



## AAU Undergraduate STEM Education Initiative May 1, 2020 Virtual Meeting Report

### **About the Convening**

AAU has been active in institutional and national discussions to help address critical challenges facing research universities in light of COVID-19. On May 1, 2020, AAU hosted a virtual meeting of the campus liaisons for the Undergraduate STEM Education Initiative. The convening included representation from 29 AAU member institutions and engaged a group of 41 individuals comprised of institutional representatives, AAU staff, and AAU STEM Education Initiative project team members. Many of the AAU STEM Initiative liaisons, who are leaders in campus undergraduate education reform efforts, have been instrumental to their universities' rapid transition to remote instruction during the spring 2020 term. This report summarizes the information and key themes that emerged from the two hour-long conversation.

The intention of the virtual meeting was to discuss issues specific to undergraduate teaching and learning as campuses look to resume their education and research activities in the wake of the ongoing pandemic. It provided a platform for participants to share information with each other and with AAU staff. Insights gained from the convening are being used to help shape AAU's efforts to support its member campuses in meeting their educational missions during this unprecedented time.

Initial framing for the discussion was led by three campus liaisons who previewed the following critical topic areas for undergraduate teaching and learning in the environment of COVID-19: (1) the role of teaching and learning centers in moving to remote instruction, presented by Andrea Follmer-Greenhoot from The University of Kansas; (2) evaluating students' experiences with remote instruction, presented by Marco Molinaro from the University of California, Davis; and (3) implications from the rapid switch to remote instruction for departments and faculty, presented by Sierra Dawson from the University of Oregon. After these short presentations, participants were split into five small groups to explore issues and questions more deeply. Together, they shared reflections and reactions to the information provided by presenters and addressed the following two discussion questions:

- 1) What are essential considerations for your campus as it looks to resume campus-based undergraduate education?
- 2) Considering the range of options for fall term, what are key principles we should be mindful of in structuring undergraduate education?

When participants reconvened in the general session, a spokesperson from each small group reported on the key points of their discussion. Notes obtained from small groups and transcripts of the general meeting session were reviewed to uncover main themes of the convening. Six main discussion themes were identified and are described below, preceded by summaries of the three opening presentations.

## Opening Presentations

### ***Topic Preview: The Role of Teaching and Learning Centers in Moving to Remote Instruction***

Andrea Follmer-Greenhoot, Professor of Psychology, Director of the Center for Teaching Excellence and Gault Teaching Scholar at The University of Kansas

Dr. Follmer-Greenhoot discussed how well-established teaching and learning center activities and services were helpful with the emergency switch to remote instruction. However, given the new context of COVID-19, these centers have found that they are addressing a different set of urgent needs and carrying out their work in different ways than they had previously. She outlined the eight roles that the Center for Teaching Excellence continues to have at The University of Kansas and how the center's activities have adapted for this time. For instance, the Center continues to provide essential information and resources about pedagogy. But now, much is focused on how to implement effective pedagogy in different instructional contexts (e.g., remote, hybrid, and online) and more resources have been made available to support flexible course design. The Center also continues to create opportunities for learning and development, building community, and providing social support for faculty members. However, brown bags, workshops, and disciplinary working group meetings are now being held in virtual formats that align with faculty members' "just in time" needs. Also, time is allotted at the start of such sessions for faculty members to have informal conversations where they can unpack their experiences and build a sense of community before diving into formal discussions about pedagogical issues. An additional point noted by Dr. Follmer-Greenhoot was that teaching and learning centers can play a pivotal role in helping ease the large lift of redesigning many courses for online or hybrid delivery during the fall term. Through teaching and learning centers, faculty members can collaborate to create shared course designs, curricula, and teaching modules that will lighten the workload on individual instructors.

### ***Topic Preview: Evaluating Students' Experiences with Remote Instruction***

Marco Molinaro, Assistant Vice Provost for Educational Effectiveness at the University of California, Davis

Dr. Molinaro presented information about UC Davis's efforts to understand students' experiences and perspectives during the emergency switch to remote learning. This change happened at the end of the university's winter quarter, and shortly after the campus conducted a Technology Readiness Survey of all students using the UC Davis Know Your Students platform. The goal of the evaluation was to collect data about students' experiences to help make remote instruction in the spring quarter more equitable and inclusive. Survey questions inquired about students' access to technology, their familiarity with remote instruction activities, and included an open section for general comments. Faculty members received aggregated survey responses of students enrolled in their individual classes. Alongside these data were links to targeted resources and information that could help faculty adapt their course instruction to better meet their students' circumstances and needs. For example, instructors received information about the percentage of students in their courses who are in different time zones. Next to this percentage appeared advice about using asynchronous instructional activities, a link to the Teaching Center website, and additional information and resources. In addition to sharing information with faculty members, survey data was shared with cross-campus partners to provide direct assistance to students with specific unmet needs. For instance, loaner laptops were offered by collaborating university offices to students who needed them. Although survey results identified a variety of issues and student needs during this time, most all were technology related. In order to identify additional issues and capture more information, a next iteration of the survey is currently being designed in collaboration with faculty and staff in student support service units, including student mental health and

disability services, and will be administered at the end of the spring term. Dr. Molinaro talked about how UC Davis plans to continue this work going forward in collaboration with more university partners to better support the needs of both students and faculty.

***Topic Preview: Implications From the Rapid Switch to Remote Instruction for Departments and Faculty***  
Sierra Dawson, Associate Vice Provost for Academic Affairs at the University of Oregon

Dr. Dawson touched on four major implications from the rapid switch to remote instruction for departments and faculty members. They included: university reactions related to tenure clocks; the uncertain situation of contingent faculty members; the role of teaching evaluations; and impacts on learning assistants and graduate instructors. Shortly after the switch to remote working at the University of Oregon tenure-track faculty were given the opportunity for a one-year extension on their probationary period. This was granted in recognition of the changes to faculty members' abilities to work in their normal ways and to have access to their research labs. The university also offered tenure-track faculty the flexibility to rescind their extensions at a later date. In contrast to these protections provided to tenure-track faculty, contingent faculty still face great uncertainty in their employment. Usually, contingent faculty, who are often teaching specialists rooted in their departments as local experts have the expectation of continuing full-time. However, due to the unique circumstances resulting from the pandemic, most are waiting to find out if they will receive contracts in the fall, and if so, what the contract terms will be as their employment will be based on student enrollment outcomes and budgetary decisions. Dr. Dawson noted how this is especially troubling since the efforts of many contingent faculty members have been heroic in supporting their students' learning and other colleagues' teaching during the emergency switch. Another decision that was made as soon as university operations turned remote concerned teaching evaluations. Dr. Dawson told how the faculty union at her institution quickly decided not to implement any teaching evaluation tools, including student course assessments in the spring term. This action was taken to reduce faculty anxiety and to avoid student misunderstandings as their feedback would not be used as normally intended. On the topic of undergraduate learning assistants (ULAs), Dr. Dawson described how the help of ULAs has been found to be extremely beneficial in the emergency switch to remote learning. They have helped faculty members to more effectively facilitate virtual discussions and small group work. Lastly, Dr. Dawson described how graduate student instructors at the University of Oregon, who most often teach during the summer term, will be significantly impacted by instructional changes since summer courses will be offered remotely and the term will be condensed from 10-weeks to 4-weeks. Departments are working now to support these graduate instructors. For many of them, this term will be their first experience as sole course instructor.

**Main Discussion Themes**

***Build Community***

Meeting participants discussed how teaching, learning, and working remotely revealed the tremendous importance that a shared sense of community has for both students and faculty members. They recognized how the physical distance in the spring term isolated individuals and impeded the kinds of informal interactions and organic relationships that regularly occur in face-to-face settings, which naturally lend themselves to building community. Participants acknowledged the central role community plays both inside and outside of the classroom in supporting students' and faculty members' work and well-being. Within the classroom, a sense of community among students and instructors fosters effective and inclusive learning environments. Outside of the classroom, a sense of community among students and their peers helps their learning, growth, persistence to degree completion, and

psychosocial wellness. Similarly, a sense of community among faculty members within and across departments supports their teaching, professional development, research activities, and overall welfare. Meeting participants pointed out how compared to teaching and working in person, teaching and working in remote or hybrid formats requires more intentionality and increased communications to foster learning communities within classrooms and to create collegial communities among faculty members within and across departments. In discussing how it is likely that they will teach in remote or hybrid formats in the upcoming academic year, meeting participants shared strategies they found to be helpful for building community during the spring term switch to remote instruction. Such strategies included: various approaches to engage students in learning with and from one another in small and large virtual groups; ways undergraduate learning assistants were employed to help facilitate virtual active learning experiences; targeted outreach to students inviting them to talk and receive one-on-one help during virtual office hours; and the use of synchronous video, chat, and emojis, as well as asynchronous discussion boards. All participants stressed how in our current condition of physical distancing, the need for facilitating social closeness and a sense of community is more critical than ever. They also emphasized the urgency to learning about and using pedagogical practices in the fall which have been found to be effective in remote or hybrid learning environments to engage students in active learning and build community.

### ***Foster Equity and Inclusion***

Issues of equity and inclusion were front and center in the meeting conversations. Meeting participants agreed that similar to how the COVID-19 pandemic revealed and exacerbated health disparities in the U.S., the emergency switch to remote teaching and learning revealed and exacerbated equity gaps in higher education. In small groups many ways in which students from less privileged backgrounds faced challenges during remote learning were discussed. Such disparities included: lacking access to technological equipment and internet services necessary for remote education; having limited or no prior experience with virtual learning activities; and living in home environments not conducive to learning for various reasons (e.g., home environments with limited private, quiet space for studying; existing pressures to work or take care of younger, older, or sick family members while home; and domestic situations in which illegal activities, abuse, or addiction exists). They also identified technical and cultural challenges faced by specific groups of students including international students and students with disabilities. Moreover, meeting participants discussed how the crisis exposed and worsened precarious conditions for contingent faculty and graduate students. Overall, they urged faculty members and campus leaders to consider how they can intentionally structure undergraduate education to be more equitable and inclusive as they develop institutional plans for resuming teaching and research activities. Meeting participants advised the use of student feedback and engagement to make more informed decisions and they encouraged community building to help diminish inequities. They acknowledged how supportive instructor-peer and peer-to-peer connections can create inclusive learning communities that are especially advantageous to students from disadvantaged and historically underrepresented groups. And similarly, how supportive, collegial communities among faculty members and graduate students within and across departments are particularly beneficial to those who are in more vulnerable and marginalized positions.

### ***Provide a High-Quality Educational Experience***

Consensus existed among meeting participants that when undergraduate education resumes in the fall through various modes and locations of delivery, it must be of high-quality. Member campuses engaged in the AAU STEM Initiative have reformed teaching in introductory STEM courses so that evidence-based, inclusive practices are used. In turn, they have created high-quality face-to-face educational experiences for students. Meeting participants acknowledged how the quick switch to emergency

remote teaching that took place during the spring was an anomaly due to the rapid outbreak of COVID-19. In their small groups they discussed how it was a tremendously difficult and demanding experience that has resulted in significant burnout among faculty members, staff, and administrators across their campuses. Furthermore, they described how well-intentioned, but unprepared, faculty members operating in survival-mode, teaching remotely for the first time, and under an extreme time-crunch tended to focus more often on transmitting information than on fostering active engagement and deep learning experiences. Because of this context, they noted that the educational experience of the spring term in general lacked quality. They stressed that students, parents, and faculty will have much higher expectations for the fall term. Meeting participants discussed how the type of ad-hoc teaching that occurred in the spring is not equivalent to online teaching, although it is commonly confused to be the same. High-quality online courses are designed with much intention, forethought, and planning of instructional activities, assignments, and assessments to support learners. The context under which emergency remote teaching was deployed in response to COVID-19 stands in stark contrast to the careful instructional design process often taken to ensure effective online courses. Moreover, they acknowledged how many students, parents, and faculty members have unfortunately and incorrectly stigmatized online courses to be of lower-quality compared to in-person courses. As a result of these misconceptions, participants indicated that faculty members are faced with an instructional deficit model to overcome if classes end up being taught online and not in-person this fall. They also recognized that departments and faculty members will need adequate time, pedagogical training, support, and resources to transform traditional face-to-face lecture and laboratory courses into online or hybrid formats in innovative, effective, and inclusive ways. They discussed how accomplishing this will be an extremely heavy-lift to do alone over the summer months for individual faculty members who have little or no prior knowledge or experience in online or hybrid course design, especially if they are experiencing burnout from the spring term. Therefore, meeting participants encouraged campuses to explore ways for faculty members to collaborate with each other and with campus-wide support units to design effective and inclusive online or hybrid courses. With this, they also recommended that departments take collective ownership of and responsibility for the curricular and instructional design of their large introductory courses if they have not yet done so.

### ***Rethink Assessments of Teaching and Learning***

Meeting participants spent much time discussing how assessments of faculty teaching and student learning proved to be extremely challenging in the emergency switch to remote instruction. They acknowledged how the extraordinary circumstances of the spring term prohibited campuses from implementing teaching evaluation tools in the ways they were designed. As a result, some campuses did not administer student course evaluations in any form. Others that did choose to administer them on a voluntarily or required basis, did so only to inform practice rather than to assess teaching performance. Meeting participants recognized how this situation has magnified questions and conversations around the use (or absence) of student ratings in hiring, contract renewal, tenure, promotion, and merit decisions. As a result, it has created an opportunity for campuses to rethink how they assess teaching and their faculty evaluation process. Meeting participants also pointed out how in a similar manner, challenges presented by remote teaching have created an opportunity for faculty members to reconsider how they assess student learning. In small groups, meeting participants spent time talking about how many traditional forms of learning assessments and course examinations did not translate well into the context of teaching and learning remotely. For example, the administration of closed-book examinations in a remote format requires the use of virtual proctoring services. Meeting participants discussed how virtual proctoring presents issues of student data privacy and equity (e.g., not all students have access to the proper technology or a private, quiet space, and it puts students who have test anxiety or disabilities at a disadvantage), as well as how it creates a sense that instructors do not trust

students to be academically honest in the absence of surveillance. Thus, meeting participants described how the use of virtual proctoring encourages, rather than prevents, student cheating by motivating them to try to game the system to beat the test. Because of such experiences in the spring term, meeting participants said that many faculty members are now reconsidering the goals of their student learning assessments and are reconceptualizing them in new ways that do not require monitoring, which are still very much in alignment with course objectives, and in ways that still allow students to demonstrate their understanding or application of core concepts and mastery of essential skills. As with other transformation efforts, meeting participants emphasized that departments and faculty members will need sufficient time, pedagogical training, resources, and collaborative support to create more effective assessments of student learning and faculty teaching.

### ***Ensure Safety and Well-Being***

A major topic of discussion among meeting participants was the need for institutions to ensure the safety and well-being of students, faculty, staff, and the surrounding community as they look to resume on-campus activities. All agreed that guidance from local public health officials and state governments should be at the forefront of conversations and campus decisions about structuring undergraduate education in the fall. And, given great uncertainty about the spread of the COVID-19 and how the timeline for development and distribution of a vaccine will unfold, meeting participants encouraged campuses to explore flexible and fluid plans for structuring undergraduate education in the upcoming academic year that can be modified rapidly in response to changing public health conditions. They also advocated for flexibility and fluidity in planning that would allow campuses to meet the diverse physical and mental health needs of faculty, students, and staff during the pandemic. This included seeking accommodations for those uncomfortable with attending on-campus activities or who are more vulnerable to COVID-19 due to underlying health conditions or age; those who become sick and need to be quarantined or need to leave campus to take care of sick family members; and those who are grieving family member losses or experiencing associated mental health issues. Meeting participants emphasized that ensuring the safety and well-being of all members of the campus and the surrounding community should be a primary factor in shaping institutional plans. Given the many uncertainties associated with the pandemic and the diverse needs of individual students and faculty at this time, participants suggested that campuses considering in-person educational activities explore adaptable and resilient undergraduate course design and instructional methods.

### ***Acknowledge Financial Pressures***

All participants noted that financial pressures are unavoidably factoring into decision-making about structuring undergraduate education as campuses look to continue teaching activities in the 2020-2021 academic year. Meeting participants recommended that rather than curtailing the acknowledgement of these financial pressures, discussions about the impact of potential financial constraints on undergraduate education can create a better understanding of the magnitude of this pressure on campus operations. In addition, meeting participants discussed how given the magnitude of the financial losses campuses are experiencing and may continue to endure, tough resource allocation decisions will need to be made. They recognized how fall instruction will require more innovation and extra resources including time, expertise, collaboration, and technology for undergraduate courses to be taught effectively while ensuring the safety of students, faculty, staff, and the surrounding community. And, they raised an important question about compounding factors: "How will teaching in the fall term be carried out under tight budget restrictions and with faculty and staff members who have been experiencing burnout from the spring term?" Furthermore, many participants expressed that enormous pressure exists for universities to offer undergraduate education on campus to the greatest extent possible to ensure student enrollment and tuition dollars at closer to pre-pandemic levels. This pressure

is driven by the likelihood that students and parents may not be willing to pay the same residential tuition rate for online or hybrid learning, especially if they think it is of lower quality. And, in absence of the traditional residential experience with primarily face-to-face instruction, students and parents may consider delaying fall enrollment, or taking courses at a community college or at a college within commuting distance, to be a financially wiser choice. Thus, meeting participants insisted that providing a high-quality educational experience for undergraduate students, whether courses are online or not in the fall, to be an economic imperative as well as a moral one for research universities.

### **Conclusion**

Overall, meeting participants urged that as campuses go forward with safely carrying out undergraduate education in the new academic year through the use of various modes and locations of instruction, it is important that they continue to provide high-quality, engaging, equitable, and inclusive educational experiences to all students. They stressed the need to create more effective ways to assess faculty teaching and student learning. Additionally, meeting participants recognized how it is vital for universities to collect and examine data on teaching and learning, and on faculty and student experiences during this time. There was strong agreement that much can be learned, many new questions can be explored, and successful strategies within different types of teaching and learning formats can be identified as universities seek to adapt their educational delivery modes in response to the pandemic. In the wrap-up segment of the convening, meeting participants stressed how the current crisis highlights the importance of excellent and inclusive undergraduate teaching at research universities, and provides a unique opportunity and urgency for AAU member campuses to share real-time insights about what they are finding to be effective and equitable educational delivery strategies.