

Cross-Institutional Scholarship in the Conservation Science Classroom

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We met while we were both postdocs in adjacent offices at NC State University (NCSU). We quickly became friends and have since developed ideas that fueled several collaborative research and teaching projects. One of us (Diana) took a faculty position at Northern Michigan University (NMU) in 2017, and the other (Erin) took a lecturer position at NCSU in 2019 (which has since gone tenure track). When we discovered that we were both teaching a 200-level conservation-focused course during Spring semesters (NMU: BI 240 Conservation Biology [60 students]; NCSU: AEC 245 Global Conservation Ecology [25 students]), we decided to bounce curriculum ideas off each other and to share all our course materials – from syllabi and student activities/projects to reading assignments and course exams. We co-developed our course content and aligned our curriculum across institutions. While our respective universities represent different demographic and student experiences (e.g., NMU is a predominantly undergraduate institution [PUI] in rural Michigan, and NCSU is an R1 land-grant institution situated 3 miles from downtown Raleigh), we have similar pedagogical goals. We both aim to actively engage our students in applying conservation tools to real-world challenges across species and scales, and we both incorporate professional development into our curriculum to help our students succeed beyond our classes. Importantly, our deliberate effort to collaborate in our teaching efforts not only fueled our curriculum creativity but allowed us to provide each other with substantial professional and emotional support as new faculty, which was critical as we pivoted from face-to-face to distance learning due to the pandemic.

Before the pandemic we both used a flipped approach, spending class time extending the materials covered in preparatory readings and quizzes through class activities. This structure translated well when we went into lockdown in March 2020. We both hosted synchronous group work via Zoom breakout rooms and created template Google Slides with specifications for each activity. By using Google Slides, our students were able to safely and simultaneously contribute to class activities instead of huddling over a central laptop and pointing. In addition, Zoom provided multiple opportunities for real-time student engagement during class via the chat and annotate features. Both technologies made Zoom more equitable by decentralizing control of shared materials and increasing each individual's ownership of the collaborative product. In fact, remote teaching worked so well we thought we'd take things a step further...

In spring 2021 we expanded the semester-long Conservation Campaign group project to include team members from both institutions in every group of 3-4 students. Due to the difference in our class sizes, many groups contained only 1 NCSU student. However, most of NMU's 60 Conservation Biology students had never met before taking this class. We dedicated 8 classes to dual, synchronous project support.

Together, we acknowledged the challenges and rewards associated with long-distance cross-institutional collaborations, specifically referencing our own research partnership as a real-life example. We also drafted several guidelines to facilitate communication among team members (e.g., Team Contract). In addition to providing dual support in real-time on project workdays, we moved discussion forums from our separate institutional “Moodles” – which do not permit collaborative communication across institutions due to institutional restrictions – to Padlet (<https://padlet.com/>), which enabled students from both institutions to contribute to the same discussion. Despite a few communication issues within groups, students were generally excited to work with peers from another institution; they particularly appreciated the professional development opportunity to present their Conservation Campaign group projects in not one but *two* undergraduate research symposia at our respective institutions.

Our students’ reflection assignments and course evaluations affirmed our choices: moving forward, we want to keep them all. The structural consistency we adopted for remote learning will model and foster good habits for productivity equally well in face-to-face classrooms. Padlet enables viewers to interact in real-time, helps students build confidence by responding anonymously to low stakes prompts or sensitive topics, and can be archived indefinitely or downloaded as a PDF. Zoom has opened a whole world of novel student engagement opportunities, and the “backchannel” tools also bolster equitable interactions and contributions during real-time collaboration. The whiteboard in Zoom and shared Google Docs, Sheets, and Slides enable automatic documentation of individual student efforts and group progress so that team members (and instructors) can revisit, review, and revise each product. Together, archival and version control help ensure that no team member is left behind; this was particularly important as more students missed more classes than usual due to the pandemic. Again, these are not just our own observations: in their reflections and evaluations, our students described the value of increased exposure to their peers’ different experiences, whether those differences were associated with PUI vs R1 institutions, rural vs urban, regional conservation issues, or other personal and professional experiences.

Invigorated by the positive feedback (and, let's face it, fixated on those few negative reviews), we have identified a few items to further enhance our conservation-focused courses. First, we plan to develop a community course contract and attestation at the beginning of the semester, to help students discuss and co-create a set of shared expectations regarding course participation and work product quality. We hope that engaging students in drafting the rules of conduct will better ensure their buy-in and compliance. Second, we want to assign readings for all students from both classes to annotate via Hypothes.is (an online social annotation platform [<https://web.hypothes.is/>]). We’ve found that annotation assignments increase students’ self-efficacy and sense of belonging, and we think it would be a particularly powerful tool to share perspectives and build community early in our cross-institutional collaboration.

While pivoting from face-to-face to an online format for course delivery was certainly not something we anticipated tackling as fledgling faculty, the pandemic provided myriad

opportunities for us to get creative in our remote classrooms. By collaboratively reimagining our course design, we created an educationally, professionally, and socially enriching cross-institutional classroom community for our students. And by drawing and building on our existing partnership, we inspired and supported each other to thrive while teaching remotely.