COLLEGE OF NATURAL SCIENCES

Context: We are recommending several disruptive changes in the College that we believe will have great benefit to the University, including the movement of academic program(s) to other colleges and IfA, and a radical change in the way that we administer the university’s academic programs related to Life Sciences.

October 12, 2020 Presentation:

- Natural Sciences Presentation
- Natural Sciences Presentation Video
- Natural Sciences Supporting Documents

Department of Chemistry

Revised Recommendations (as of October 13, 2020)

- Continue addressing low success rates in gateway courses and Organic Chemistry.
- Review the BA/BS in Chemistry to address declining majors and retention issues.
- Ensure graduate students have access to the courses needed in identified sub-disciplines.
- Collaborate with faculty outside of Chemistry on research and a faculty-hiring plan.

Details

- The Mānoa Budget Team has yet to meet with faculty in the Chemistry Department; however, we read with interest their response to the recommendations. The Team is open to meeting with the faculty if a meeting is desired.
- The faculty have been responsive and innovative in working to address low success rates in gateway courses and Organic Chemistry. The team agrees with the faculty on the importance of tenure-track faculty in ensuring student success, particularly in challenging courses. The team applauds the faculty’s use of assessment, and their creativity in addressing these issues, including the use of LAs funded through the Strategic Investment Competition this year. Continued attention to this matter is a priority for the Provost’s Office. Please let us know how we can be of more assistance.
- The team understands that the faculty are considering new undergraduate concentrations in computational science and material science. We look forward to hearing more about the Department’s plans in this area.
- In their response, the faculty explained their approach to graduate student funding as well as the need for more teaching assistantships in the Department. The faculty
noted that most GAs receive summer overload as RAs. The team has removed the recommendation regarding teaching assistantships.

School of Life Sciences (Biology, Botany, Microbiology)

Revised Recommendations (as of October 13, 2020)

- Continue review and implement planned modifications to the MS and PhD programs in Microbiology.
- Strongly encourage collaboration with life sciences units across campus. Pursue joint hires to facilitate collaboration on research and instruction.
- Consider developing combined degree pathways within the Life Sciences and with graduate programs in JABSOM, CTAHR, and SOEST.
- Support ways to accelerate the curricular changes needed to eliminate the duplication of courses, and possibly to consolidate degrees. Consider hiring a consultant to facilitate this work.
- Consider joint JABSOM/Life Sciences administration of the life sciences graduate programs.

Details

- The Mānoa Budget Team met with the Life Sciences faculty on Friday, October 16, 2020. Summaries of meetings with department faculty will be posted on the Planning for Post-Pandemic Hawai‘i website. The team reviewed with interest the faculty’s detailed response to the recommendations, as well as additional information from the Microbiology faculty.
- The team acknowledges that many of the plans identified in the Life Sciences reorganization proposal were postponed as the faculty and campus focused attention on responding to the pandemic and the shift to remote teaching.
- The faculty detailed many efforts that are underway, including ongoing collaborations with life sciences units across campus, and opportunities for new, combined, and modified degree programs. The team supports the innovation of the faculty in these areas and looks forward to learning more.
- The team notes that the faculty are interested in combined degree pathways in the Life Sciences. We urge the faculty to also consider potential pathways from Life Sciences undergraduate degrees to graduate degrees in JABSOM, CTAHR, and SOEST as well.
- Per the written response, the team understands that the faculty are considering combining the Botany and Zoology graduate programs to improve efficiency. The team looks forward to hearing more about these plans.
- The team received a response from Microbiology in addition to the response from the College on the graduate programs. We understand that the faculty are in the process of addressing issues identified in the program review and modernizing the program. We understand that additional (cooperating) graduate faculty are needed
for some of these changes, and urge the faculty to continue to pursue collaborations inside and outside of Life Sciences to support these programs. Given the work in progress to address these issues, the recommendation to stop-out admission has been removed.

- The Team looks forward to continued conversations with the faculty on October 16, 2020 on the remaining recommendations.

Department of Mathematics

**Summary Recommendations**

- Continue innovations in undergraduate courses.
- Review faculty workload, adjusting for research productivity.
- Think strategically about hiring, collaborating with units outside of the Math Department.

**Details**

- The Mānoa Budget Team has yet to meet with faculty in the Mathematics Department; however, we read with interest their response to the recommendations. The Team is open to meeting with the faculty if a meeting is desired.
- The team applauds the innovations to date, including the hiring of a pre-calculus coordinator, the use of learning assistants, and the Early Action Program. The Early Action Program, in particular, could become a model that would benefit courses outside of the college. We look forward to hearing more about this program.
- The faculty note a number of collaborations across campus that may contribute to a more robust hiring plan. The team supports the Department in these efforts.

Department of Physics & Astronomy

**Revised Recommendations (as of October 13, 2020)**

- Reorganize the Astronomy graduate degree programs into the Institute for Astronomy.
- Continue collaboration between the Department of Physics and Astronomy and the Institute for Astronomy (IfA) on the Astronomy and Astrophysics undergraduate degrees.
- Work with the campus administration to ensure that IfA faculty receive credit (SSH attributed to IfA) for instruction where appropriate.
- Reduce inequities in the level of graduate student support.
- Continue to monitor enrollment and retention in the Physics BA/BS programs.
● Consider developing a capstone experience for the Physics BA/BS, and partnering with UROP to develop and expand faculty-mentored research experiences.

Details

● The Mānoa Budget Team met with the Physics & Astronomy faculty on Friday, October 9, 2020. The Team also met with faculty in the Institute for Astronomy on Tuesday, October 6, 2020. Summaries of meetings with department faculty will be posted on the Planning for Post-Pandemic Hawaiʻi website.

● The faculty in Physics and Astronomy strongly oppose the reorganization of the undergraduate degrees in Astronomy and Astrophysics to IfA. The faculty note that students often switch majors from Physics to Astrophysics as they progress through the program. Moving the programs to IfA may make this more difficult for students. The team agrees with the assessment of the faculty. The recommendation to move the undergraduate degrees to IfA has been removed. However, we encourage continued collaboration.

● The faculty acknowledged that the graduate degrees are fully managed by IfA. As such, the team recommends that these be officially housed under IfA, and that IfA faculty receive teaching credit for the graduate level Astronomy courses, as appropriate.

● The faculty in Physics & Astronomy and IfA agree with the recommendation to address pay inequity between the graduate students. The Provost’s Office will work with the College of Natural Sciences on this issue.

● The faculty note that the decline in Physics majors is partially a result of the success of the Astrophysics major. The team recommends that the faculty continue to monitor enrollment and retention in the Physics degree programs.

● The faculty and administration in IfA are interested in exploring a more ambitious organizational change that would establish a School of Astronomy & Astrophysics or School of Physics and Astronomy. The team urges the faculty to discuss how a School (real or virtual) would benefit the programs and research across both units. The team looks forward to hearing more about this vision.

Department of Information & Computer Sciences

Summary Recommendations (as of October 13, 2020)

● Continue conversations to explore options on closer collaborations and possible reorganization with the College of Engineering.

● Reorganize the Master of Library & Information Science program and faculty into the School of Communications (Social Sciences).

● House the PhD in Communication & Information Science in the School of Communications. Continue collaboration with Information & Technology Management (Shidler) and Computer Science.
Details

● The Mānoa Budget Team met with the faculty in Information & Computer Sciences on Tuesday, October 6, 2020. The team also met with the Library & Information Science faculty and staff on October 6, 2020. The team met with faculty in Electrical Engineering on Thursday, October 8, 2020. Summaries of meetings with department faculty will be posted on the Planning for Post-Pandemic Hawaiʻi website.

● The team understands that faculty sentiment is mixed regarding reorganization to the College of Engineering. We understand that various options are being explored, including remaining as a unit in Natural Sciences; moving to the College of Engineering as a separate department; and moving selected faculty to the College of Engineering.

● The team understands from discussions with the Dean of Engineering that the latest proposal would combine Electrical and Computer Engineering into one department, with a separate department of Computer Science.

● We urge the faculty in both units to continue conversations to find innovative approaches to collaboration. The team supports the willingness to collaborate on new programs (Software Engineering, for example) as well as the work to-date to address the concerns raised in the external review of the Computer Science and Computer Engineering degree programs.

● When the team met with the Library & Information Science faculty and staff on October 6, 2020, the faculty expressed optimism about the discussions to-date with respect to the move to the School of Communications in the College of Social Sciences.