

Report of the Task Force on Interdisciplinary Collaboration:
Challenges, Recommendations, and Action Items

Prepared by the
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Introduction/Preface

In recent decades calls for interdisciplinary education, scholarship, and research have infiltrated universities globally. The demand for pluralistic interdisciplinary approaches emerged as a result of powerful “drivers,” including “the inherent complexity of nature and society, the desire to explore problems and questions that are not confined to a single discipline, the need to solve societal problems, and the power of new technology” (National Academy of Sciences, National Academy of Engineering, and Institute of Medicine, 2005, p. 40). *Interdisciplinarity* is a mode of scholarship (e.g., research or teaching) that integrates information, tools, perspectives, concepts, and/or theories from two or more disciplines or bodies of specialized knowledge. Through the interaction of the traditions of multiple disciplines, new questions emerge that otherwise would not have been possible; novel perspectives arise that advance fundamental understandings; and alternative solutions are created to address new or existing problems whose solutions are beyond the scope of a single discipline or field of research practice (NAS, NAE, IOM, 2005).

Interdisciplinarity leads researchers and academicians in different disciplines to meet at the interfaces of those disciplines and even to cross frontiers to form new disciplines. The growth of scientific and technical knowledge has prompted educators/scientists to join together to address complex problems that must be attacked simultaneously with deep and expert knowledge from different perspectives.

A Matter of Culture

For interdisciplinary work to thrive at UNL, a certain *culture* that promotes a shared vision, customs, values, understandings, and relationships must be the norm. This culture must be defined as including openness to change, willingness to work together, respect for differing perspectives, trust in people’s intentions, and general desire to contribute for the betterment of the institution, even when compromise or sacrifice of individuality may result.

We believe that the key *cultural conditions* for interdisciplinary work are:

- A clear commitment and leadership philosophy that emphasizes the importance of interdisciplinary work
- Messages by leadership that promote a pluralistic and collaborative ethic, conveying and reinforcing the belief that $(1 + 1) > 2$ (NAS, 2005)
- Institutional organization that allows, promotes, supports, and rewards interdisciplinary work
- An environment that encourages faculty/researcher collaboration
- Long-term vision
- Willingness to take risks (e.g., with investment of resources, hiring decisions, organizational structures)

A Matter of Principles

Interdisciplinary collaboration often involves programs, initiatives, and centers that are multidisciplinary in nature, consisting of faculty with tenure homes in different departments. For interdisciplinary work to thrive constituents must operate from a set of assumptions and

guiding principles that encourage collaboration at all levels. There must be a valuation of interdisciplinary work, commitment among units and faculty to make it work, and commitments and structures throughout UNL. Key players must recognize and accept the challenges inherent within and be willing to meet those challenges head on. They must embrace the mutual benefit and enhanced outcomes that are possible only from interdisciplinary efforts. In certain cases, the level at which decisions are made, evaluations are conducted, and resources are allocated should be collective, rather than individualistic.

Means for defining a principle of *quality* must be introduced. Interdisciplinary efforts must have a purpose, meaning, and quality that are distinctive beyond what can be done through traditional intra-disciplinary means. General principles should be specified by which interdisciplinary appointments are handled to ensure treatment of each person as a 'whole' person, and decisions (including hiring, evaluation, and merit) must follow clear and unambiguous paths where interdisciplinarity is valued.

A Matter of Leadership

Realizing the vision of moving the university from interdisciplinary presence to seamless interdisciplinary excellence requires talented leadership. Such visionary leadership starts with central administration. The President, Chancellor, Vice Chancellors, and other administrators have high visibility and direct access to resources. A vision of interdisciplinary research may begin with simple steps that nourish the practice of collaboration. Examples include creating more opportunities for faculty to work with students in different disciplines and departments; allocating seed money for space where a promising interdepartmental partnership can begin; placing high priority on interdisciplinary work in fund-raising and foundation support; and creating flexible organizational and career structures to support the trend toward interdisciplinarity.

In the remainder of this white paper, we specify issues and recommendations for administrators at various UNL levels to consider as they embark on efforts to create a culture, set of principles, and series of strategies for interdisciplinarity. The body of the report is organized around common issues existing across teaching, joint appointments, and research. These include structural issues (such as resource utilization and allocation) and evaluation (such as expectations for promotion and tenure across units and inconsistent review procedures). Recommended action steps are presented at the end of this report for consideration by UNL administration.

Teaching

The future of interdisciplinarity begins in institutions that value and promote cross-fertilization of knowledge and development of new perspectives on issues facing humanity. The inherent mission of teaching at institutions of higher education calls for new approaches that cut across the boundaries of traditional disciplines. Interdisciplinary teaching presents challenges both structurally and in relation to evaluation. Issues include the commitments from departments and structures in place to support teaching across units, or in interdisciplinary fields and programs; the manner in which credit and resources are distributed; the tactics by which cross-listed courses are handled; and procedures by which evaluation is conducted.

Structural Challenges

Structural issues may interfere with progress of interdisciplinary programs. The management or ultimate responsibility for curricular planning is not always clear or consistent within and across circumstances. For example, if the authoritative structure for the curriculum of an interdisciplinary or cross-listed course resides within one unit alone (typically the “home” unit), other programs or units who rely on that course curriculum may be uninvolved in decision making. Alternatively, if the structure for an interdisciplinary or cross-listed course requires that all units agree to all procedures, requirements, etc, one unit’s dissenting opinion can derail the progress of the group.

Institutions such as UNL are often founded on principles of academic freedom and professorial prerogative. Such approaches are often noncontroversial when practices affect a single discipline that houses academic courses. However, when courses are cross-listed, or in similar situations where faculty are teaching courses enrolling students from multiple units, changes in academic content may have differential impact to the various units to the extent that the course no longer serves the needs of all units.

There is often uncertainty about credit given for teaching when it occurs outside one’s home department. Likewise, policies for the distribution of credit or tuition dollars generated by a course taught by a faculty member whose home department varies from that in which the course is offered are not clear or not practiced consistently. For example, distribution of credit hours to a student’s home department, or to a department other than that of the faculty member, may serve as a disincentive for faculty to allow students from outside the instructor’s department to enroll. Similar issues arise in cases where courses are co-taught by faculty members from different departments or units; the distribution of credit and (if applicable) tuition dollars is not clear or consistent.

Challenges with Evaluation and Merit

Interdisciplinary teaching often involves activities that are not recognized or rewarded in the home department, including service and committee work, co-teaching with other faculty, advising or mentoring students, and teaching courses in other departments. These may be considered “extra” and earn little or no credit for the faculty member. These activities are often considered to be on top of the regular departmental teaching obligations.

Individual units within UNL have created and utilized different formats for the evaluation of courses and instructors. The inconsistency resulting from different scales being used in course evaluations creates difficulty in determining a faculty member's performance when that person teaches courses for more than one department or unit. For example, in situations where a faculty member teaches courses for multiple units, his or her merit or promotion and tenure file may contain course evaluations using disparate scales, items, and overall evaluative criteria.

Recommendations Regarding Interdisciplinary Teaching

Structural mechanisms and flexible policies are needed that create opportunities for and break down barriers to interdisciplinary teaching. A system, mechanism, or procedure is necessary for department Chairs and Deans to share resources and trade-off regular courses for more innovative models.

As in other forms of interdisciplinary work, opportunities for interaction and frequent communication are essential. When two or more units or departments are involved in or share responsibility for an interdisciplinary or cross-listed course, policies should be established a priori specifying roles and responsibilities of each unit. By-laws should be developed that outline administrative matters such as the policies and procedures for planning and decision making; resource allocation; curricula development, modification, and management; and other structural issues. Such policies should be uniform across campus.

Policies for cross listing of courses also need to be put in place and practiced. For example, there is at UNL a policy approved by the Enrollment Management Council (January 7, 2004) that states: "Student credit hour production in cross listed courses with a single instructor of record must be reported by instructor, not by student registration. In co-taught courses, distribution of student credit hours (SCH) is pre-approved by participating units based on faculty involvement in the course." This policy should be invoked to ensure that faculty members are not discouraged or inhibited in teaching courses outside of one's home department, such as in interdisciplinary programs. In cases where co-teaching is practiced, credit and (if applicable) tuition remuneration should be shared, and specific agreements on such details (e.g., percentage of credit and tuition assigned to each faculty member) should be determined a priori.

A common set of evaluative criteria should be considered whereby certain quality indicators may be defined and assessed across all courses taught on the UNL campuses. Although individual units will have needs that are unique to their disciplines or situations, some global quality indicators should be assessed in a consistent format to aide in the evaluation of faculty whose files will contain information from more than one unit.

Joint Appointments

One way that many universities, including UNL, operationalize efforts for interdisciplinary work is through the appointment of faculty to more than one unit. The most common structure is one where a faculty member is hired and their time is apportioned across two academic departments. Whereas this is a viable way to facilitate interdisciplinary communication and organization, it presents unique challenges for the individual and for the respective units.

Structural Challenges

Traditional university structures may inhibit interdisciplinary arrangements that utilize joint appointments. Excessive paperwork and administrative “hurdles” sometimes interfere with the creation of interdisciplinary units. There are often different cultures, different expectations, or different standards across colleges or departments. Not all units value interdisciplinary work or recognize the importance of contributions. Apportionments are not always fair and equitable.

Challenges with Evaluation and Merit

Faculty evaluation and retention/tenure/promotion processes and decisions that use traditional structures fail to capture the complexity of interdepartmental or inter-unit appointments. For example, different criteria may be used across units to evaluate merit, retention, and promotion. Likewise, collaborative work is not always recognized or considered in raises and other faculty-sensitive decisions.

Certain administrators overseeing collaborative work may not be included in evaluations of faculty (e.g., Center directors) despite the fact that they have a great deal of interaction with and knowledge about the person’s performance. The result may be “serving two masters and satisfying none.”

Faculty in joint appointments defined for their interdisciplinary quality may be expected to perform “double duty,” fulfilling the typical obligations of disciplinary activities (e.g., teaching, service) in each unit, and then find additional time for interdisciplinary work. Evaluation is sometimes conducted within each unit housing a portion of the appointment using traditional, uni-disciplinary criteria, rather than considering the interdisciplinary nature of a person’s work.

Evaluation of contribution (including merit) is difficult in situations where a person’s efforts are split either equally or proportionally between units. The process for review, promotion, and tenure (RPT) typically requires independent evaluation in separate units, perhaps with different norms and possibly different expectations. One’s contributions may be considered more valuable in one unit compared to the other. When apportionments are not clear, or when merit resources (e.g., raises) emanate from two different sources, the final determination may be very unclear.

Recommendations Regarding Joint Appointments

Interdisciplinary appointments shared across units require leaders and faculty who are flexible and creative. They also require clear and agreed upon policies and procedures. Such policies should be uniform among units and campuses. The key to both flexibility and clarity is communication. UNL administration is encouraged to develop organizational structures and communication mechanisms that support interdisciplinary joint appointments.

To ensure equity across units, clarity in efforts and expectations (e.g., time, tasks) within each unit (apportionment of duties) must be clear a priori. This includes clarity regarding interdisciplinary work embedded within research, teaching, and service. Expectations for tenure and promotion in each unit must be determined immediately upon hiring, and clear communication systems or mechanisms among units, and between units and faculty members, must be assured.

To reap the benefits of a unique interdisciplinary hire, a system with flexibility in the promotion and tenure structure may be necessary. A unique tenure and promotion system that encompasses multiple disciplines or units could be considered. This might mean that certain individuals or appointments are reviewed by an interdisciplinary team or committee. For example, a system for granting tenure in an interdisciplinary venue might be established. A unique "track" for full-time interdisciplinary faculty members might be considered. In some cases, one joint letter across units may be preferable to separate letters, evaluations, and reviews from distinct units when evaluating individuals with joint appointments for promotion and tenure.

For merit decisions made across more than one unit, decisions on time allotment (based on full-time equivalency; FTE) and salary may be considered separately. Specifically, it seems desirable for percentage of time to remain constant within respective units, but for salary disbursement to be relative to performance within each unit and each unit's peers. For example, an individual's relative contributions and accomplishments in one unit (Unit A) relative to Unit A peers can be different than contributions and accomplishments in another unit (Unit B) relative to Unit B peers. If Unit B merit is higher, there should be no pressure on Unit A to provide more merit reward than earned within that unit.

Research

National research and funding agencies such as the National Institutes of Health, National Science Foundation, USDA, and National Research Council have all heralded the importance of tackling large scale, complex problems facing local, regional, national, and global entities with equally complex and multidimensional solutions. This demands the formation and augmentation of sophisticated, well-positioned research teams that cut across traditional disciplinary boundaries and create new approaches to scientific issues.

Issues with interdisciplinary research cut across academic and research units and include research centers and other structures that attempt to develop and address scientific questions from multiple perspectives. The challenges associated with interdisciplinary research, including that which occurs in research centers, concern the initial creation and promotion of interdisciplinary research ventures, organizational and managerial procedures for recognizing and supporting interdisciplinary structures, and long-term sustainability. Specifically, issues around administrative and structural challenges and evaluation of faculty members' contributions were all identified as challenges.

Administrative/Structural Challenges

Relationships between the interdisciplinary units associated with research initiatives (including research centers, departments and other units) are not always clear. Despite a call for collaboration, competition between traditional and interdisciplinary units for space allocation, allocation of credit, recruitment and hiring decisions, and return of facilities and administrative (F&A) costs may ensue. Deans, department chairs, and other administrators are often rewarded for strengthening their own departments, not for building links to others. Furthermore, faculty associated with research centers do not always fit in well with departmental priorities. A center's priorities may not necessarily coincide with those of an academic department. For example, there are instances wherein center faculty or programs of excellence desire to hire a faculty member to contribute uniquely to the mission of that unit. However, because the center holds no tenure line, it cannot serve as a tenure home for this individual, the "fit" to the home department or college must be made clear (and at times, convincing). This often affects the ability of the center to recruit individuals that best fit the center's mission and objectives, but not those of the department. When this is not clear, tension may arise between the center (who may have a compelling need for hiring a particular researcher) and the tenure home unit (who may see this situation as depleting valuable resources such as tenure lines).

Indeed, interdisciplinary research is not easy. Increased reporting requirements, additional paperwork, and administrative requirements often are perceived as interfering with interdisciplinary research. The time and resources devoted to interdisciplinary research and program development may be perceived as a threat to the existence of traditional programs if they divert existing activities or reduce efforts in other areas. In addition, policies regarding certain research activities and outcomes (e.g., credit, F&A, timelines) are not always consistent across the "two campuses" (City, East), and across the NU campuses (UNL, UNMC, UNO, UNK).

Financial issues and strains associated with return of overhead are apparent. Extra activities associated with interdisciplinary research can be perceived as a drain to department resources and supporting staff. When research centers are involved, the distribution of F&A between units (including centers) is not always clear or equitable. For example, traditional units (departments, colleges) respectively receive less F&A return when their faculty members work in an interdisciplinary capacity (across departments or colleges) or when they work with a center that supports grant writing and management activities through its unique infrastructure. Given the up-front investments often made by unit administrators (e.g., Deans, department chairs) to support faculty researchers (e.g., start-up equipment, laboratory space), equity in F&A return to those units is also necessary. A reduction in F&A may result in departments attempting to recoup revenues from centers; in administrators discouraging their faculty members from engaging in interdisciplinary work; or in faculty members needing to choose among different research support structures, none of which alone can fully provide all of the necessary infrastructure for extramural research. In all cases, missed opportunities for interdisciplinary collaboration places centers, departments, colleges, and the university at a competitive disadvantage.

Challenges with Evaluation and Merit

The traditional manner in which faculty are evaluated and rewarded at the university is not conducive to interdisciplinary efforts. Research that occurs outside of formal departmental units, or that is inherently interdisciplinary, is not always recognized. For example, some interdisciplinary units or centers exist on campus with no formal faculty appointments and no evaluation capacity. By definition and design, these units may attract faculty with interdisciplinary interests who aspire to work collaboratively in a synergistic research environment. However, these units and their administrators often do not have a mechanism to provide evaluative information on behalf of the person for purposes of merit or evaluation (e.g., retention, promotion, and tenure decisions). Thus, the work conducted therein, and its products, may go unnoticed in traditional evaluation activities. Similarly, publications and other activities not recognized as being in the home department's discipline may be considered valuable but not sufficient for tenure.

Beyond formal evaluation criteria, certain intangible aspects of interdisciplinary research contributions are challenging. Means for defining *quality* of interdisciplinary work are not available. Likewise, determination of contributions in joint, collaborative work is not always clear. For example, the "weight" of collaborative work is not always equal to that of independent work in decisions of RPT.

Recommendations Regarding Interdisciplinary Research

Promoting Interdisciplinary Research:

Excellence in interdisciplinary research requires visionary leadership, commitment, and resources. A vision of interdisciplinary research may begin with clear expectations and examples, support and reinforcement for interdisciplinary practices, and simple steps that nourish the practice of collaboration. This might be accomplished, for example, by creating more opportunities for faculty and students to work across disciplines and departments.

Mechanisms by which people are consistently made aware of the possibilities for interdisciplinary work must be developed, and researchers must have opportunities to interact and pursue interdisciplinary research projects. Targeted, interdisciplinary forums may be held to encourage people to interact and share ideas.

People are the key ingredient to interdisciplinary research. UNL administration should identify ways to entice leading researchers or hire new faculty to fill gaps in key areas (e.g., interdisciplinary cluster areas). It might be useful to identify existing senior faculty (or recruit some) that are doing promising interdisciplinary work and give them support to expand their efforts and include additional faculty, projects, etc. Positions may be established or redefined that allow for and encourage interdisciplinary research to occur. Faculty incentives, including hiring and tenure policies, should reflect and reward interdisciplinary research. Funding and relief from other duties must be provided. For example, seed money might be used to fund sabbaticals and visiting-scholar grants for senior researchers to work in multidisciplinary groups. Incentives might be developed that allow faculty to continue their education in fields complementary to their own.

Clarification on the appointment of faculty to interdisciplinary research units (such as centers) should be addressed. The manner in which interdisciplinary faculty are appointed, evaluated, and tenured should be explored by UNL administration. The authority of center directors housing interdisciplinary faculty should be reviewed, as should the relationship of faculty to center directors. In some cases, it may be desirable for programs and centers to establish their own priorities and hiring agenda, and the pros and cons of such appointments (particularly if they are intended to be tenure-leading) should be explored. Interdisciplinary FTEs could be established as recommended under the section on "Joint Appointments."

Maintaining Interdisciplinary Research Efforts:

Resources (time, money, space), and clarity regarding resource allocation, are necessary for fostering interdisciplinary research. There must be a clear and equitable policy on the distribution of F&A among units when interdisciplinary work is conducted. The F&A distribution for interdisciplinary work should be equitable to that used in departmentally-based, intra-disciplinary research ventures. An equitable solution should be identified, such that the return of F&A that is shared across multiple units (e.g., Colleges, departments, centers) is proportionate to that which would be received by respective units in the event of traditional intra-disciplinary or departmentally-based research. For example, when Colleges and centers share F&A, the amount returned to each is lower than when F&A is returned to one unit only. If a greater proportion of F&A is released by central administration, and that amount is shared equally across all relevant units, the end result may be equal to situations wherein the F&A is assigned to only one unit. This will ensure that Colleges and home departments are not penalized when their faculty members work in an interdisciplinary manner.

To minimize conflict between research and academic units, issues associated with shared faculty assignments and joint appointments across centers and academic departments should be considered. Likewise, UNL administration may explore the benefits and drawbacks of granting tenure within an interdisciplinary center.

For faculty engaged in interdisciplinary research, clear communication channels must be established among units, and between units and faculty members. Likewise, clarity in apportionment of duties to include interdisciplinary work embedded within research, teaching, and service is critical. Expectations for tenure and promotion must be established and communicated in each unit.

A mechanism by which center directors can participate in evaluations/decisions regarding P&T, merit, annual, and other evaluations should be considered. For example, interdisciplinary teams may be considered, wherein faculty members from multiple units and disciplines function as a team whose responsibility it is to evaluate faculty in unique interdisciplinary positions.

A consistent policy should be developed across campuses and units for what “counts” or how grant involvement is credited. That is, a consistent and equitable system for determining merit across units that is not tied to F&A should be considered. Credit for interdisciplinary research and grantsmanship must be awarded, regardless of whether a department or unit receives F&A for such work.

Conclusions and Action Items

We conclude by reiterating the point that interdisciplinary excellence is a matter of culture, principles, and leadership. The importance of this statement cannot be overstated. Mandates for interdisciplinarity will not materialize into meaningful ventures, nor will they sustain over time, if the culture at UNL is not one that actively encourages, promotes, and creates support mechanisms for novel cross-disciplinary approaches. The establishment of guiding principles that ensure equitable conditions for interdisciplinary work should be a priority. Finally, visionary leadership is necessary for determining short and long-term goals with clear and measurable outcomes. This may be accomplished through the work of central administration and possibly an executive or blue ribbon committee, charged with moving UNL to the “next level” in regard to interdisciplinary teaching and research.

Consistent with the organization of this report, we offer ten action items concerning teaching, joint appointments, and research. We encourage relevant and interested groups to review the rationale concerning these action items as presented in preceding sections for a thorough discussion on these complex matters.

Teaching

Action Item 1: UNL Deans, department chairs, and other appropriate level administrators, with support and direction from central administration, should consider policies that include clear guidelines for interdisciplinary and cross-listed coursework. This includes guidelines related to management of the course, curricular issues, and teaching responsibilities.

Action Item 2: UNL administration should consider reviewing policies for allocation of credit in cross-listed or interdisciplinary teaching arrangements. There needs to be assurance that existing practices coincide with policies, and that policies do not inadvertently deter teaching arrangements that cut across disciplines.

Action Item 3: UNL administration should consider establishing a common set of teaching and learning priorities, and concomitant evaluative criteria (including measures), that are common across the university. Whereas individual units may embellish evaluation tools to address unique needs, a common set of measures would standardize evaluation of faculty who practice across disciplines.

Joint Appointments

Action Item 4: UNL administration should consider the establishment of flexible policies that reflect the value of joint, interdisciplinary appointments, as well as the need for clarity around roles, expectations, apportionment, and evaluation criteria.

Action Item 5: UNL administration should consider the need for a renewed structure recognizing interdisciplinary faculty lines, with policies addressing the unique issues associated with interdisciplinary hires (e.g., promotion and tenure procedures and criteria).

Action Item 6: UNL Deans, department chairs, and other appropriate level administrators, with support and direction from central administration should investigate procedures used to determine merit when a faculty member's work cuts across units. A priori establishment of clear expectations and criteria may be beneficial in ensuring that issues of merit are handled equitably across units.

Research

Action Item 7: UNL administration should consider the pros and cons of establishing policies that allow flexibility in hiring, housing, and evaluating faculty in interdisciplinary research units (such as interdisciplinary research centers). This includes issues of joint appointments across interdisciplinary and traditional units, and issues associated with tenure leading positions in traditionally non-tenure homes.

Action Item 8: UNL administration should investigate flexible means to redefine existing structures and appointments, thereby allowing retraining or retooling of resources (e.g., faculty leaders, traditional units) to become competitive in an interdisciplinary research arena.

Action Item 9: UNL administration should consider revisiting retention, promotion, and tenure (RPT) criteria and procedures for faculty who are engaged in interdisciplinary research as a major aspect of their work. The degree to which existing policies enhance or hinder such work, and the appropriateness of invoking traditional criteria and practices, should be evaluated.

Action Item 10: UNL administration should investigate the current policy regarding return of F&A and determine whether existing practices unduly hinder interdisciplinary efforts. In particular, the need to explore (a) issues raised when faculty work across disciplinary lines or research units; (b) the potential proportional reduction in return to units when interdisciplinary faculty members or research units are involved; and (c) the benefits and drawbacks of alternative structures whereby equity in return can be retained.