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Inclusiveness in Teaching : Aligning Culturally Relevant Journal Articles With Course Content

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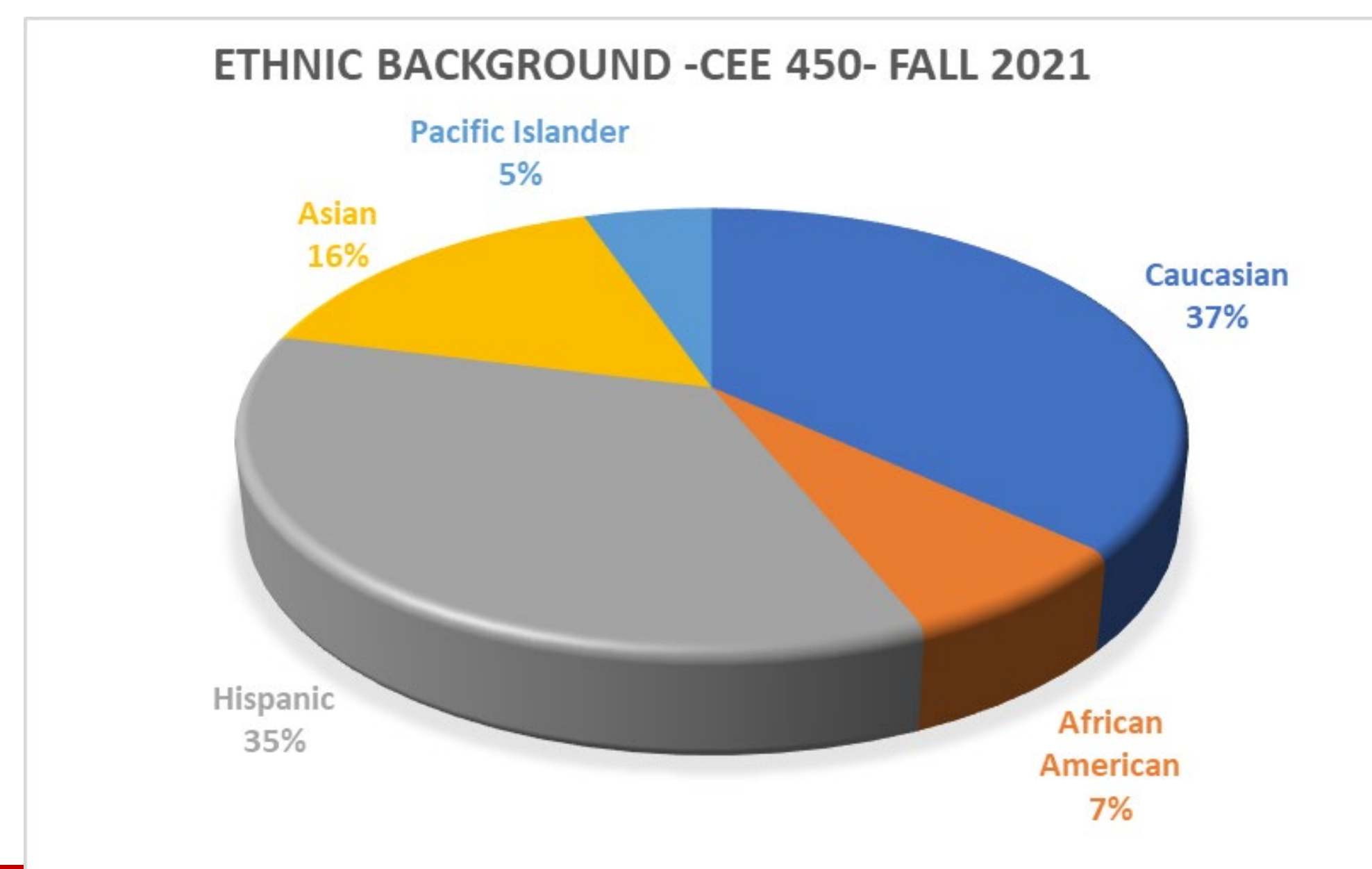
Inclusiveness in Teaching : Aligning Culturally Relevant Journal Articles With Course Content.



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Teaching Practice & Need it Addresses

The practice focuses on Inclusiveness in Water/wastewater Engineering Teaching. Upon reviewing the ethnic (Fig. below) and gender diversity (24% women) of her 57- student course on water/wastewater treatment, the Instructor replaced previously assigned articles with the reading of articles focusing on water issues affecting minoritized communities in the U.S (see references). The goal was to make students aware of water/wastewater issues facing minority communities in the US. Often, the media portrays Africa or South America as places where safe water is not available, ignoring the needs of minoritized communities in the US. A second goal was to evaluate the interest of students in this issue and determine if students of different ethnic background respond differently to questions posed about water/wastewater issues in these communities.



Reference of Articles Used

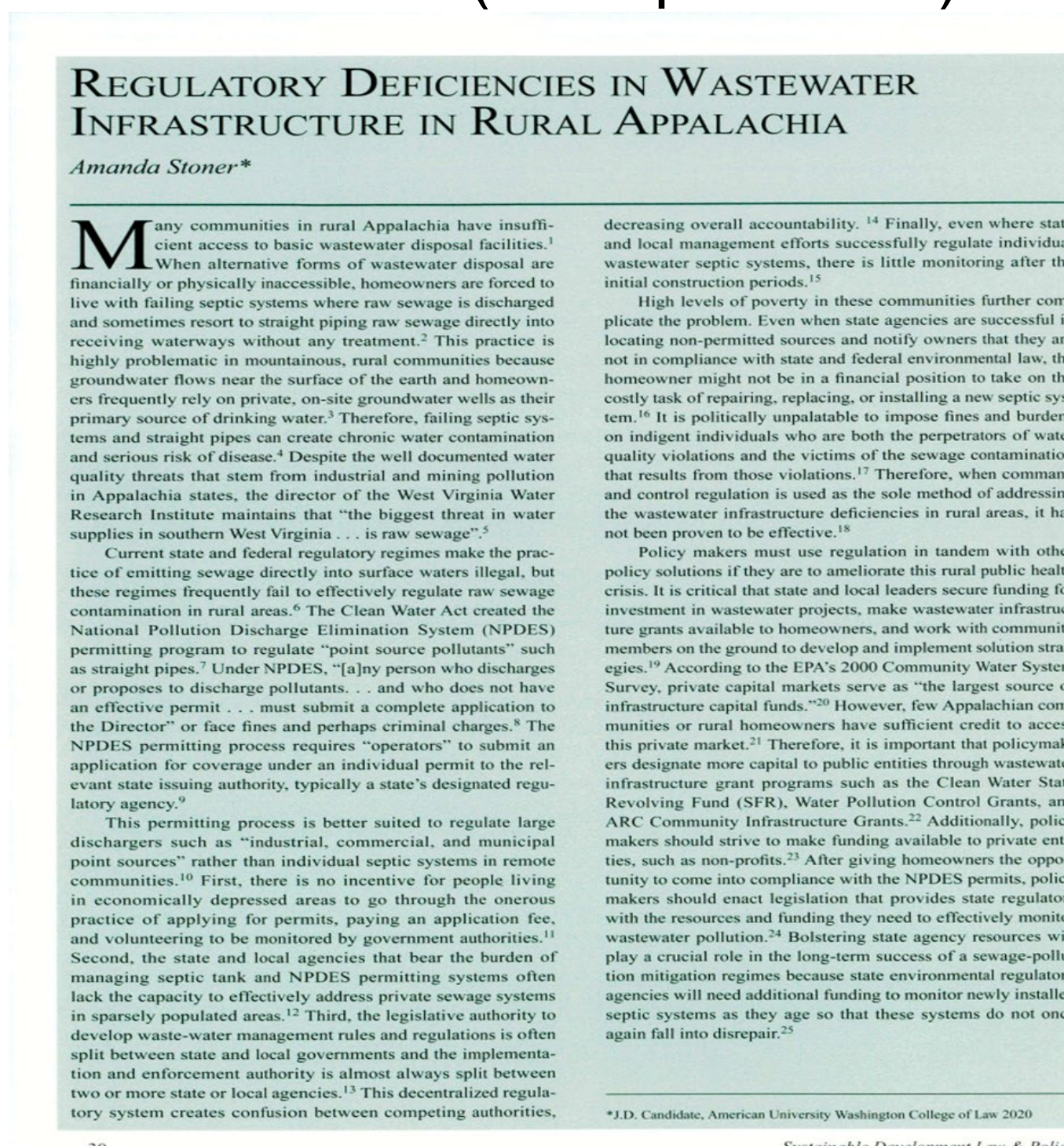
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How Others Can Adopt This Practice

- The first step is to find relevant journal articles that align with the content of the course. It is not hard to align the issues of minoritized communities with coursework content. There exist social, economic, environmental, infrastructure issues, etc. that impact many minority student and their communities. Given the diversity of students in our classroom and without changing the content much, any faculty member can introduce relevant topics.
- It is important to present the readings and let student reflect on them, without trying to advocate as a faculty member. The goal is awareness that may shape how students will use their degree in the future.
- Once the articles are selected, the instructor can add, to planned homework assignments, reflection questions about the article. It may be necessary to adjust the time commitment of the planned homework to accommodate the extra reflection questions.

Resources & Where to Find Them

- Google scholar and Scopus were used to find articles that relate to the class topic but yet address water/wastewater issues in indigenous, economically disadvantaged, and black and brown communities (example below):



(20 points) Read the attached article on wastewater infrastructure in Appalachia

- What is the connection between wastewater and drinking water pollution in these communities?
- Given the overall wealth of the United States, why do you think there are still communities/individuals that cannot properly treat their wastewater or have no access to safe drinking water?
- As a future civil engineer, what could you personally do to assist with issues like these?
- Critically examine the potential solutions proposed by the author in the last paragraphs of the paper (Do you think they would work? Why or why not?).

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Evidence It Helps Students

- Students responded positively to the articles and all student read the articles and answered the reflection questions.
- Interestingly, only 5-8% of the students mentioned discrimination or lack of political power as reasons for poor water/wastewater infrastructure in minority communities. The vast majority of students proposed an engineering solution to the issue. There was no correlation between the student ethnic background and the solution proposed.
- Although students recognized the economic status of these communities was the reason for their poor water/wastewater infrastructure, they did not evaluate the reasons why these communities are marginalized. This was the case even with articles where discriminatory behavior towards these communities was specifically mentioned. Intentionally, students were not prompted in the assignments to either direction. The results revealed that some more direct reflection questions, regarding discrimination and social injustice in water/wastewater infrastructure may have to be asked in future assignments. Such an exercise may have a greater impact in increasing awareness of engineering students regarding social injustice in water/wastewater infrastructure.
- Because student answers were typically 100-200 words long, word mining of key terms maybe a good tool to use for evaluation in future assignments.
- Excerpts of Students' Answers :**
- "The main reasons low-income communities suffer from wastewater treatment deficiencies is because it is expensive to upgrade to an approved on-site wastewater treatment system - The main reasons low-income communities suffer from wastewater treatment deficiencies is because it is expensive to upgrade to an approved on-site wastewater treatment system - One of the primary reasons for this deficiency is the high cost of onsite wastewater treatment systems - I believe that the reasons low-income communities suffer from wastewater infrastructure deficiencies is due to lack of demand and funding - These communities often suffer from wastewater infrastructure deficiencies because their poor economic standing prevents them from being able to afford to build and maintain the necessary infrastructure"
- "I believe that the reasons why low income communities often suffer from wastewater infrastructure deficiencies include not being seen and heard by state and local government. -Lack of political will of local communities to require residents to have OWTS systems installed because of the punitive fines that may be leveled. Legacy and historical discrimination which prevented federal investment in sanitation infrastructure"



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