Vision for CNS within the University and for the state of Hawaiʻi

Loek Helminck
Dean, College of Natural Sciences
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.
• 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 exiting 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
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.
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
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
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.