PROMOTING INTERDISCIPLINARY RESEARCH
THE UNIVERSITY OF IDAHO WAY
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
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
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

- 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
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)
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)
(II) INSTITUTE FOR MODELING COLLABORATION AND INNOVATION

- 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 INTERDISCIPLINARY RESEARCH

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