

## Mixing It Up! Collaborating Across the Disciplines

### Make an Existing Course Interdisciplinary

#### Approaches

- Concept mapping
- Role-playing
- Storytelling/narrative
- Industry/academy partnerships
- Community service learning
- Data mash-ups
- Student pairs/teams
- Problem-based learning
- Social media
- Intercultural/international learning

#### Resources

- **Balen, R., C. Rhodes, & L. Ward. (2010). The Power of Stories: Using Narrative for Interdisciplinary Learning in Health and Social Care. *Social Work Education* 29(4), 416-426.**

This paper discusses the aims, process and outcomes of an interdisciplinary workshop day held for undergraduate students from Social Work, Mental Health Nursing, Adult Nursing, Midwifery and Occupational Therapy courses. Activities focused on mental health and were based on the use of service user narrative. The feedback from the students showed that the day allowed them to interact with and explore the perspectives of different professional groups; assisted them in understanding the lived experience of mental health difficulties; offered them the opportunity to consider implications for practice; was enjoyable and added 'value'.

- **Babaian, C., & Twigg, P. (2011). The Power of Plants: Introducing Ethnobotany and Biophilia into Your Biology Class. *American Biology Teacher* 73 (4), 217-221.**

The authors examine the interdisciplinary nature of ethnobotany from a broad perspective and consider its application to the biology classroom and lab. The concept of biophilia and students' relationships with plants are integral components. Botanical nature journaling, discussion of diverse cultural practices, and collection of plants are used to encourage students' interest in local plants. Interwoven with these topics is a plant/microbial lab, which focuses on the local environment and the potential antimicrobial properties of plant parts.

- **Borrego, M., et al. (2009). Using Concept Maps to Assess Interdisciplinary Integration of Green Engineering Knowledge. *Advances in Engineering Education*, 1(3), 1-26.**

Engineering education has started to explore the benefits of concept maps as an assessment technique for knowledge integration. Because they allow students to graphically link topics and represent complex interconnections among diverse concepts, we argue that concept maps are particularly appropriate for assessing interdisciplinary knowledge integration. The results from a year-long study of a design course in green engineering attest to the viability of this approach.

- **Johansen, D., C. Scaff, & J. Hargis. (2009). Interdisciplinary Project-Based Model for Enhanced Instruction of Courses. *International Journal for the Scholarship of Teaching and Learning* 3(1), 1-14.**

This study examines the ability of an interdisciplinary group project to develop student's abilities to

work successfully in groups in a creative context. Group dynamics were investigated via interaction effects between students in a Graphic Design and Marketing class project. As a result of the project, student perceptions concerning the importance of creative contributions, as well as group participation factors became more positive, demonstrating that interdisciplinary group projects with students in a creative discipline offer business students a unique “outside the box” learning opportunity.

- **Nardone, C. F., & Lee, R. G. (2011). Critical Inquiry Across the Disciplines: Strategies for Student-Generated Problem Posing. *College Teaching*, 59(1), 13-22.**

Problem posing is a higher-order, active-learning task that is important for students to develop. This article describes a series of interdisciplinary learning activities designed to help students strengthen their problem-posing skills, which requires that students become more responsible for their learning and that faculty move to a facilitator role. Developing students’ problem-posing skills and allowing them to grapple with course content can lead to deeper levels of understanding and improved critical thinking. In turn, students are more likely to be able to move their newfound knowledge beyond the classroom.

- **Nadolski, J., & Smith, L. A. (2010). Combining Efforts to Encourage Student Research in Collaborative Quantitative Fields. *Primus: Problems, Resources, and Issues in Mathematics Undergraduate Studies* 20(3), 228-244.**

More than ever, it is a requirement to have a solid background in multiple fields to fully understand emerging scientific advances. We need to equip our undergraduate students with an introduction to these modern concepts and the ability to apply them in future careers. To address this need, we have combined undergraduate research students from both biology and mathematics departments to work together on projects requiring input from both perspectives. Students work side by side performing experiments, analyzing data, and teaching each other pertinent background information. Students benefit from this research since they encounter real-world data sets, requiring knowledge beyond the typical textbook examples. Students also participate in journal clubs to stimulate discussion of experiments and to improve data analysis skills. This type of collaborative learning can also be applied to small classroom settings.

- **Nielsen, J.D., X.Y. Du, & A. Kolmos. (2010). Innovative Application of a New PBL Model to Interdisciplinary and Intercultural Projects. *International Journal of Electrical Engineering Education*, 47(2), 174-188.**

In the knowledge society, learning is not only knowledge acquisition or participation in established social practice. It is also a process of creating new knowledge collaboratively when addressing complex problems which involve interdisciplinary knowledge and innovative thinking. The authors focus on questions of how to prepare engineering students for the increasing complexity of their professional lives and how to help them acquire skills of collaboration, management and innovation as well as awareness of knowledge creation. This paper discusses these questions by examining the learning process in the ICT-based, intercultural and interdisciplinary PBL environment of an international student satellite project.

## Links

- **Making an Existing Course Interdisciplinary (UBC Wiki):**  
[http://wiki.ubc.ca/Interdisciplinary\\_Course\\_Design](http://wiki.ubc.ca/Interdisciplinary_Course_Design)
- **UBC Mix:** <http://www.terry.ubc.ca/mix/>