Life Sciences Interdisciplinary Graduate Program Visioning

Rough notes from Feb 26 Listening Session and Online forum to March 2.

Attendees, Listening Session Feb 26:

Facilitator: Paul Biwan
rMCB VG: Brett Tyler, Kirstin Carroll, Molly Megraw, Kelly Vining, Maria Kavanaugh, Elisar Barbar, John Fowler
OSU Faculty: Laurent DeLuc, Siva Kolluri, Jeff Anderson, Joey Spatafora, Jerri Bartholomew, Kevin Brown, Melissa Haendel, Tom Sharpton, Steve Ramsey, Maret Traber.
Graduate School: Dean Phil Mote

Q1. What are the strengths of OSU that could be enhanced by interdisciplinary graduate programs (IDGPs) in the life sciences?

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Strengths

- Specific model systems
- Strengths in specific disciplines
- Microbiome, AI group, plant sciences, CEOAS – Can IDGP benefit by linking to these?
- National/International rankings, e.g. Forest Ecology program; CAS in top 10?
- Low barriers to collaboration; CGRB resources
- Remove/lower barriers to facilitate IDGP development
- Already cross-department faculty
- Faculty without split appointment could still have students with cross-training.
- Strengths in different topic areas
- We’re not a medical school – offers broader/distinctive mix of research areas
- Cross-discipline departments are extension of product of land grant mission
- We are the state’s R1 (?? Largest??)

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- The extreme diversity of the scientific research disciplines existing at OSU will be reunited to form an integrated community of life sciences researchers.

Q2. What outcomes for OSU graduate students could be strengthened by one or more IDGPs in the life sciences?

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Group 1: Emphasized high value in broader perspective, long-term internal benefits for students

- Valuable long-term social support/peer-connections in many fields
- Mind-opening to many research strategies (no limited to discipline)
- Exposure to success in combining many approaches/thought-paths
- Promotes value of many ways of thinking
- Possibility: co-advising is enabled in situations where otherwise it might be difficult for the student to gain access to co-advisors from two different departments
- Substantive exposure creates conversational fluency in many fields
- Students need entry points to research collaborations
- Interdisciplinary skills are a “key” to student marketability in research
- Professional skills tools toward career goals
- Students benefit dramatically from broader perspectives
- Networking opportunities greatly expanded across fields
- Interdisciplinary Research Foci:
  --REALITY: Cutting edge research is becoming inherently interdisciplinary
  --WANT: to place students into the interdisciplinary “fray” in order to be successful in these research fields

Group 2: Emphasized the high value in tangible career benefits for students

- Great advantage—interdisciplinary students are more attractive as research collaborators
- Rotation systems—carry unique research exposure
- Jobs—broadens the potential job ‘fits’, providing an overall advantage to students; can be some challenge regarding depth if job is disciplinary, but interdisciplinary training is increasingly seen as beneficial and the way of the future by employers
- Physical proximity—people come together in one place who wouldn’t otherwise meet
- New research synergies result
- Students receive broader/better mentorship (lowers cross-departmental training barriers to create better class tracks and advising)
- Every top research university provides students with interdisciplinary program opportunities—students need this choice
- The best students often go to interdisciplinary programs (currently at other universities, but currently limited at OSU)—(Idea: make all of graduate education interdisciplinary; Maybe not possible, IDGP’s are next best thing); gives students who want to combine OSU’s unique research program areas the best educational opportunities.
• Unique recruiting venue that works very well—pools top candidates, gives students a chance to see and consider research areas and mentors they wouldn’t otherwise be exposed to; eg. mentors “hidden” under a departmental label that may sound peripheral to the student’s interest, and/or seen by students as narrow/antiquated/less-desirable than a broad interdisciplinary program degree label.

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• Dual degree in life sciences

Q3. What would be the best way of delivering the benefits of life sciences IDGPs at OSU: PhD-granting or Umbrella programs?

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Two separate groups addressed this question. The groups had some overlapping responses, and some that were at odds. To some extent, the answers given were not to the administrative specifics of the question (PhD-granting vs Umbrella); but rather, indicate value seen for functions and characteristics of an IDGP, with agnosticism among some regarding the details of how that program is administered and resourced. Note that everyone was aware that resourcing

Both groups appeared to favor aspects of broader IDGPs

• Most mentioned that an attractive name, that provided a potentially more “modern” label for a degree, was useful for branding, leading to strong applicants and the ability to be competitive with other institutions in recruiting
• There was some disagreement regarding whether an IDGP label was valuable primarily for recruitment/branding, or whether it was also highly important for a student to have that label on their degree – eg, a PhD in Molecular & Cellular Biology
• NOTE: this is a key difference between PhD-granting and Umbrella programs, and seems worth further exploration
• A broader program was seen as helpful in avoiding duplication of efforts across units within the University – eg, in recruiting, possibly curriculum
• Faculty also valued these aspects of broader IDGPs: promoting a culture of collaboration, avoiding silos within the University, graduate student rotations
• One faculty member indicated specifically that an IDGP could be complementary to Departmental programs, offering an alternative that broadens the possibilities for attracting and training graduate students at OSU
• The same person pointed out that most (all?) Departmental programs could be seen as having interdisciplinary aspects; however, a broader program that crosses unit
boundaries could be seen as integrating research/training across campus in new (and valuable) ways

Some potential problematic aspects of IDGPs – apparently primarily based on historical experiences with MCB – were noted, and seen as important to address

- Providing transparency for how credit for teaching, training is given, and resources are provided to the program
- A clear plan for how students in an IDGP would have backup for financial support, in case of difficulty for receiving funding from the major prof’s lab

Differing perspectives were offered regarding how to provide administration and resources for a broad IDGP.

- Three of six faculty (total), all in the first group, suggested eliminating all Departmental programs, having one very large Umbrella program across the life sciences, with students admitted and then going into labs, with resources following the students to the various Departments (note that this was not a fully fleshed out proposal). The intent of this proposal did not appear to be about eliminating Departmental programs per se, but rather about achieving the positive aspects associated with a broader program, as listed above.
- The other three faculty were not supportive of this approach, indicating that (among other positive points) Departmental programs already have established identities, and track records of success in attracting, training and graduating students
- From an advocate for the maintenance of Departmental programs, one potentially useful question was posed: How might an IDGP offer value to Departments/units in the University, such that it can attract resources and support?

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- For students, the Umbrella program will promote the exploration of new disciplines

Q4. What would be the best way of delivering the benefits of life sciences IDGPs at OSU: broad programs with multiple tracks or multiple focused programs?

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- Don’t think of multiple interdisciplinary programs can work given our structure at OSU.
• Diverse investment in broader single program better than multi-track program.
• Need to have incentives for Department participation
• Currently, student “ignored” by Departments
• Students are not getting Department support
• How do programs get funding? Need to have incentives for Departments and colleges
• Have multiple tracks with similar labels.
• Co-advisors of graduate students is a strength, we need incentives for that.
• Only select courses already on the books for IDGP
• Need containers that are cross-discipline. Need curricular space contained. There can be incentives that way. Some Departments already have semblance of this. Can fill in gaps in students’ backgrounds – foundational courses will be helpful to graduate students first coming in.
• Can relieve some economic burden from Departments for staffing/teachings.
• Could present this as a “win” – less deep, more broad courses in a time with individual graduate program enrollment is shrinking
• IDGP program can fill in where core courses needed to bring in people, avoid redundancy.
• Next best thing if we can’t do away with Departments
• Idea 1: a broad, shallow foundational core curriculum for the IDGP, that introduces students to a variety of approaches and gets across key central concepts and promotes the ability to communicate across disciplinary boundaries in the life sciences
• Idea 2: ‘Cloud’ curriculum concept from the last MCB retreat, complementary to the shallow core curriculum, which allows students to dive more deeply into topic areas of interest/useful for their research

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• Broad programs with multiple tracks.

Q5. What possible interdisciplinary focus areas for life science IDGP’s would have the biggest impact at OSU?

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Should we aspire to national and international prominence? We have a long way to go.

The following Focus Areas were suggested

• Biological Data Sciences
• Biomedical Sciences
• Chemical Biology
• Microbiome
• Cellular Systems Biology
• Cancer
• Precision Ag
• Precision Health
• Marine Science
• Animal Wildlife Health
• Ecosystems
• Genetics and Bioengineering

It was suggested that we align one or more focus areas with the needs of industry, and set up an industry advisory board for those (or all?) focus areas.

It was also suggested that programs that span multiple universities be considered. It was noted that the Bioengineering program is discussing a partnership with UO and OHSU.

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• Biology and computational sciences
• Genetic and Bioengineering