

# The Initiative for STEM Education, Equity and Ethics at American University

## Strategies for Inclusive STEM Course Policies - A Call to Action

***“Teaching in the Fall 2020 semester will be like nothing we have encountered before”***

Our group wrote that sentence in April 2020 when we were considering extended online teaching related to the global pandemic of Covid-19; a pandemic that revealed inequities in access to technology, access to healthcare and access to education – then, George Floyd’s life was ended in front of our eyes.

The call to actionable change related to systemic racism has been loud and AU faculty, including those in traditional STEM fields, must respond with tangible and meaningful initiatives informed by evidence-based strategies to address issues related to race and racism. Anti-racist literature stresses that social policies and the people in power who created them, promote racial injustice; conversely, the use of anti-racist policies and the people who create them are needed to dismantle and counter systemic racism, and create real change, while inviting others to participate.

### ***What policies do AU faculty have control over? Policies in our syllabus -***

Consider the following policies that influence how our students experience our classrooms, in both face-to-face and online formats. **How can you use your power, privilege and discretion** as a faculty member and teacher to help dismantle the current system of racism and its impact on how we train our students? How can you use your power, privilege, and discretion to help build a higher educational system that acknowledges the impact of racism in STEM career achievement to create a more diverse and agile STEM workforce?

1. ***Attendance & Participation*** – What do “attendance” and “participation” mean in a fully online course model? Do you require attendance? What barriers are there to attendance or participation in the online classroom – Is your rationale one that reinforces bias? Consider whether your attendance policy is student-centered or instructor-centered? Consider how course requirements for attendance and participation promote or prohibit accessibility. Given your policies for attendance and participation, which students are supported in being academically successful? Which are not supported? How are you intentionally inviting and engaging student participation from everyone? Do you have a rubric for participation or do “you just know it when you see it”? Do you supply feedback to those who are *not* participating?
2. ***Group Work*** – How does group work help students to learn in ways that individual work does not? Is your choice to do group work student-focused or instructor-focused? How do you help in the formation of groups and group roles rather than letting students “just figure it out”? How do you expect students to handle group problems? Do you provide time during regularly scheduled class time to complete group work? Consider whether groups working outside of regularly scheduled class time limits the participation of certain students. Do you provide guidance to groups not getting along? Do all group members receive the same grade? Do students provide

feedback to each other? To the instructor? What types of group work policies can you create to support the learning and academic success of all students?

3. **Documenting absences or late assignments** – Do you ask for documentation for absences or late assignments? What are the reasons students miss class? Or turn assignments in late? Are your policies surrounding absences student-focused or instructor-focused? Does your policy discourage absence or encourage participation? Do your current policies reduce absences or late assignments? How do students respond to a request for documentation? What types of documentation do you accept as sufficient? How does missing one class affect how a student learns? Do you reach out to students who miss class or assignments?

### ***Three things AU faculty can do this fall to build a culture of trust***

The STEM classroom environment can feel scary to students. High stakes assessments combined with a culture of competition can make students feel their worthiness as STEM students is under constant scrutiny. As a result, some students feel like imposters in the academic setting. These can feelings drive them out of STEM majors, or they also can lead students to bad decisions. One way to change that culture is to be explicit with expectations about the assessment process. Make sure they understand how and why you have structured your assessments the way you have, and that they reward learning and competency instead of prior preparation and test-taking strategies. Discuss personal and academic integrity with your students. Make them partners in setting ethical standards for behavior in the classroom and in the profession. By adopting these pedagogical strategies, you can identify and use your students' strengths and experiences. Inviting students to bring their own knowledge, experiences, and identity into the classroom, you can help build a culture of trust that benefits us all.

1. **Ask students to help craft the course syllabus** – To really understand the challenges and needs that students are facing, ask them! At the beginning of the semester or even during the summer, invite your students to co-construct the syllabus. Start with a draft edited with an eye toward accessible course policies, and informed by [resources on crafting a diverse and inclusive syllabus](#). Then invite student feedback and discussion of the assignments, requirements, etc. This will not only give your students responsibility and autonomy in the course but also give you a chance to discuss your own learning objectives for the class, pedagogical philosophy, and how your approach aligns with their current life situation. Do this with sincerity and you will build trust with your students for a lifetime – a co-constructed syllabus is more inclusive and more learner-centered. If the idea of this is overwhelming, then focus on just one or two items that students can contribute to. For help getting started on co-creating a syllabus – visit <https://www.collegestar.org/modules/co-creating-course-syllabi> and <https://www.teachingentrepreneurship.org/dynamic-entrepreneurship-syllabus/>

**Consider providing alternative assessments** - a [recent article in the Chronicle of Higher Education](#) argues that flexibility and allowing students multiple options to fulfill an assignment

are important ways to support increasingly divergent needs of learners.<sup>1</sup> Pandemic teaching has highlighted the imperative for faculty to acknowledge gaps in experience, situation, and access to resources. Not doing so underscores a view of students framed by a [deficit mindset](#), especially pernicious for [STEM students from underrepresented groups](#).

2. ***Design a course that helps students develop a STEM identity*** - Decades of research supports the notion that students who [develop and embrace a STEM Identity](#) persist and succeed in STEM fields. The exclusionary history of STEM fields makes this more difficult for students from underrepresented groups. Consider adding a “[Scientist Spotlight](#)” assignment that asks students to find a STEM scholar with whom they share some identity and ask them to write about that scholar’s contributions. This assessment allows you to focus on content, shows students who the actual people are who take part in the process and formation of science and gives you lots of ideas about scientists whose work you can emphasize in future classes! Early evidence demonstrates this type of assessment increases grades in introductory classes, and the [NIH SEPA program has invested](#) significant grant funds for San Francisco State University to develop more curricular materials. Finally, consider intentionally integrating the contributions of African American scientists as well as scientists from other marginalized and historically underrepresented groups into your curriculum. Also consider using culturally relevant/ responsive teaching strategies, informed by the works of Dr. Gloria Ladson-Billings and Dr. Geneva Gay. This is good teaching that will benefit all students!
3. ***Ask students what they know*** – Of course, you know that all your students are unique and have singular life experiences, but do you honor those differences by using them as an integral part of class and essential to their learning? One way to achieve this is by asking students what they know about a topic *before* you talk about it in class. Consider incorporating [strength-based learning strategies](#) that encourage students to assess and build on their own competence. There is evidence that when students focus on their own strengths, rather than solely on deficits or gaps, they are better able to harness intrinsic motivation to learn. Perhaps more important, these positive learning strategies are skills that can and must be taught, and nurtured through mentoring, tutoring, supplemental instruction, and other support structures.

### ***What can AU faculty do this fall and beyond?***

1. ***Reflect critically and intentionally on your own, and with colleagues.*** Evaluate how [your own advantages and disadvantages](#) have shaped your career and your approach to research and teaching. Consider how our current approaches to pedagogy could shift to support an [asset-based approach](#) rather than remain [mired in a deficit model](#).
2. ***Read, read, and read*** - here are some resources to get started -
  - o [https://educationpost.org/teachers-must-hold-themselves-accountable-for-dismantling-racial-oppression/?fbclid=IwAR0YayWtUh3oi-TO2Dngskag\\_Jc61\\_N7r2weto2xvk4-df06XvdkqmjW0ro](https://educationpost.org/teachers-must-hold-themselves-accountable-for-dismantling-racial-oppression/?fbclid=IwAR0YayWtUh3oi-TO2Dngskag_Jc61_N7r2weto2xvk4-df06XvdkqmjW0ro)

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<sup>1</sup>[https://www.chronicle.com/article/How-Your-Syllabus-Can-Cater-to/248964?cid=wcontentlist\\_hp\\_latest](https://www.chronicle.com/article/How-Your-Syllabus-Can-Cater-to/248964?cid=wcontentlist_hp_latest)

- Radical Hope: A Teaching Manifesto <https://wvupressonline.com/node/823> (e-book available through AU Library) or listen to a podcast with the author at <https://teachinginhighered.com/podcast/radical-hope-a-teaching-manifesto/>
  - Faculty Resources on Diversity, Equity, and Inclusion at the AU CTRL <https://edspace.american.edu/deiresources/>
  - [The Diversity–Innovation Paradox in Science](#) Bas Hofstra, Vivek V. Kulkarni, Sebastian Munoz-Najar Galvez, Bryan He, Dan Jurafsky, and Daniel A. McFarland. PNAS April 28, 2020 117 (17) 9284-9291; first published April 14, 2020 <https://doi.org/10.1073/pnas.1915378117>
3. **Commit to making intentional, positive changes every semester** – we get it, this is a LOT, particularly amid a global pandemic and having to re-design our courses for fully online teaching. Start with small, concrete, and actionable steps that you can do now, and build on into the future. Seek out colleagues, allies, and mentors to help you conceive goals, action steps, and maintain motivation.

### ***What is the ISE3? How can YOU get involved?***

The Initiative for STEM Education, Equity and Ethics (ISE3) was founded in March 2018 by a group of multidisciplinary faculty and staff committed to naming and changing academic policies and culture that work against truly diversifying the STEM disciplines and workforce. We focus on applying anti-racist practices and ethical reasoning to support innovative STEM curriculum, providing significant faculty and student development, creating community engagement and outreach opportunities, and encouraging continued research and use of an evidence-base to dismantle a broken system.

We invite you to review this guide and use it at your discretion as we all re-imagine our courses to accommodate online learning and incorporate issues related to social justice into our STEM curriculum. In addition, we invite you to a discussion of trust and anti-racism in STEM education in August. Please respond to the doodle poll at <https://doodle.com/poll/fgbxb6v35z4crytu> if you would like to attend. Finally, so that we can engage in these critical conversations continually, we plan to organize monthly virtual meetups to be held starting in September 2020.

In solidarity,  
 Meg Bentley  
 Amy Butler  
 Ellen Feder  
 Nathan Harshman  
 Kathryn Walters-Conte  
 Shari Watkins  
 Lauren Weis

Email [ise3@american.edu](mailto:ise3@american.edu) to join our email list for announcements, workshops, and future calls for action!