University of Idaho

PROMOTIING INTERDISCIPLINARY RESEARCH

THE UNIVERSITY OF IDAHO WAY

BUILDING INTERDISCIPLINARY TEAMS

- A top-down approach to stimulating interdisciplinary collaborations generally is not the best one
- Grass roots faculty efforts underlie most successful programs
- University funding and other support are (often) important for success depending on the goal of the program

THE UNIVERSITY OF IDAHO WAY

- Undergraduate research and collaboration across departments/colleges
  - 1 case study (Archeological Chemistry)
- Interdisciplinary research buildings (the good and the better)
- Grassroots faculty efforts
  - 2 case studies (Polymorphic Games and IMCI)

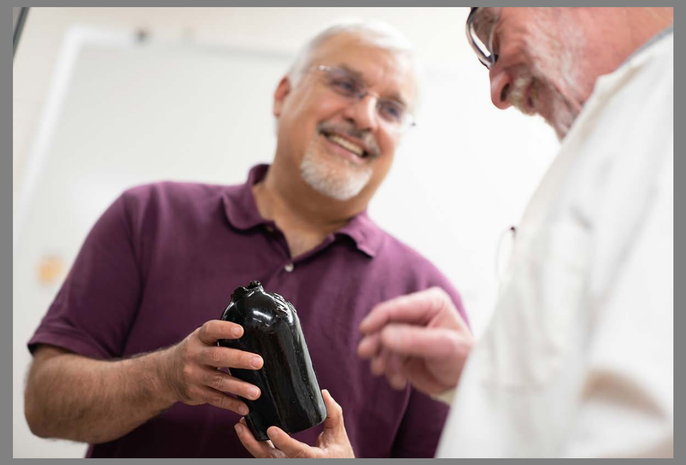
ARCHEOLOGICAL CHEMISTRY

A FACULTY-STUDENT INTERDISCIPLINARY SUCCESS

- Faculty and students from two (or more) colleges
- College of Science, Department of Chemistry
- College of Letters Arts and Social Sciences, Department of Sociology and Anthropology
- Over ten-year collaboration between these two faculty and their students

HISTORIC BOTTLES OFFER COLLABORATIVE OPPORTUNITIES

- **Archaeology** students and faculty recover artifacts from excavations
- **Chemistry** students and faculty analyze chemical components of artifacts
- All students work together on reports on the identification, analysis and predicted uses of the artifacts

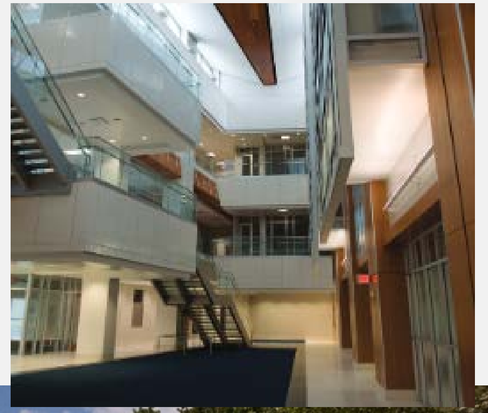


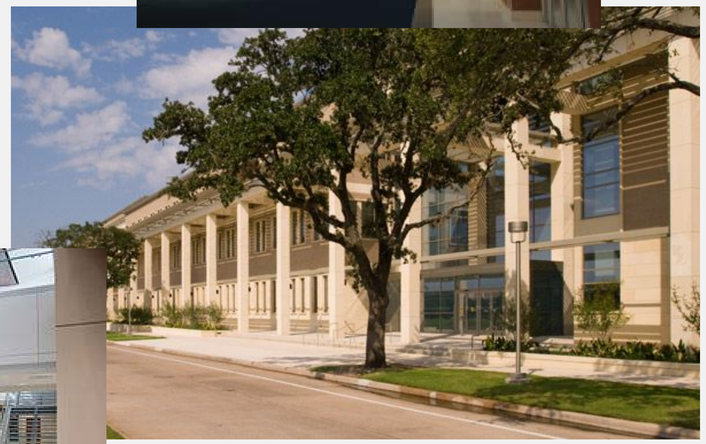
> I'm understanding the past through material culture while Ray is training up the next generation of analytical chemists.
>
> — Mark Warner, professor in the Department of Sociology and Anthropology

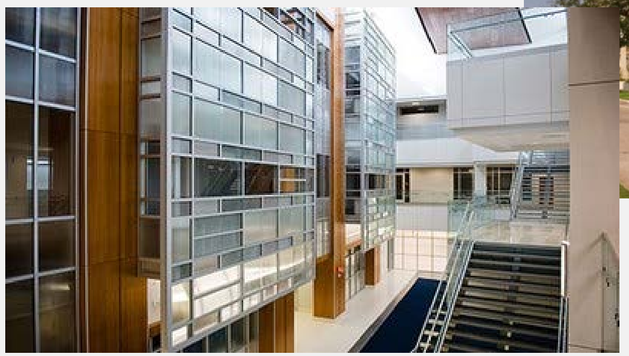
INTERDISCIPLINARY RESEARCH BUILDINGS

WHAT DOESN'T WORK WELL?

- Putting "random" departments in a building so they can collaborate
- Thematic groups (e.g., Neuroscience) can work but need to be carefully selected
- Selecting "random" faculty to put together in adjoining offices and laboratories and expecting collaboration







INTERDISCIPLINARY RESEARCH BUILDINGS: FOSTERING COLLABORATION

WHAT WORKS?

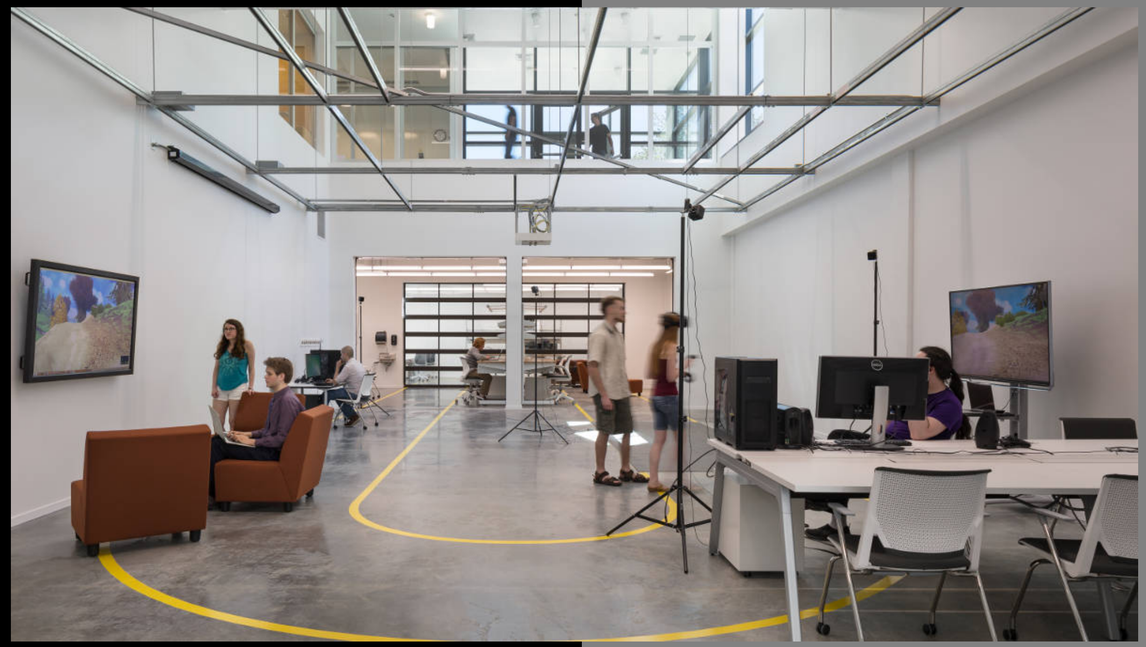
- Grass roots collaborations leading to interdisciplinary teams housed in dedicated space (ALL disciplines eligible or a “theme”)
- Multi-purpose and flexible spaces for research, teaching, core facilities etc.
- Public spaces for informal interactions with research groups and others
- Spaces for formal and informal interactions (university-wide)
- Coffee shop or other small eatery*
- University of Idaho model

INTEGRATED RESEARCH AND INNOVATION CENTER (IRIC)

- Hosts interdisciplinary research across science, engineering, business and other disciplines
- Application process for space in the building (committee review and re-review every 3 yrs)
- Temporary space allocation during the project period
- Each space allocation requires collaboration across departments/colleges (but not funding)

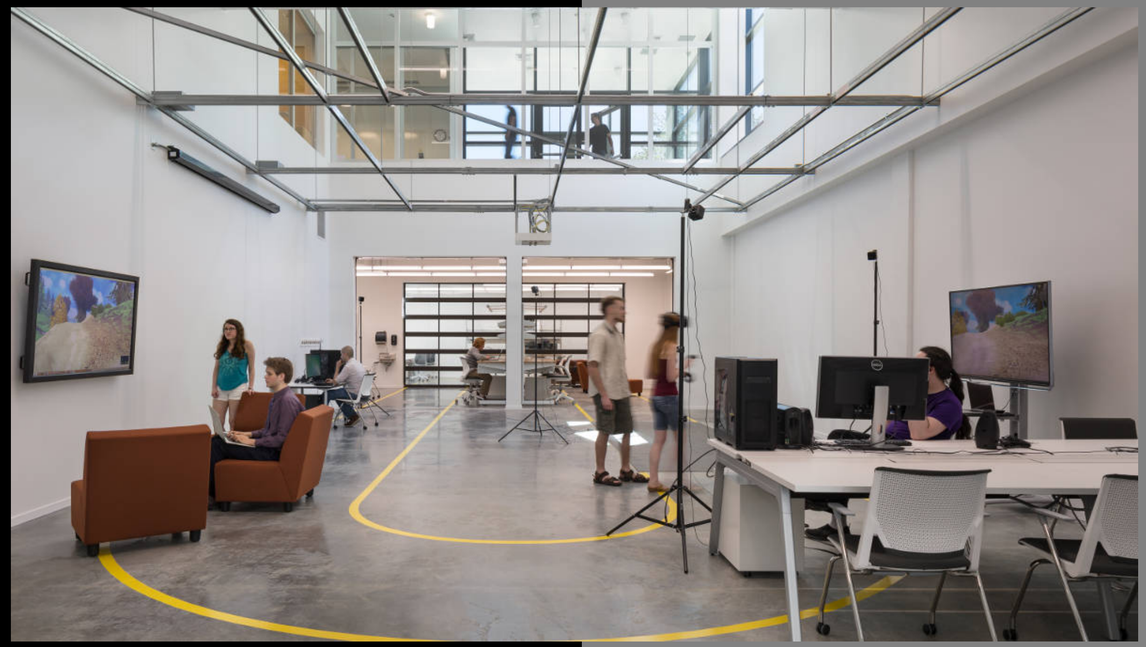
(I) POLYMORPHIC GAMES

- Initial collaboration between faculty in the Departments of Biological Sciences and Computer Science
- $65,000 internal grant provided initial funding; additional funding from NSF BEACON and the Idaho IGEM program
- Undergraduates and graduate students create new video games that incorporate principles of evolutionary biology



(I) POLYMORPHIC GAMES

- Other colleges: Art and Architecture; Business; Education; Letters, Arts and Social Sciences
- Biologists, computer scientists, graphic artists, musicians, voice actors, business and marketing
- The first product is “Darwin’s Demons” and is available for purchase on Steam.
- Idea has caught on, and other groups now are collaborating on other disciplinary games.



(II) INSTITUTE FOR MODELING COLLABORATION AND INNOVATION

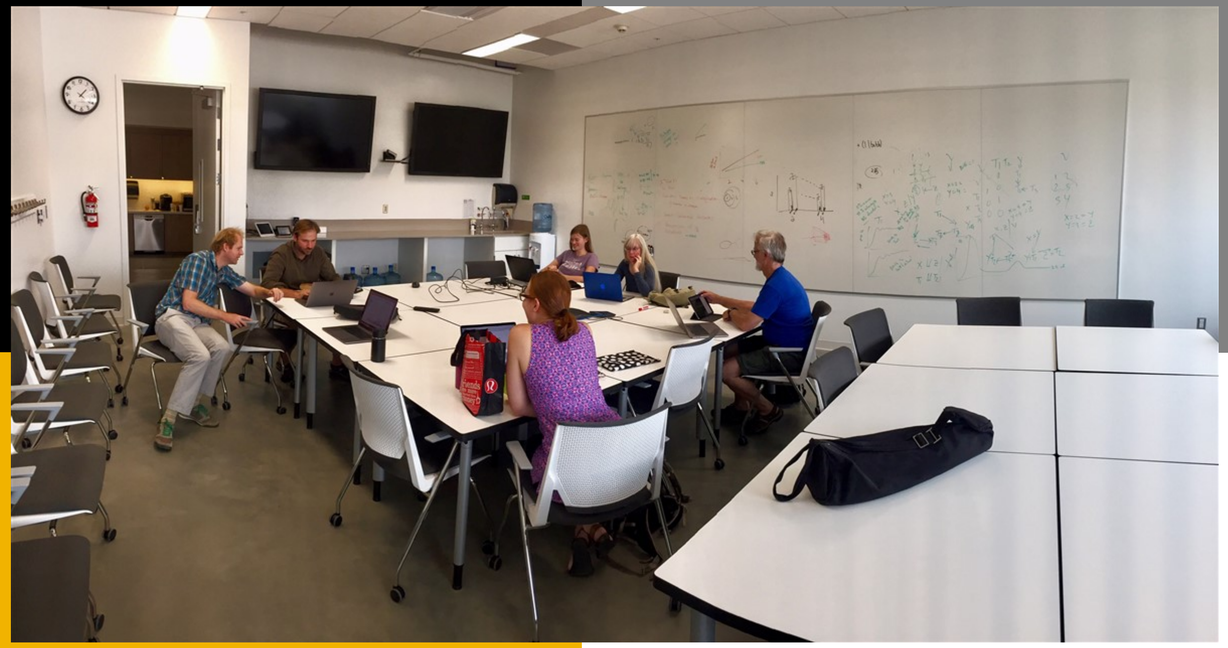
University of Idaho
Institute for Modeling Collaboration and Innovation

CMCI
Center for Modeling Complex Interactions

- Started as a research collaboration across College of Science departments with focus on model-based research (CMCI)
- Brainchild of University Distinguished Professor Holly Wichman in Biological Sciences
- Now includes over 50 faculty participants from 17 departments and 8 colleges
- Allocated space in IRIC

(II) INSTITUTE FOR MODELING COLLABORATION AND INNOVATION

- Team attracted an initial $10.6M NIH grant
- Special consideration for returned overhead (currently is 50:50 split with central admin vs standard 75:25 split)

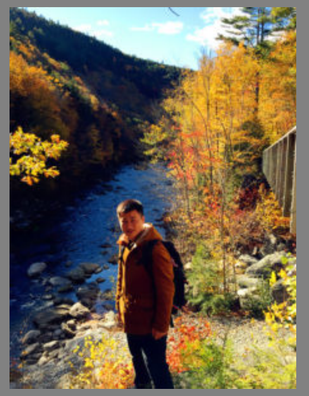


(II) INSTITUTE FOR MODELING COLLABORATION AND INNOVATION

- Research funding and mentoring for early career faculty
- Start-up funds for new faculty hires to extend the collaboration
- Postdoc support for work in Modeling Core
  - Collaboratorium accepts projects from across campus (protein-protein interactions, viral evolution, disease transmission, wildfire damage/movement)

Faculty Mentors

Collaboratorium Postdocs



(II) INSTITUTE FOR MODELING COLLABORATION AND INNOVATIO

- Led to large NSF institutional grant funded at $6M
- Multiple investigator-led grants attributable to this collaborative interface
- Next = new funding submission to NIH to expand project scope
  - Machine learning
  - Geographical modeling

PROMOTING INTERDISCIPINARY RESEARCH

- 3 case studies: undergraduate; undergraduate/graduate; research
- Buildings that foster collaboration
- IMCI and faculty hiring/promotion and tenure