

TABLE 1**Professor interview questions.**

| ID | Question |
|----|---|
| T1 | What is your teaching philosophy? |
| T2 | To what extent do you incorporate equity in your course? |
| T3 | Do you have questions about equity? |
| T4 | What resources or strategies do you provide? |
| T5 | What do you wish you had to improve the equity in the course? |
| T6 | How do you feel about the size of your class? pros/cons |
| T7 | Do you enjoy teaching this course? Why or why not? |

TABLE 2**Student survey questions.**

| ID | Question |
|----|--|
| S1 | Do you consider yourself a science-type person (STEM)? Why? |
| S2 | How do you identify in race?* |
| S3 | How do you identify in gender?* |
| S4 | How do you identify in ableness (physical disability, chronic illness, mental health)?* |
| S5 | How do you identify economically?* |
| S6 | "Equity is an educational focus on teaching styles that addresses the needs of all students in a class with a variety of backgrounds, ages, educational experience, gender, ethnicity, ableness, etc." What do you think about equity in your classroom? |
| S7 | What resources do you have access to that you feel help you succeed in this class? |
| S8 | What additional resources would you need to improve your success in this class? |
| S9 | Do you enjoy this class? Why? |

Note. *indicated optional questions.

TABLE 3**Professor interview summaries.**

| Interviewee | Summary of professor background and equity perspectives |
|-----------------------------------|--|
| Biology nonmajor professor | Non-tenure-track professor with 20 years of experience teaching this course and numerous teaching awards. Focuses on active learning and teaching students how to think critically. Explicitly discusses the equity of the classroom with the students early in the semester, cuts back on financial burdens to the students where possible, posts recorded lectures online, and provides 25% of grade as participation points. Focuses on making the class less about earning a grade and more about learning the material. |
| Geology nonmajor professor | Assistant professor, awards for research. Stressed that they were trained as a scientist and not an educator. Uses the "I do, we do, you do" approach to teaching where examples are demonstrated, problems are worked together, and assignments are provided. Mindful of physical and financial accessibility, and specifically how to make field trips more accessible. |
| Biology major professor | Professor with 15 years of teaching experience. Prefers teaching freshmen to foster enthusiasm for biology. "[Does] not underestimate [their] students and does not let them underestimate themselves." Tries to be available outside class to accommodate students who prefer different levels of interaction. Reflects on barriers students face to try to improve equity in the classroom. |
| Geology major professor | New hire (assistant professor), teaching course for the first time. Some (nonrequired) teaching in a previous position. Allows lecture recordings and provides lecture slides, outlines, and exam reviews. |

TABLE 4

Examples of equitable practices for STEM classrooms.

| Assisting students in cultural border crossings | Resources |
|---|---|
| Identity prompts | References cited for further reading: Fong & Siegel, 2005; Tatum, 2000; Hurtado et al., 2010; Hazari et al., 2013; Sleeter, 2016 |
| Flexible assignments | |
| Choice in learning paths | |
| Incorporating equitable practices in the classroom | Resources |
| Arranges seating to facilitate discussion | Reference cited for further reading: Tanner, 2013; see also <i>Equitable Classroom Practices Observation Checklist</i> adapted from "A Resource for Equitable Classroom Practice. (2010)." Montgomery County Public Schools. https://www.montgomeryschoolsmd.org/uploadedFiles/departments/clusteradmin/equity/ECP.pdf |
| Structures participation of all students (wait time, think-pair-share, random reporter, hear from each student) | |
| Uses scaffolding to support instruction and assessment (graphic organizers, pictures, diagrams, hints) | |
| Builds teams, uses cooperative techniques, and emphasizes the classroom as a learning community | |
| Creates a welcoming atmosphere in the classroom | |
| Explicitly discusses equity with students as a goal | |
| Values multiple perspectives | |
| Requests feedback on instruction, including equity (cards, interviews, surveys, midterm evaluations) | |

TABLE 5

Resources students identified as helping to promote equity.

| Resource type | How resource can promote equity |
|-------------------------|--|
| Lecture material | Tegrity, a tool that records and stores lectures for students to watch at any time, was mentioned by many of the students, either as a tool they had and liked or one that they wish they had available. This tool can be especially useful for students with learning disabilities, seeing or hearing disabilities, and circumstances that prevent them from attending class (e.g., physical or mental health issues). Similarly, a student stated that having "access to the daily slideshows" from class helped them study and review class material. |
| Class resources | Students appreciated having a free textbook. Attempting to reduce or eliminate the cost of class materials will ensure students of all economic classes can participate, and it has been identified that learners benefit from open educational resources (Berry et al., 2010; Martin et al., 2017; Panke, 2011). Additionally, open educational resources have been shown to improve student success overall (Robinson et al., 2014). However, care needs to be taken to ensure open educational resources are not inadvertently exaggerating current exclusivity in education due to differential access to materials (Willems & Bossu, 2012). |
| Assessment | Although students from one class reported wanting more homework assignments, we argue for the use of more authentic assessments. Authentic assessments provide the opportunity to not only test end products, but assess the process as well (Montgomery, 2002). This not only allows for more opportunities for professors to assess student understanding but also provides additional places for students to practice skills. Additionally, students highlighted the use of two-stage tests, which consist of a traditional test followed by group discussion and answer revision (Siegel et al., 2015; Russo & Warren, 1999). This format gives students the opportunity to work through any of the struggles they experienced during the traditional portion of the test and reflect on their thinking. |

Note. Students were asked specifically what resources they had available to help them succeed within their course and what additional resources they wish were available to them (see select survey responses in Figure 2). Several common suggestions from the students and their implications are summarized in this table.