

Addressing a Diverse Student Population

In planning activities when teaching a class it is imperative that we keep in mind that our students' experiences will not mirror our own. Merely focusing on what worked for us will not result in effective teaching for the diverse population of students in our classrooms today. I have offered a class on Teaching Engineering, based on Phil Wankat's textbook,^[1] in which this is one of the issues we address. The students we teach include women, minorities, international students, LGBTQ students, veterans, first-generation students, students of varying religions, students of low socioeconomic status, students with disabilities, and those dealing with mental health issues. Some actions that are helpful in addressing the needs of this diverse student population include:

- *Develop a welcoming and inclusive environment – Learn every student's name; Address each student by their preferred name and if they request a gender identifier use it; Establish ground rules for discussions; Encourage all students to participate; Challenge offensive remarks and turn them into a teaching moment for the class, regarding professionalism expected in the workplace; Be respectful of differences; Don't assume that a student who does not perform to your desired level is slacking off, leaving open the possibility that there are other reasons for their performance; Check accessibility of classrooms, office hours, and laboratories for students with disabilities.*
- *Address a range of learning styles – Deliver course material in various formats^[2]; Encourage inquiry-based and co-operative learning^[2]*
- *Check your own biases –The Harvard Implicit Association test,^[3] which measures implicit associations between concepts and evaluations or stereotypes to ascertain implicit preferences that might influence our interactions with certain groups of students, can be an insightful tool; Don't assume that a student from one population will have the same struggles that past students had.*
- *Provide access to resources – Include copies of the textbook in the library reference desk, student lounge, and/or undergraduate office for students to check out; If funds allow, provide free textbooks to financially challenged students (think of it as early alumni relations); Be aware of on-campus resources for students in specific subgroups that you can refer a student to, and ideally the name of a contact in that office.*
- *Make strategic use of teams – Create student study groups so every student has a chance to meet at least a few students to study with; In lower-level courses ensure that no team has a single woman, minority, or international student in the team; Conduct peer evaluations to ascertain individuals are following expected norms. Some faculty find tools such as CATME^[4] useful in forming and assessing teams.*
- *Be mindful of student scheduling challenges – Keep in mind that student schedules are affected by external work and family responsibilities, commuting challenges, and religious responsibilities when scheduling office hours, review sessions, and exams. Use technology to make yourself available to students.*
- *Demonstrate the relevance of course content – Provide real-world examples of applications of the course topics; Invite alumni to present applications or include a course project to explore these applications.*
- *Grade on a straight scale based on expected mastery – Minimize competition and encourage students to work together to improve their performance; Allow for adjustments should you accidentally make an exam too difficult.*
- *Both in class and individually, point out that success hinges more on hard work and effort rather than innate ability; Mention that many students have unique paths to graduation based on their histories and decisions that they make as students; Their histories need not define their future paths.*
- *Provide frequent feedback and encouragement – Make students aware of their current standing and resources available to improve their performance.*
- *Be part of your students' communities – Attend student group events and individual student sport and artistic performances; Share student achievement with the class; Be visible on campus; If students share personal information, make a note of it and refer to it in further conversations; Forward articles about their accomplishments to them in a congratulatory email.*

Most of these activities take very little time and can go a long way in helping students feel a greater sense of belonging and confidence in their ability to succeed in your program.

REFERENCES

1. Wankat, P.C., and F.S. Oreovicz, *Teaching Engineering*, 2nd ed., Purdue University Press: West Lafayette, IN (2015)
2. Felder, R.M. and Brent, R., *Teaching and Learning STEM*, Jossey-Bass: San Francisco (2016)
3. Project Implicit, <<https://implicit.harvard.edu/implicit/>>
4. CATME, <<http://info.catme.org/>> □

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