



University of Hawai'i at Mānoa

**College of Natural Sciences**

***Vision for CNS within the University  
and for the state of Hawai'i***

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# Physics & Astronomy

- P&A and IfA favor a continuing collaborative approach to administering the undergraduate ASTR degree programs
- Students commonly move between the four majors: PHYS BA/BS, ASTR BA/BS, and decoupling any one component will only complicate the collaborative administration and reduce student freedom in their options and decisions.



# Physics & Astronomy

- The recent creation of the ASTR BA/BS degrees, led to a decrease in PHYS BA/BS majors, but overall increase in majors based in the department.
- ASTR BA & BS already have a successful capstone experience. Physics is currently developing one for the PHYS BA & BS.



# School of Life Sciences

- Formed in January 2020 (from Biology, Botany, and Microbiology), just before the COVID-19 pandemic.
- Currently working to eliminate redundancy, streamline offerings, and consolidate programs in the newly merged unit (>300 courses across 14 degree programs)
- Opportunities to offer exciting new degree programs to attract additional students without additional cost.



# School of Life Sciences

- SLS collaborations across UHM:
  - Marine Biology graduate program with SOEST
  - joint hire with Lyon Arboretum
  - working toward formalizing instruction agreement with JABSOM
  - leadership in EECB graduate specialization).
- Exploring other curricular innovations:
  - Merging the Botany and Zoology graduate programs into an Ecology, Evolution, and Organismal Biology graduate program
  - Overhaul of the Microbiology graduate degree program



# School of Life Sciences

- Exploring development of new **cost-neutral** programs, which could include collaborations with JABSOM, CTAHR, SOEST, and UH Hilo:
  - Bachelors + Masters (BAM) programs in Marine Biology and Microbiology
  - New tracks in existing Bachelors degrees: Clinical Microbiology (in Microbiology) and Computational Biology/Bioinformatics (in Biology and ICS).
  - Professional Masters degrees in Conservation Biology, or Genetic Counseling



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# College of Natural Sciences

## Information and Computer Science

- Computer science pervades modern life and evolves rapidly. Its centrality cannot be overstated.
- 8 interdisciplinary computational scientists in CNS hired in last 3 years to build collaborative program centered around ICS.
- All sciences are becoming computational sciences. ICS is a central collaborator in many disciplinary and interdisciplinary endeavors.



# Information & Computer Science

## ICS educational initiatives in last 3 years:

- adapting and revising undergraduate curriculum following the external review team's recommendations focusing on applied computer science.
- developing a computational sciences initiative consistent with President Lassner's vision of contributing to a post-COVID economy.
- Internship Program and Capstone requirement.
- Data Science Track within ICS and Math
- Certificate in Creative Computational Media
- Certificate in Data Science
- BAM Pathway in Computer Science
- Bioinformatics/computational Biology Initiative with SLS & Math



## Information & Computer Science

- ICS faculty have expertise in a broad range of multidisciplinary computational and information sciences.
- Moving ICS is not a cost-saving initiative and is a step backwards for this important discipline.
- ICS strongly favors remaining in CNS.
- ICS proposes to develop a software engineering degree jointly with EE, while they remain in CNS as a science-oriented program with a focus on both applications and fundamentals.
- Moving ICS out of CNS will hurt science at UH.



# Library & Information Science

- Proposal to move LIS into new School of Communications favored by LIS faculty



# Chemistry

- Created more support systems for entry level courses including emporium hours, math support.
- Organic Chemistry faculty line swept during negotiation.
- Creation of the BIOC degrees, which led to a decrease in CHEM majors, but overall increase in majors.



# Chemistry

- Majority of research active chemistry faculty collaborate across the University (Cancer Center, HNEI, Engineering, PBRC, HIGP, IfA, Physics, JABSOM, Mech. Eng.)
- Working to balance the needs of graduate students with fiscal constraints



# Mathematics

- Initiatives to improve lower level instruction:
  - growing use of LAs; recent hire of a new pre-calculus coordinator, engaging with the national mathematics community to learn best practices; creation of an early intervention program for DFW students.
- New undergraduate Data Science track and existing Mathematical Biology certificate.
- NSF Proposals for graduate students in interdisciplinary and industrial mathematics building on current activities.



# Mathematics

- Faculty in multiple interdisciplinary collaborations: ICS, Life Sciences, Physics, IfA, CTAHR, Engineering, Geography, Shidler School of Business, and the Hawai'i Data Science Institute.
- Many faculty hired in the last decade engage in applied and interdisciplinary research.
- Faculty and students are in high demand as consultants on statistical and computational matters from researchers across the university.