Supplementary Materials 1

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| **Literature Recommendations for CCE** | **How Recommendation was Incorporated in Pilot Course** |
| Leave students capable of engaging in climate change discourse (Chang and Pascua, 2017). | Journal Club discussions prepared students to engage in climate change discourse.  Reading of the IPCC Synthesis report in particular provides... |
| Address mitigation and adaptation (Chang and Pascua, 2017) | The last third of the course is dedicated to addressing climate change.  Students are exposed both to options for adaptation and mitigation as well as to policy options for how to accomplish it.  |
| Focus on impacts on human systems such as agriculture, health, extreme weather, infrastructure, and standard of living (Monroe et al., 2013) | Agriculture, extreme weather, and infrastructure were discussed in depth throughout the course, and made regular appearances in the current events.  More work needed to fully address standards of living during climate justice discussion. |
| It should be engaging and relevant (Monroe et al., 2017) | To ensure relevance, focus was placed on human systems, though more work could be done to tailor the course to focus more on local impacts.  Polar bears were not discussed.   |
| It must be interdisciplinary (Reid, 2019) | The course starts out focused on physics, moves through chemistry and biology before ending with discussion of engineering and policy. |
| Increase adaptive and mitigation capacity of communities by helping students become able to make informed choices (Reid, 2019) | Students learned factors that lead to greater or reduced adaptive capacity, and what can be done about it.  Contributing factors to climate change |
| It must address climate justice (Reid, 2019; Stapleton, 2019) | Once the mechanism and impacts on the physical world are covered, ethics and climate justice are introduced and used to frame discussion thereafter.  |
| It should empower students to act (Schreiner et al., 2005) | Semester project was focused on being applicable outside of the classroom.  Project ideas that would not result in a product that could be delivered outside of class were not accepted. |
| Be project based and include active participation in the search for answers (Schreiner et al. 2005) | Labs and simulations were built in throughout the course.  This allowed students to see and not just hear the mechanism and impacts of GCC.  The semester project built in an ongoing project in which students could be vested. |
| Inform students about impacts on health systems (Stapleton, 2019) | Students reviewed and presented to each other about impacts on health in the United States after reading on the topic from primary literature. |

Components of strong CCE as described in the literature and how they were incorporated into the pilot class.