

Interdisciplinary Instruction: Designing a Course, Creating a Syllabus

Sarah Messbauer

University of California, Davis Department of Music, Davis, CA 95616

Motivation

Our globalized, digitized, twenty-first century world has radically disrupted the traditional landscape of higher education.¹

The top ten in-demand jobs of 2010 did not exist in 2004, and the average college graduate will have anywhere from 10-14 jobs by the age of 38.²

"We are currently preparing students for jobs that don't yet exist . . . using technologies that haven't been invented . . . in order to solve problems we don't even know are problems yet."¹

While the goals of higher education certainly involve more than simply "preparing students for jobs, technologies, and problems, one broader and exceptionally clear point emerges: We need to prepare students for what we can't prepare them for."³

Professors in a 21st century education environment need to focus less on helping their students learn specific skills and more on helping those students *learn how to learn*.

Familiarity with interdisciplinary instruction—with its focus on the cultivation of transferrable skills and flexible thinking across disciplines—is a critically important component of a well-rounded twenty-first century academic.

But according to a recent study as many as seventy percent of graduating PhDs have not had the opportunity to plan their own course.⁴

It is for this reason that, in an increasingly competitive job market, knowledge and experience with these kinds of skills are starting to be ranked as highly desirable—in some cases more so than a cutting-edge research profile.⁵

Structure

Two-part workshop series: designed to give participants insights into the course proposal process while at the same time integrating information on interdisciplinary instruction.

Three different levels of exposure:

1. Scholarly literature on interdisciplinary instruction



2. Discussion with faculty



3. Course design workshop

Execution



The featured panelists for the roundtable discussion were:

Ian Faloon

Associate Professor and Bio-Micrometeorologist in the Land, Air, Water Resources Department: Instructor for "Geophysical Dance" course

Diane Ullman,

Professor of Entomology in the Entomology and Nematology Department and Co-Founder of the UC Davis Art/Science Fusion Program

Terry Nathan,

Professor of Atmospheric Science in the Land, Air, Water Resources Department: Instructor for "Photography: Bridging Art and Science" course



Results

Participants understood more about teaching interdisciplinary courses than they did before participating in the workshops:

90% of participants strongly agree

Attending the workshops was a worthwhile investment of their time:

95% strongly agree

Workshops and discussions on interdisciplinary course design should be repeated or continued in future quarters:

100% strongly agree

They are interested in learning more about interdisciplinary instruction:

95% strongly agree

Conclusions

There is a strong interest in interdisciplinary instruction at UC Davis

Campus institutions should do what they can to enable the further development of these types of courses

Future workshops can and should focus on different ways to define interdisciplinarity and the practical concerns of teaching these courses.

Further Resources

Works Cited:

- Fisch, Karl and Scott McLeod. 2015. "Shift Happens." YouTube Video, Accessed 12 February 2013.
- U.S. Department of Labour. 2012.
- Corrigan, Paul T. 2013. "Preparing Students for What We Can't Prepare Them For." *Teaching & Learning in Higher Ed.* Website, Accessed 23 May 2016.
- Golde, C. M. & Dore, T. M. 2001. "At Cross Purposes: What the experiences of doctoral students reveal about doctoral education." Philadelphia, PA: A report prepared for The Pew Charitable Trusts. Webiste, Accessed 12 March 2016.
- Jacob, W. James. 2015. "Interdisciplinary Trends in Higher Education." *Palgrave Communications*, 1.

Further Resources:

- UC Davis Art/Science Fusion Program. artsciencefusion.ucdavis.edu
- The School of Education at UNC Chapel Hill: This site provides a basic reference article which explains the concept of interdisciplinary teaching and discusses considerations for developing interdisciplinary curriculum with an emphasis on K-12 education. <http://www.learnnc.org/lp/pages/5196>
- The Center for Teaching and Faculty Development at San Francisco State University: This site provides 10 instruction strategies to guide those engaged in interdisciplinary teaching. <http://ctfd.sfsu.edu/feature/top-ten-suggestions-for-interdisciplinary-teaching>
- Office of Faculty and Organizational Development at MSU: Compiled by Lois Rosen and provides links to articles on a range of topics associated with interdisciplinary teaching including the use of this pedagogical form in the Service Learning context. <http://fod.msu.edu/oir/TeachingMethods/interdisciplinary.asp>
- The Science Education Resource Center (SERC) at Carleton College: This site provides an array of information on the ways in which interdisciplinary forms of learning have been integrated into science education. <http://serc.carleton.edu/departments/future/interdisciplinary.html>

Acknowledgements

I would like to thank UC Davis Graduate Studies, GradPathways, and the Professors for the Future Program for their support of this project. Thanks also to the UC Davis Department of Music for co-sponsoring the events, and to the three panelists featured at the roundtable event: Diane Ullman, Ian Faloon, and Terry Nathan. Special thanks to Wendy Silk for her ongoing mentorship and support on issues related to interdisciplinary instruction!

Professors for the Future, 2015-2016



PFTF Fellow: Sarah Messbauer

Program: Music

Major Professor: Henry Spiller

Project Title: "Interdisciplinary Instruction: Designing a Course, Creating a Syllabus."

Project Summary:

Designing and proposing courses is a fundamental part of being a successful teacher, but it is a process with which most graduate students and postdocs have little to no experience. This two-part workshop series was designed to address that gap by giving participants insights into the course proposal process while at the same time integrating information on interdisciplinary instruction—an increasingly sought-after teaching skill at institutions across academia.

Part one of this two-part series provided workshop participants with the opportunity to hear about first-hand experiences with interdisciplinary course design from faculty at UC Davis. In this facilitated question and answer session, panelists from across the humanities, social sciences, and STEM fields discussed their motivations for developing their courses as well as some of the most significant benefits and challenges of teaching courses of this type. In doing so, workshop participants were given a clearer picture of how the interdisciplinary course design process works from start to finish, including details on subjects as specific as how to develop an idea, who to contact to help them develop their course idea, when it's appropriate to involve a co-teacher and how to find one, and how to put all of this together into a successful course proposal application.

In part two, participants applied the information they were given in session one as they outlined course proposals for their own interdisciplinary classes. Working both independently and in small groups, participants first brainstormed interdisciplinary course ideas based on subjects of interest to themselves or their disciplines. Next participants were guided through a rough syllabus design process using backwards design principles, which allowed them to both identify and plan for the potential challenges in mounting their specific classes. At the conclusion of the workshop, participants were provided with a range of resources for further developing, proposing, and teaching their courses at UC Davis and elsewhere.

Based on the response to these workshops, there is a keen interest in interdisciplinary course design among UC Davis graduate students and postdocs. In conversations with interested participants, many expressed a sincere appreciation for a workshop series that focused on providing attendees with the opportunity not just to learn more about the philosophies of interdisciplinary instruction, but also to apply that knowledge directly by creating course proposals of their own.

University of California, Davis