

# Ensure Students Are Learning: Faculty Descriptions of Innovative Teaching Practices

## Adapted Carnegie Math Pathways for Tribal Colleges

### Innovative Teaching Practice Description:

This practice is based on the Carnegie Math Pathways project (<https://carnegiemathpathways.org>), which utilizes a co-requisite developmental math model. The project provides instructors with course materials, including a math workbook with several modules. Instructors are able to modify the modules to make them more contextual for students (i.e., make them more culturally relevant and social justice-oriented). For example, to teach about measuring ratios, an instructor can swap a workbook activity about making a cake with an one about making a traditional dish from a student's culture. Students complete some elements of the course online, including reading content before class and answering short-answer and fill-in-the-blank questions based on the reading.

Carnegie Math Pathways asks students to commit to coming to class, being a productive member, having a positive attitude, and completing the class; students sign this contract during the first class meeting. The first step of the contract is for students to select their own groups of two to four that will last throughout the semester. Once students have formed their groups, they talk about group dynamics and group roles. One person in each group will be the recorder for each class period; another group member ensures that everyone is participating, and another person is the reporter for the group (sharing information with the rest of the class when asked). Students maintain their roles within the group throughout the semester. At the end of the course, students give each other a peer review grade based on their participation.

The instructor modified the Carnegie cohort contract to be more relevant to his tribal college by incorporating the seven grandfather teachings; this inclusion reframes the contract so that students are not concerned with their own success, but rather the success of the group. The cohort contract stipulates that students are responsible for each other, including knowing where all members of their group are if they are not in class, meaning that students are required to check in with each other and remain in contact. Students come to class with a responsibility to their group because they know that their group needs them to learn.

During class, the instructor's role has shifted from a traditional instructor to that of a coach, asking students guiding questions, such as "How does this question relate to the content we covered in a previous class?" It is important that the instructor stay outside the discussion and let students think and, potentially, struggle as they make connections with the content.

### Notes From the Instructor About This Innovative Teaching Practice:

The instructor also utilizes Carol Dweck's work in his classroom and discusses growing intelligence, effort, and neuroplasticity with his students during the first week of class. The instructor also recommends Barbara Oakley's book *A Mind for Numbers: How to Excel at Math and Science (Even If You Flunked Algebra)* to other instructors for professional development.