) and Econ 384 (Energy Economics). Econ 482 is a WP3 course and during the quarter, students learn how the U.S. government has estimated a numerical value for the social cost of carbon, which can be used, among other uses, in valuing carbon emissions reductions in cost-benefit analyses of environmental regulations. One of the writing assignments in the class was a two-page assignment that would be anonymously distributed to and commented on by students in my Econ 384 class before I graded the assignment. The assignment for the Econ 482 students was to explain to students in the Econ 384 class how the social cost of carbon was calculated by the U.S. government and discuss how credible they found this calculation process and to justify their opinion.

The students in the Econ 482 class were told that the students in the Econ 384 class would receive copies of their two page writeup and would comment on them back to me, addressing three questions on readability, evidence of understanding of the calculation of the social cost of carbon, and how convincing their arguments on the credibility of the estimates were. The 482 students were also told that I would review the Econ 384 students' comments on their paper before assigning a grade, but that the other students would not play a direct role in the grading process. When initially discussing this assignment with the Econ 482 students, I got the impression that the plan to share their work with other students "raised the stakes" on this assignment, at least when the paper was assigned.

I thought that directly incorporating the Econ 384 students into this writing assignment would increase the value of the assignment to the Econ 482 students. One of the economics department's student learning outcomes is that students should be able to "communicate economic ideas effectively in written, spoken, and graphical form."<sup>1</sup> I believe that in addition to being able to communicate economic ideas effectively to economists who already have a deep understanding of the material (as is usually the case when turning in papers to professors), students should also be able to explain economic concepts to a reasonably educated and intelligent audience that is not an expert in the topic being explained. This assignment would provide an opportunity to do that in an environment where non-experts really would be reviewing their paper.

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<sup>1</sup> <https://cbe.wvu.edu/files/CBE%20Files/PDFs/Economics%20Assessment%20Plan.pdf>

I thought that students in the Econ 384 would benefit from this cross-over assignment as well. The estimation of the social cost of carbon was relevant to Econ 384 because the value of the social cost of carbon could be relevant to determining the level of a carbon tax, which in turn would impact energy-related industries, though I had not addressed it in any prior quarter teaching the class.<sup>2</sup> Additionally, while Energy Economics is not a 'writing proficiency' class, students in the class could nevertheless gain a deeper understanding of what is and is not effective in student writing by taking on the role of the evaluator.

The requirements of Writing Proficiency classes at WWU are that essays must be submitted in multiple rounds with the first submission ungraded. However, for this assignment I wanted to see how well the Econ 482 students could write for the Econ 384 students without my intervention and so the first draft submitted only underwent peer-review. The second draft was circulated to the Econ 384 students for comments and later graded by me.<sup>3</sup>

Many of the papers were well done and targeted at the appropriate level. The comments from the Econ 384 students on these papers were for the most part complimentary, even on papers that I felt did not do an effective job at (accurately) conveying the estimation process of the social cost of carbon calculation. Some of this may be due to Econ 482 students avoiding detail when they did not understand the estimation process well themselves and instead placing excessive emphasis on discussing basic issues with the credibility of the results, which was likely easier for the Econ 482 students to understand. There was only one case where I felt a student ignored that the paper was supposed to be written for Econ 384 students instead of myself.

After collecting the comments on the writing assignments from the 384 students, I also had a class discussion with those students on what made for an effective paper and what did not. This was one of the more energetic discussions of the quarter with participation from some students who tended not to speak up in class.<sup>4</sup> While I did not plan on doing this at the start of the discussion, I ended up taking notes on the board as students discussed what worked and what didn't with regards to the Econ 482 papers and then shared a summary of those thoughts during the next Econ 482 class. Beyond this general feedback, numerous Econ 482 students did seem to be interested in the comments from the other students, asking when they would get the written comments back from those students, even though this would not provide them any opportunity to change their grade.<sup>5</sup>

I believe that overall this crossover assignment has substantial promise. During the next academic year, I will be teaching the same two classes simultaneously again in Fall 2017 and Spring 2018 and intend to continue using this assignment, with some modifications. The overall quality of Econ 384 student comments was hit-or-miss and next time I

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<sup>2</sup> The impact of a carbon tax (or a cap-and-trade program) on energy related industries had been covered in prior Econ 384 "Energy Economics" classes, but not the actual estimation of the social cost of carbon.

<sup>3</sup> Econ 482 met the required share of the final grade coming from writing assignments to qualify as a four-credit WP3 class without this assignment counting towards that share.

<sup>4</sup> This may be partially due to this class conversation not depending on any outside reading or knowledge beyond the just-completed in-class review of the Econ 482 papers.

<sup>5</sup> I did not return those comments until after I had graded the assignment myself so there was a delay in getting them back to the Econ 482 students.

will have the 384 students submit their comments on a separate page with a more detailed rubric (provided to the Econ 482 students at the time the writing assignment is posted.) I will also require the 384 students to write their names on their comments to enhance accountability for putting effort into the in-class review activity, which for some students was pretty clearly minimal this time out. I will also be more clear about the level of detail I expect out of the 482 students on how the social cost of carbon is calculated in this assignment; the fact that these papers are targeted at other economics undergraduates doesn't mean that specifics can or should be avoided, they should instead be explained to someone without a background in that material.<sup>6</sup>

I will also be reflecting on other opportunities to have these "crossover" assignments between my classes. For example, in Winter 2018, I will be teaching Econ 484 (Alternative Energy Economics, WP1) and Econ 384 (Energy Economics) and this seems like another spot where the more advanced students could write a short paper directed at the 300-level students that I could incorporate into their class. I have not yet determined what that crossover assignment should look like.

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<sup>6</sup> This will have benefits for Econ 482 students' understanding of the material as well. I believe that the fact that the paper assignment on the calculation of the social cost of carbon was to be targeted at Econ 384 students resulted in a few 482 students having the mistaken belief that an understanding of the details of this calculation was not necessary.