

# Biology ADU 2020-21 Appendices

## Appendix A

Examples of the some of the many course-structure strategies that biology faculty are using to support student success

- Constructing syllabi that are informative, inclusive, and welcoming
- Making syllabi available prior to the beginning of term
- Making course materials available in a timely fashion (e.g. some instructors report opening their course shells two weeks ahead of the start of the term)
- Constructing course materials using universal design principles
- Using free or reduced-cost course materials (e.g. open educational resources)
- Providing foundational resources for students to fill in knowledge gaps (e.g. Khan Academy videos)
- Engaging in STORI BI Hybrid development to support access of students to a range of course modalities (BI 101, BI 112, BI 121, BI 122)
- Designing the overall curriculum of the course to support the asset-based engagement of students by including a diversity of voices and guiding students in connecting their own lived experience to the course content
- Intentionally engaging in curriculum revision using anti-racist and culturally-responsive pedagogies (specific examples to follow)
- Incorporating opportunities for students to engage in metacognitive processes related to learning about their own learning e.g. in instructor commented,  
“Every term, I spend at least the first half of the first class teaching what feels like a mini college readiness course, in the hopes of getting everyone on the same starting page. We discuss building a schedule, ways we learn (Bloom's taxonomy of learning, growth mindset, active learning, etc.), support structures, etc. My syllabus may be long, but it aims to explain everything clearly. Not everyone knows how to navigate through a college or interact with people. I explain appropriate communication, how to ask for a deadline extension, etc”
- Regularly incorporating active learning techniques (e.g. think-pair share, muddiest point, discussion, Jamboards, Interactive Google docs, creative use of Zoom breakout rooms)

## Appendix B

Examples of some of the many relationship-building strategies biology faculty are using to support student success

- Contacting students early and often about their progress (e.g. use of course progress notifications)
- Meeting one-on-one with students (some instructors report meeting or connecting with every student either at the beginning or at some point during the class); others focus on being available as needed throughout the term)
- Small group work in class and collaborative assignments
- Community building activities at the beginning of class (e.g. creating community guidelines or group agreements)
- Engaging students in the process of assignment or rubric building
- Using pre class/intake surveys to get to know students and to ask them to engage metacognitively in an assessment of their strengths and opportunities for growth
- Supporting connections to student support services by embedding librarians or writing tutors in the class
- Cultivating a sense of belonging by providing multiple opportunities for students to share their stories, as to how the material relates to their lives.
- Instructors modeling their own vulnerability and their own struggles as students

## Appendix C

Examples of some of the strategies strategies that individual biology faculty are using to support student success

- Shifting point structures away from a few high stakes exams towards a wider range of ways to demonstrate learning
- Making assignments more transparent
- Flexible deadlines for assignments
- Ability to resubmit assignments
- No longer deducting points for late assignments
- Flexible timing on quizzes & exams
- Allowing students multiple attempts on quizzes
- Providing practice exam questions
- Being transparent about exam format and expectations
- Providing alternate ways for students to demonstrate competency with material outside of testing
- Live proctoring of exams to provide an opportunity for clarifying questions

- Scaffolding of formative and summative assessments
- Providing additional optional opportunities for immediate, low-stakes feedback to allow students to adjust their understanding and make more study progress
- Providing timely and substantive feedback on assessments to support learning
- Offering students choices for how they meet the learning outcomes both in terms of specific content and format (playdough creations, case studies, songs, demonstrations, recorded presentations, community based learning projects, write a children's book with supplemental guide for educators and caregivers, etc)
- Mentoring students e.g. in the EXITO program to encourage and support students from marginalized groups to pursue research careers

## Appendix D

### Quotes from biology instructors currently engaging in curriculum revision using anti-racist and culturally-responsive pedagogies

- "Representation: I incorporate culturally diverse imagery and incorporate many different scientists from historically marginalized groups (BI 112 instructor)"
- "I acknowledge indigenous science as part of the discussion of the scientific method"
- "I acknowledge oral traditions in discussions of scientific communication"
- "One example of these curricular changes addresses the course outcome of : "Apply an understanding of the complex interactions between humans and forest ecosystems and how those interactions influence forest management practices." by including discussions of the following industrial and governmental actions and how they impact the forested lands of Oregon and the people who live (or lived) in Oregon: The Donation Land Claim Act of 1850, O and C lands, redlining, wildfire suppression, and dam building. We explore these topics over the course of several weeks and students are encouraged to discuss in-class and/or on assessments/assignments who these policies have impacted their communities" (BI 141 instructor)
- More than one instructor mentioned explicitly discussing the impact of racism in the history of scientific research in biology, especially in relation to the development of institutional review boards (e.g. eugenics, the Tuskegee study of untreated syphilis in African American males, the story of Henrietta Lacks)
- More than one instructor mentioned the importance of making sure all course materials are accessible (e.g. captioned videos, alt text images for PowerPoints etc)

# Appendix E

## Examples of strategies for closing opportunity gaps shared by instructors surveyed

- Create detailed learning objectives for the BI 23X series, so that instructors can effectively use teaching time for culturally responsive teaching practices
- Create or adopt more OER materials for lectures and labs
- Access resources (webinars, books, CTLE sessions) on racial justice and culturally responsive teaching
- build alternative assignments for in-person labs, so that as we pivot back to in-person instruction, we also have solutions for students who cannot attend due to illness/quarantine/weather/power outages/some other fresh hell.
- add more culturally relevant examples and problems to my curriculum so more students from broader and more diverse populations can 'recognize' themselves in the examples and problems
- explore practices that do not exclude LGBTQ+ students
- maintain a flipped classroom format.
- support student choice in exploring their own interests in connection to course learning outcomes