Report on Interdisciplinary Research from the Research Policy Oversight Committee (RPOC)

April 15, 2014

One of the issues that the research policy oversight committee studied for the academic year 2013-14 is the issue of interdisciplinary research. The committee recognizes that there has been rapid growth in interdisciplinary research at Northeastern University, and in particular in interdisciplinary faculty hires. While this has been a successful area of growth for the university, the policies and support for interdisciplinary research have not kept up with these rapid changes. This report contains recommendations to improve the support of interdisciplinary research at Northeastern.

Process:

The RPOC surveyed faculty on the issue of interdisciplinary research. 1280 faculty members received the survey, which represents all full time faculty at the university. There were 118 respondents to the interdisciplinary research survey. Note that interdisciplinary research does not apply to many of the faculty who received the survey. This report is based on that survey data as well as discussions within the committee. Several committee members have joint appointments and/or participate in interdisciplinary research. A summary based on analyzing data from the survey is attached to this report.

Observations:

Several faculty felt that the RCM model creates a barrier for interdisciplinary research.

Faculty were concerned about work load. This was especially an issue for untenured faculty. For faculty with appointments in more than one department, each department may have a different workload. An example of this is that one department’s teaching load may be 2 courses per year, while the other is 4 courses. This makes it difficult for a faculty member with a joint appointment to balance their workload.

Another issue of concern was the additional service load for faculty with joint appointments. One faculty member mentioned that their service load is 100% in each unit.

The lack of standardized evaluation for annual review was mentioned as particularly challenging both for interdisciplinary research and for faculty with joint appointments. Expectations and criteria differ, processes differ, etc. Expectations and transparency of the review process were noted to be inconsistent from department to department.

Faculty members mentioned that there was no method to resolve issues a faculty member has when dealing with multiple colleges. The usual advice is to talk to your Dean, but the multiple Deans involved may not be willing or able to handle the cross-college issues.

The issue of support, recognition and understanding of research in the arts and humanities was raised. Faculty asked for more events raising awareness of research, especially in these areas.

Faculty in units with a small number of research active members noted the lack of support for research accounting and grant preparation in such units.
Faculty note that existing PhD programs do not support interdisciplinary research, or if they do, they are narrowly focused (e.g. network science, personal health informatics, biotech). Programs and policies are needed that better support interdisciplinary students as well as faculty.

**Recommendations:**

1. Create a structure at the provost level to support interdisciplinary research. This should involve at least one person who reports to the provost who is in charge of interdisciplinary hires, interdisciplinary faculty and interdisciplinary research students. Below, we refer to this as the office of interdisciplinary research.

2. Unit heads/chairs/deans should produce a Memo Of Understanding (MOU) for each new interdisciplinary hire that describes workloads, support, expected service, etc. The office of interdisciplinary research should help ensure a MOU is in place for each interdisciplinary faculty member. For tenure track faculty, the MOU should cover agreements related to the tenure process. The requirement for such a MOU is already in the faculty handbook under interdisciplinary hires, but is not currently implemented.

   2.a The office of interdisciplinary research should develop a template for an MOU that can be adapted to individual faculty members.

3. The provost’s office should create a transparent annual performance (i.e., merit) review process that is adhered to by all department chairs. Currently, the performance review process varies widely from department to department, and inconsistencies are especially noted by jointly appointed faculty.

4. The office of interdisciplinary research should help to handle issues faced by faculty with appointments in multiple colleges when the Dean(s) involved are unable to solve the issues.

5. Look at ways the RCM budget model can be adapted to better support interdisciplinary research.

6. Provide centralized administrative support for faculty members for research grants and proposal preparation for faculty in units that do not have such support.

7. Interdisciplinary PhD programs need to be broadly based and have processes and procedures that work across colleges. We recommend that the office of interdisciplinary research address issues that will help the university to better support interdisciplinary PhD students and programs. Admissions, rules, etc. that are across colleges need to be facilitated for these students.
Results of the Interdisciplinary Research Survey

Question 1:

[Bar chart showing responses to the question: "Adminstrative structure facilitates success for Joint Appointee Faculty Members."]

Question 2:

[Bar chart showing responses to the question: "There is appropriate university-level support for interdisciplinary collaboration between faculty, including for graduate students involved in conducting interdisciplinary research."]
Question 3:

Do you currently collaborate with faculty outside your unit?

Yes 70%
No 30%

Question 4:

What are the major barriers from your perspective to establishing collaboration with faculty across the university?

Several issues came up:

- Lack of Time
- Lack of funds and resources
- Lack of common understanding: theoretically and methodologically
- No credit for collaboration
• Limited areas of expertise within the university

• Lack of awareness of other faculty work

• Difficult to collaborate
  "It's difficult logistically to collaborate with faculty outside of a specific college because of administrative issues regarding college-by-college funding and political vying for prestige. It's also difficult to collaborate within college because of ideas that certain types of work only "belong" to one set of scholars."

• Lack of venues to publish that are top tier

• Discipline mind-set within the administration
  "Department heads who are interested in bottom line budget issues and who promote a competitive territorial approach to the operations of the department, rather than the contribution of the department to the university community."

  "Faculty still function in 'silos'. There seem to be 'preferred' areas of research, 'preferred' partners or units, based upon who seem to get grants."

• Dual appointment issues:
  "for dual appointments: Complexity regarding tenure requirements & expectations, service in two units, lack of awareness in the colleges of what happens in the other unit."

• Issues with specific colleges:
  "CAMD refuses to find ways to cross list courses. The Dean of CAMD insists that College is not a "research College". The (majority of) CAMD tenured faculty appreciate interdisciplinarity and research, but support neither with follow through. This has left the majority of units in CAMD weak in research funding, relevant research projects, graduate students or space for labs. Instead, junior faculty are over-extended into service for particularly the Dean's Office."

  "College-wide grants are targeted at faculty inside colleges. As for Provost level grants, I have applied, but also with another faculty member inside my college. I have tried to apply, but have encountered road-blocks. Some units are not happy with the costs associated with funding grants (they must give start-up funds that they have not budgeted for.) This discourages them from allowing faculty to participate in new ventures with members from other colleges, which are willing to support them."

  "Administrative structures, attitudes and politics. While there are strong, and in my opinion misguided, ideas about "interdisciplinary” research within CAMD, the idea of collaborating across colleges in highly relevant areas such as computer science, psychology, engineering or physics is completely out of the question."

• Different disciplines, different expectations
  "I am part of an interdisciplinary team but my team are from outside NU. There are difference in teaching loads and infrastructures with in the various colleges/schools/departments. It is difficult to know who might be a good fit and is willing/able to partner. When we have connections with colleagues outside NU, it is less time consuming to partner with them than to try to negotiate with faculty we do not really know."
"I don't think there are many barriers to establishing collaboration with other faculty. But there are severe structural problems for joint-appointee faculty, especially pre-tenure joint appointments. The tenure criteria are unclear, it is hard to find students who can be trained in interdisciplinary work when they must get degrees that meet disciplinary standards, and the additional service load from working in two colleges with poor-to-nonexistent mentoring from senior joint appointments who have gone through the tenure process at Northeastern. The split in teaching from the cross-appointment system also seems problematic, especially if the interdisciplinary faculty member is interested in either a) teaching upper division interdisciplinary courses that attract students from across many units, or b) is more well-suited to teach courses in their secondary unit but more suited for research evaluation in their primary unit. Communication about this process for interdisciplinary faculty is poor. There is a lot of uncertainty in an already uncertain process. It seems like the university has learned how to hire interdisciplinary faculty but not how to tenure them."

- **Tenure Issues**
  "Tenure is granted almost exclusively by the home dept. This leads to severe downplaying of involvement with secondary dept."
  
  "The tenure and promotion process devalues interdisciplinary collaboration. This is especially the case with the new tenure guidelines in the CSSH."
  
  "Unclear how diverging evaluation criteria will be evaluated (e.g., some areas focus on journal publications, others on conference proceedings). How will a conference paper "count" in a journal paper focused tenure home or vice versa."

- **RCM model creates a barrier for interdisciplinary research**
  "With RCM, there is somewhat of a disincentive for working across colleges. It's also quite challenging to engage multiple deans across multiple colleges in order to get interdisciplinary collaborations moving. Even the Tier 1/2/3 program, though really useful, can sometimes be difficult to implement when multiple colleges must engage."

- **Need leadership from senior faculty**
  "We, faculty, need more opportunities to interact with each other. We also need senior, established, research active, experienced faculty to take leadership to move major grants forward, connecting multiple colleges. Such leader faculty would need a lot of admin and technical support, and should also be involved in shaping the vision of the university, and selecting key funding opportunities to apply."

- **No interdisciplinary courses**
  "Interdisciplinary co-taught courses are very rare and not encouraged. These are important avenues for encouraging and enabling interdisciplinary collaboration and research as well as teaching"

  "While the university says it is favor of inter-disciplinary collaboration, it remains extremely difficult for many professors to team-teach with professors from other departments and nearly impossible to do so across colleges. The long tradition of tenure to a specific department, and also the merit raise system, makes it difficult for professors, except those with interdisciplinary,
appointments, to work outside of their own specialties. Some departments have only a skeletal faculty, because over the years they have been denied new hires."

"It is currently extremely difficult to offer interdisciplinary courses across different colleges/units. It is even more difficult to co-teach an interdisciplinary course or to obtain support for planning as well as delivery. Managing all of these issues at the Dean level is incredibly inefficient. The Provost’s Office should come up with a robust consultative mechanism to devise real solutions to these problems, especially if it actually wants to encourage interdisciplinarity."

- Definition of interdisciplinary
  "I think there is a very narrow definition of "interdisciplinary" on the part of the administration, as I get the impression that their goal is to put together people from the most unlikely departments. However, two people in one engineering department could be engaged in interdisciplinary research, for example. That the priority for seed funding is inter-college collaboration strikes me as narrow minded, driven more by budgetary concerns than intellectual merit."

Question 5:
If you think barriers exist, what structure or policy can help alleviate these barriers?

Comments:

- Service load review
- More funds
- More incentives
- Pay scale issues
  "appropriate pay scale & appointments"
- Change in Evaluation criteria for tenure
  "Having stronger administrative infrastructure and consistent infra structure. Eliminating tenure as we know it. That is based in the siloed disciplines. We should be rather thinking about impact of research and the impact of a person’s research to society."

“Administrative and logistical pathways should be improved at the attitudes of administrators (especially Deans) should move toward less insistence that faculty only complete one type of research to be eligible for tenure.”
“Strong support for hiring faculty in the Arts and Humanities with their locus of tenure in a College rather than in a specific department. Amending the budget to allow professors to teach in colleges other than their own would also help. Perhaps most important would be to hire and support faculty in areas that are grossly understaffed.”

“If we hope to distinguish ourselves through interdisciplinary programs and research groups, we need an explicit outline of tenure expectations and an explicitly-drawn curriculum for those programs. Such concrete documents would give colleagues in our disciplinary homes a solid reference when planning course offerings, evaluating tenure track faculty, and so forth. My colleagues do their best and operate in good faith, but the tensions between the needs of the department and the needs of my research group are often difficult to negotiation”

- Database of research interests
- RCM model issue
  "Hybrid budgeting has to go. Even if it does not directly inform joint appointments, it undergirds them financially."
- Deans in research
  "Deans/Associate Deans actively and consistently sharing research interests of their faculty with others and connecting folks with mutual interests; needs to be done on a regular basis"
- More interdisciplinary classes, team-teaching
- Grad students cross departments
  "create a unified and simple graduate studies policy that allows students to develop their own plan of study, just like at the undergraduate level, with support and guidance from supervisors”
- Availability of grad students
  "Better availability of RA support for graduate students on interdisciplinary projects"
- Structural barriers – unified structure
  "The ideal would be to have no departments and colleges at all, as some universities are doing. Since structures and policies are determined by the unit, as long as there are units, there will be barriers. “
  "More support for these activities and streamlining the procedure to create these cross-discipline projects. A set policy at the university level for funding/loads for these projects so that each does not need to be negotiated separately."

“A unit that can bridge between colleges to facilitate interdisciplinary research and not just college interests, because often interdisciplinary work builds new transdisciplinary areas. These
areas have their own visions, goals and priorities and may not directly align with the college structure.”

“more interdisciplinary centers instead of departments or units under a specific college”

“A single Center for Interdisciplinary Research that handles the issues of crossing barriers.”

- Mentorship
  “More structured mentorship opportunities, including helping find mentors outside of Northeastern if one within Northeastern is not available. Official policies supporting appointment renegotiation if the initial assigned split is not working out. Teaching assignments that are not tied to appointment percentages.”

**Question 6:**
Question 7:
What other structural support is needed to help propagate awareness of research within the university?

Comments:

• Equity
  “The greatest (and cheapest) way to raise awareness is for the University to give value to units engaging in research equally. There is a severe weakness in the university’s perception and promotion of the arts on campus. It is regarded and circulated as a student ‘hobby’, rather than anything of substantial academic worth. If the University could genuinely communicate the value they had for the Arts on campus as an Academic, Research and Social Pillar on which the university leans, most of the awareness barriers that currently exist would collapse”

  “NU news notoriously neglects the humanities unless the news is digital. More even-handed representation of disciplines is badly needed. Not everything has to be about “tomorrow.” Historical topics have interest to students and are areas where new knowledge is produced every day.”

  “A little more attention paid to the small studies, especially in the social sciences and humanities. Currently, the university focuses almost entirely on the research associated with big dollar grants or media “friendly” results.”

• Lack of understanding
  “Faculty sitting on committees & many faculty generally have marginal understanding of interdisciplinary research-it has its own theory/method processes.”

• RISE is great
- More info sharing and events
- Grant support
- More staff
- More tier 1 funding
- More centers
- Institutional faculty webpages

Question 8:

Do you have a grant with PIs or Co-PIs across colleges within the university?

Yes 31%
No 69%
Question 9:

If so, are you happy with the way it is setup and handled?

- Yes 30%
- No 36%
- Not Sure 34%

Question 10:

What structures or policies can the university implement to improve setting up and managing grants across colleges?

- Systems & tools: pivot too broad to be usable
• Budgets and staffing

"Have a more centralized system. My department administrator is not an expert in grants, yet she is the one I have to go to for managing my grants. It would be good to have someone in charge who does grants day in and day out, and knows the territory."

"Each college needs a support person for grants. (CAMD does not have a dedicated person, so it can be difficult to coordinate with faculty in other colleges who have support staff.)"

• Less red tape, need more efficiency

• Joint appointments and cross college support

"Currently there is an administrative home to the faculty, this does not work well for interdisciplinary faculty who have appointments in two colleges. The grants also administered between faculty of different colleges are hard to setup and administer."

"The Provost's Office appears to still be making up policies as it goes along for processes *within* Colleges; is there a basis for thinking it's capable of implementing anything coherent across Colleges?"

"In general, ORAF has been a very large disappointment in facilitating grants across colleges, and it often seems like it's a bad thing from their perspective to pursue grants across colleges, as it creates more work and complexity that seems to be too much for the existing ORAF infrastructure. [...] I strongly feel the grant admin. infrastructure at NU is woefully under resourced for the expectations made on faculty to produce external funds."

Question 11:
Question 12:

Name the interdisciplinary programs

- Nano-medicine (2)
- LPP
- Biomedical
- Bioengineering (6)
- Network science (8)
- Law and Public policy (6)
- IPS
- PHI (3)
- Interdisciplinary PhD in engineering (2)
- IA
- Materials interdisciplinary

"Programs in the Sciences. I'm not sure of their individual names."

“No involvement but aware of many interdisciplinary programs in the sciences.”
Question 13:

Do you feel that the PhD programs in your unit/college facilitate interdisciplinary work?

Yes (16)
No (19)

“We don't have PhD programs nor could we do to the woeful lack of facilities and infrastructure. Please..”

“we don't have PhD program”

“No, the PhD program is highly disciplinary, with core courses that are not as relevant to students doing interdisciplinary work. After course completion, though, it is more open-ended.”

Question 14:

Does your college have interdisciplinary PhD Programs?

Yes 36%
No 36%
Not Sure 28%

Question 15:
Do you feel that the current PhD programs adequately supports the interdisciplinary research at the university? Please explain.

Yes (8)

No (27)

- “Need more programs.”

- “each PhD program appears to serve only faculty of the host department; lack of interdisciplinary PhD students with skillset needed in my research area”

- “We still have a way to go for this at Northeastern.”

- “The interdisciplinary PhD programs have logistic issues in terms of budgeting, sign offs, etc. This negatively impacts the programs because of the uncertainty it creates.”

- “Interdisciplinary PhDs are not very marketable in my discipline and therefore, in my discipline, I don’t support the idea. Also, I participated in an interdisciplinary PhD program when I was a student and found it of little value.”

- “I have no graduate students to work with. I work on my research with undergraduates. Theoretically, I could work with grad students in psychology or law, but there is very little encouragement from these areas to have their students branch out.”

- “My PhD students are required to take 2 years of core computer science with no experimental science courses. Their area is HCI and they need to get core methodology training but there is no time for them to get that type of training and there are no courses in that provide that level of training.”

- “No. It is really quite bad. There is almost no support for Graduate Students other than RA provided by faculty grants. This is too shaky of a funding source in recent times and stresses the students (and faculty) out a lot.”

- “From what I understand many programs make it difficult to pursue interdisciplinary research. The choice for an interdisciplinary PhD seems very complicated, from a supervisor and student perspective.”

- “I have heard of a generic “interdisciplinary PhD” option, but details on this are hard to find for both faculty and prospective students. Recruiting students to do interdisciplinary work is challenging.”
• “it seems most of the Ph.D. programs are siloed and very territorial, and it seems new ones are being created that continue to not be consistent with the interdisciplinary goal. This is a real issue.”

• “We need to raise the level and expectation of our PhD students before we can have them successfully embark on (and make a career in) interdisciplinary research.”

• “but this isn't a problem with the departments. The absence of interdisciplinary working groups is the problem. Without that there is no real way for students to connect to interdisciplinary work.”

**Question 16:**

What structural support can the university provide to enhance interdisciplinary activities and research among graduate students?

• RAships across units
• Support, funding
• Gatherings and opportunities to meet
• University wide graduate school
• Cross university structure
  “Better long-term structure that will support the interdisciplinary programs so that directors of such programs can have some stability across several year time spans.”

  "Build interdisciplinary PhD programs. If we invested a lot in joint faculty who will be doing interdisciplinary work, shouldn't we invest in developing the training programs to supply them with PhD students who would further work on the intellectual problems that they are here to work on?"

• Support for current interdisciplinary programs
• Joint appointment issues
  “promoting joint appointments into multiple departments/colleges while also housing the faculty member 100% in one dept. Right now I see the cross college hires in my department being pulled in two different directions because there is really poor coordination among chairs in these different departments.”

• Other issues:

  "rethink the interdisciplinary phd program and think about one that would be attractive to pursue for the student and supervisor”
“Why would you want to? They won’t get jobs in interdisciplinary programs for the most part”

**Question 17:**

What structural support can the university provide to enhance interdisciplinary activities and research among graduate students?

- **Placement**
  “Where are they going to get a job???”

  “...they don’t have anything substantial or defining to apply to at this university. The university has aggressively hired many high level faculty with tenure. Those faculty have achieved much of their renown with armies of grad students, PhD students and post-docs. Hiring top level tenured faculty, without that support network, means the junior faculty end up filling that role and become grad students again.”

  “The market for new PhDs really isn’t interested in interdisciplinary PhDs and it won’t help them get tenure if they do get a job.”

  "Labor markets tend to reward specialization"

  “They are afraid that they will not fit into the traditional pattern of many universities that continue to insist a focus on one discipline.”

  "Job market issues. Some interdisciplinary students may be perceived as a "Jack of all trades, master of none."

- **Qualifiers**
  “Qualifying exams are problematic, as they don’t fit into the usual structure.”

- **Publishing venues**

- **Lack of depth**
  “Sometimes they feel they lack depth a core knowledge of a discipline; the advantage of mastery of a single disciplinary focus.”

- **Lack of awareness from the department**

- **Structure**

**Question 18:**
Question 19:

If yes, which of the following applies
Question 20:
What policies/practices could the university implement to help establish a sense of belongingness or cohesion and promote respect and value to your work?

- Communication of research across the units
  "Perhaps highlight the research that is done by faculty in the College of Professional Studies. Currently, we are completely ignored even though we also do research and publish."

- Emphasis on research
  "More emphasis on research, independent of external funding."

- Build centers outside of college structure

- Tenure
  "Changing the tenure model to be more flexible in what work can be considered. Allowing voting and service in both units."
  "Tenure and promotion must be revamped for interdisciplinary faculty. At present, colleges still largely pursue their own T and P practices and norms. There may have to be a new university wide T and P process for these faculty. The issue is that big, that the improvement must be big. I don't see small policies and practices as making a dent here."

- Space
  "Build space that hosts these faculty together."

- Other issues
  "At times I feel like a citizen of two or more countries, and at other times I feel like I don't belong in either. I don't really know most of my colleagues in either of my units very well. Most are doing work that is unfamiliar (or, frankly, uninteresting) to me. There is a sense that being an
interdisciplinary researcher is a special designation that comes with additional burden and is a problem that needs to be fixed to fit into the existing structure, rather than something that is well-understood and handled as part of the status quo.”

- Cases
  “I was given "affiliated faculty" status in the College of Social Science and have been treated/included to the fullest extent by them. The College of Science is blind to this appointment, it seems.”

**Question 21:**

Do you feel your split percentage is adequate to support the work you want to do?

Yes (5)

No (7)

**Question 22:**

1. the university offers events that adequately cover issues faced by interdisciplinary researchers

2. The university has made it clear what is expected of interdisciplinary faculty for tenure and promotion
3. My tenure home understands the value of interdisciplinary research

4. I feel interdisciplinary faculty have an extra burden of service compared to faculty who do not hold joint appointments
“My dean now wants a list of top journals in a disciplinary area. How on earth do we accommodate interdisciplinary faculty who cross so many different fields. I can't even put one together in linguistics, and where would linguistics be recognized?"

“The university needs to LISTEN and solicit information relating to tenure questions and not simply deliver procedural guidelines.”

“You should ask questions from the other perspective: Are faculty without a dual appointment disadvantaged?”