

# InterConnection

## Interdisciplinary Studies at Duke

### Vice Provost's Translation by Cathy N. Davidson



Some of the most frustrating and exciting teaching I have done was in “Beginning Oral English for Non-English Majors” at one of Japan’s most prestigious women’s colleges. My brilliant students had had six years of English grammar, spelling, and reading in secondary school, but most had never actually met a *gaijin* (“foreigner”) before or spoken anything recognizable to my untrained ears as conversational “English.”

In this setting, I found that I couldn’t just focus on pronunciation or conversation; the questions my students asked inevitably required answers that went to the heart of cultural and philosophical issues. For example, the day I wrote “I hurt my leg” on the blackboard, a student asked me: “What do you Americans mean by ‘I’ and ‘my’ in that sentence?” Remembering that such pronouns are not used in conversational Japanese, I tried to answer grammatically, but my students were asking something more com-

plex. For the next class, I read some articles by comparative linguists on philosophical assumptions embedded in our respective languages. I also asked my students to find Japanese articles on the topic and write abstracts in English that could be the basis for future discussions. During that semester, in our rudimentary spoken English and Japanese, my students and I ended up tackling the predicate/nominative and subject/object structures in Indo-European languages, the mind/body problem in the West, the West’s bifurcation of “inductive” and “deductive” reasoning, and “rationality” in Japan and post-Enlightenment Europe. Some days, “Beginning Oral English” sounded like some odd, bilingual Platonic dialogue.

I repeat that anecdote here because it goes to the heart of inter-cultural exchange and also applies to the best interdisciplinary cross-talk. Disciplines shelter us, in both senses of that word. When we exchange in-

formation within the haven of our disciplines, we rarely explain our basic assumptions. We often use intellectual Morse Code—telegraphing points through the commonality of citation, genealogy (“he was a postdoc in X’s lab”), or in highly specialized terminology (“jargon”).

With interdisciplinarity, it is the code itself that requires translation. Instead of concise communication of our position, our explanations often need to go deeper, back to the fundamentals. We need to explain before we can explore what knowledge, methods, and terminology we share and what we do not. Without this act of translation, we don’t know if we can rely upon one another’s expertise in order to solve complex problems or discover something new.

One of the most interesting byproducts of interdisciplinary translation is the way the process of explaining can sometimes reveal anew those assumptions we have held so long that we are no longer even

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#### Special points of interest:

- John Harer, Vice Provost of Academic Affairs discusses Sciences & Interdisciplinarity
- Budget Deadlines
- Q & A with A& S Dean Bill Chafe

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Cathy Davidson, Vice Provost for Interdisciplinary Studies

## Translation (continued from p.1)

aware they are there (rather like my realizations in “Oral English” about the deep structures of Western philosophical thinking). Sometimes this reflection is irrelevant: we may not care if we operate from unexamined assumptions as long as the results are interesting. (Gravity did not require Newtonian explanation in order to work.) However, at other times, going back to basic assumptions can lead to revolutionary discoveries that can happen across fields—and, perhaps even more significantly, in one’s own thinking.

**“We need to explain before we can explore what knowledge, methods, and terminology we share and what we do not.”**

Cathy N. Davison

## John Harer on Sciences & Interdisciplinarity

**IC:** *What are the most exciting interdisciplinary research agendas going on in the Sciences at Duke?*

**JH:** There are so many exciting things happening right now it’s hard to choose which to discuss! Certainly the biggest and broadest program we have is the Institute for Genome Sciences and Policy—the IGSP. Our strength in genomics builds on that of the Medical Center and the Biology Department, both top ranked. Our priority in genomics reflects the leadership that the Life Sciences have taken in the scientific agenda of our times, a role that will certainly last for many years to come. Our signature programs in genomics focus on Breast Cancer, Cardiovascular Disease, Environmental Genomics and Evolutionary Genomics. To solve the problems that arise in these programs we must bring expertise to bear from many disciplines outside the biological sciences including Chemistry, Computer

Science, Mathematics, Physics and Statistics. This reflects the fact that biology itself has become more quantitative, presenting enormous amounts of data that needs analysis and numerous challenging problems in characterizing biological structures and modeling how they work.

Another important research agenda in the sciences and engineering is Materials, addressed in our Materials Initiative. Everything around us is some kind of material—how do we understand the structure of these materials? -how do we build better materials? Our initiative has three, tightly linked parts. One is led by the Center for Biologically Inspired Materials and Material Systems and focuses on building new devices out of biological materials. The second is a growing program in Nanosciences, with many faculty working in this area and a new effort currently underway to create a graduate program. The third part, which ties all this

together, is the recent creation of two new shared facilities for materials research.

Instruments in these facilities are generally too expensive for any single lab to own or manage. Therefore, this new shared facility helps to bring together researchers for new collaborations while simultaneously providing a way for expensive research to take place that might not have otherwise.

There are many other exciting things going on right now, including new and stronger programs that are emerging in Chemical Biology, Computational Sciences and Engineering, Global Change, Neural Analysis, Photonics, etc. Not all will succeed of course, but the amount of activity is incredible.

**IC:** *What do you see as the benefits of interdisciplinary research? The challenges?*

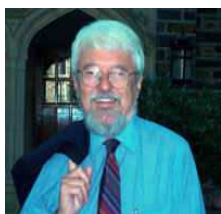
**JH:** An interdisciplinary perspective is essential when important problems arise within one’s discipline that require the expertise of others. For example, analyzing



John Harer, Vice Provost for Academic Affairs

*“Perhaps the two biggest challenges of interdisciplinary research are the acceptance of interdisciplinary work by the disciplines and the incorporation of the interdisciplinary perspective into undergraduate and graduate curriculum”*

**John Harer, VP  
Academic Affairs**



**Bill Chafe,  
Dean of Arts  
& Sciences**

## Science & Interdisciplinarity (continued from p.2)

information from experiments in biology often requires statistical methods, image processing methods, machine learning methods, etc. Developing small molecules that can serve as drugs requires the special skills of a chemist. Modeling biological, environmental and other complicated systems requires the tools of non-linear and computational sciences. The list goes on and on.

Perhaps the two biggest challenges of interdisciplinary research in the sciences and engineering are the acceptance of interdisciplinary work by the disciplines and the incorporation of the interdisciplinary perspective into the undergraduate and graduate curriculum. A good portion of interdisciplinary research involves understanding

which techniques from one field can be applied to solve problems in another. It takes a lot of time to overcome the language problem (master the technical vocabulary of another discipline) and to figure out what is and what isn't fundamental about a problem. The research is often less about developing new techniques in one's home discipline than it is about figuring out how to adapt and apply existing techniques in new ways. This kind of work is often not appreciated initially, but ultimately it broadens and deepens the work in the disciplines involved. On the curricular side, these areas are moving and changing so fast that it's difficult to keep graduate courses up to date. And new undergraduate courses have to be introduced at the expense of existing ones.

This often means a major overhaul of the undergraduate curriculum, something that is both time consuming and disruptive for a program. But this is all part of what keeps a discipline thriving.

**IC:** *What does the future hold for interdisciplinary research in the sciences at Duke?*

**JH:** One of Duke's great strengths and advantages is in interdisciplinary areas. Given the size and scope of the important problems of our day, and the ever increasing focus on teams of researchers by funding agencies, this is inevitable. The universities that can move to support this kind of research and teaching, and remove the barriers that slow it down, will be the leaders in the next century.

## Q & A with Dean Chafe Interdisciplinarity at Duke

*What are the most exciting interdisciplinary programs going on in A&S today, focusing on the Humanities?*

There are three areas that merit comment. The first is our undergraduate curriculum, where the FOCUS program continues to be a national model for bringing to bear the strengths of interdisciplinary approaches as a means of discovering multiple perspectives on a given thematic area. In the "Exploring the Mind" FOCUS program, for example, students can learn about the emergence of human consciousness by studying neurobiology, psychology, philosophy and religion, then bringing all these perspectives together in their writing classes, and in their once a week colloquium with all their professors.

A second exciting area is our Americas Studies initiative. Chaired by Jan Radway of the Literature program, this group of faculty members from four or five different disciplines is seeking to reconceptualize the ways in which we think about our hemisphere, tracing the ways that different ethnic cultures interact, and how social constructions of national identity are shaped. This program, to be the topic of our New Beginnings seminar next year, will help Duke to continue its position of leadership in innovative approaches to culture and identity. (continued on p. 4)

Ideally, the lessons we learn and the insights we gain from studying multiple disciplines should enable us to go back to our home departments and enrich them with our new understanding  
 Dean Chafe

## Dean Chafe (continued from p.3)

A third area of great importance is the Center for Genome Ethics, Law and Policy where we are trying to bring to bear the wisdom of the past and the perspectives of different religions and cultures on the crucial scientific and ethical decisions that have to be made about how we use our knowledge of the human genome.

*What do you see as the challenges facing interdisciplinary Programs?*

The greatest challenge we face is developing a healthy dialectic between

interdisciplinary studies on the one hand, and the need to nurture and deepen the strength of our departmental and disciplinary cultures on the other. Ideally, the lessons we learn and the insights we gain from studying multiple disciplines should enable us to go back to our home departments and enrich them with our new understanding. But too often, interdisciplinary programs become such a magnet in their own right that they drain energies from home disciplines rather than replenish them.

*How do you envision the future of Interdisciplinarity in the Humanities at Duke?*

I think that Duke must continue to make interdisciplinarity its major intellectual signature. It is what we do best, in ways that few other institutions can match. Only by sustaining this strength, particularly at the intersection of the humanities and the interpretive social sciences, can Duke realize its promise and potential as a national and international leader.

**“Interdisciplinary administrators and management center leaders together are responding to the administrative challenges interdisciplinary initiatives pose”  
 Laura Scholsberg,  
 Financial Analyst**

## Numbers DO Tell a Story by Laura Schlosberg

Why is a Russian historian working in academic financial administration? This question, coupled with puzzled looks, often greets me when I meet new administrators. Although a Ph.D. is not the most typical training for a financial position, the research and analytical skills that historians use readily transfer to financial analysis. Having experience with interdisciplinary research and an interest in academic administrative culture helps me understand the goals and challenges of Duke’s interdisciplinary initiatives. Not only do these initiatives break ground intellectually, they also do so within the existing administrative structures. Duke leaders are integrating the new initiatives and responding to the unique needs of new units.

Over the past four years Duke has been rolling out the SAP R/3 system (new budget software), necessitating changes to various financial policies and procedures. The entire university and health system is making this transition. By including interdisciplinary units in this rollout Duke is recognizing interdisciplinary units as part of the university. While many new administrators feel overwhelmed by these changes on top of their other responsibilities, it is important to remember that *all* of Duke is affected by this transition. We have included interdisciplinary units in the Provost’s Area Management Center user group, a forum for demonstrating new financial reports and answering questions about financial systems. The units also follow

the same budget calendar as the rest of the university and health system. At an administrative level, these are messages that interdisciplinary units belong to Duke community.

At the same time, Duke’s administrators are adapting to interdisciplinary initiatives. New units are assigned their own Budget and Financial Reporting Code (BFR Code) based on their reporting lines. For interdisciplinary initiatives under the Provost’s Office BFR, the Vice Provosts are studying long-range funding for core operating costs. In Human Resources they devote additional time researching new positions created for interdisciplinary units because these positions are sometimes unique both within Duke and nationally. (continued on p. 5)



## Numbers DO Tell a Story (continued from p.4)

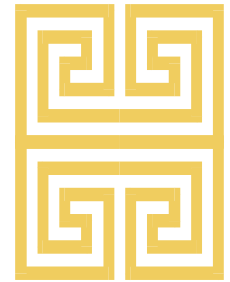
We recognize that new units in particular must juggle ramping-up activity and learning Duke's systems. People *can* learn these financial systems, and these responsibilities are just as crucial as the initiative's more creative and public programmatic activities. An analogy I often use is that financials are like a foreign language, or you may have heard the phrase "the numbers tell a story." Cost Objects and WBS Elements are nouns, while GL Accounts are verbs in Duke's financial language. (To extend the metaphor, the GAP manual is your dictionary.) The financial statements and budgets then serve as simple narrative texts – quantitative expressions of an initiative's goals and activities.

However, the financial reports and budgets still require a written account to tie expenditures to what a unit has accomplished and to clarify what has changed over time. Without this financial information, leaders cannot assess an initiative's accomplishments, areas of concern, or projected changes.

Interdisciplinary administrators and management center leaders together are responding to the administrative challenges interdisciplinary initiatives pose. Throughout the year this column will highlight the unique situations created by interdisciplinary units in Duke's administrative processes.

### BUDGET Announcements

- 9/9** Pillar Budget Modifications files available.
- 9/24** Pillar Budget Modifications files due back on Gibraltar.
- 9/30** Pillar training for Fall Variance Reports: morning session new users, afternoon session is a refresher
- 10/07** Fall Variance Pillar files distributed
- 10/21** Fall Variance Pillar files due back with a report to the Provost's office
- 10/7** Pillar Budget Modification files available on Gibraltar.
- 10/29** Pillar Budget Modification files due back on Gibraltar
- 1/06/2004** Spring Variance Pillar files distributed
- 1/20/04** Spring Variance Pillar files due back with report to Provost's office



## INTERESTED IN INTERDISCIPLINARY STUDIES AT DUKE?

**FOCUS PROGRAM** (First – year Opportunity for Comprehensive, Unified Study) is Duke's innovative learning experience for incoming students.  
<http://pmac.aas.duke.edu/focus>

**PROGRAM II** provides an alternative self-designed degree program for undergraduates at Trinity College.  
[www.aas.duke.edu/trinity/program2](http://www.aas.duke.edu/trinity/program2)

**CERTIFICATE PROGRAMS** By completing a certificate program, one is able to supplement one's undergraduate education with a course of study that affords a distinctive, usually interdisciplinary, approach to a subject not available in any single academic unit.  
<http://pmac.aas.duke.edu/trail/majors.html>

**GRADUATE SCHOOL** For additional information on graduate degrees and graduate certificates go to:  
[http://www.gradschool.duke](http://www.gradschool.duke.edu/scripts/cfml.exe?template=/duke/programs/programs.cfm)

[.edu/scripts/cfml.exe?template=/duke/programs/programs.cfm](http://www.duke.edu/main/academics/centers.html)

**Centers and Institutes at Duke** go to:  
<http://www.duke.edu/main/academics/centers.html>



**What is the process for creating a certificate program both at the undergraduate and graduate level? See next month's issue!**



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## Announcements / TIPS

- 9/12 First Proofs for Spring 2004 Spring schedule returned from departments
- 9/22 Program II information meeting, 4:00-5:00 pm. Breedlove Room, Perkins Library
- 9/26 IAWG Meeting, FC room 240 8:30-9:30 a.m.
- 9/26 Deadline for submitting Spring/Summer 2003 work for I and X grades. Applications for Program II due in O4 Allen by 5:00 pm
- 10/10 Fall Break begins except for Law & Fuqua (and Day MBA) 5:00 pm
- 10/13 Fall Break begins for Law & Fuqua (Day MBA)
- 10/15 Classes resume (except Law & Fuqua)
- 10/21 Program II information meeting 4:00-5:00 pm, Breedlove Room, Perkins Library
- 10/24-10/26 Parents Weekend
- 10/24 IAWG Meeting, Grants, Corp & Foundation Relations & Development Officers, 8:30-9:30 a.m. FC room 240, contact [celeste.lee@duke.edu](mailto:celeste.lee@duke.edu) for more information
- 10/29 Spring 2004 Semester registration begins
- Information about Program II is available on the website [www.aas.duke.edu/trinity/program2/#meetings](http://www.aas.duke.edu/trinity/program2/#meetings)
- Registrar's Processing Calendar [www.registrar.duke.edu/registrar/DUS\\_DGS/calendars](http://www.registrar.duke.edu/registrar/DUS_DGS/calendars)