

From Cases to Collaborations: A Scalable Framework for Interdisciplinary Talent and Workforce Development

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Abstract

This presentation shares globally relevant, practice-based strategies through an industry- and partnership-ready educational framework that builds interdisciplinary talent, strengthens professional skills, and supports durable research and business collaborations. We introduce a scalable, case-based model that integrates teaching, research, and curriculum co-design, positioning undergraduates as active contributors to knowledge creation while developing high-demand competencies—critical thinking, problem solving, communication, and teamwork—needed to address complex societal and workforce challenges. Results from multiple course implementations show improved engagement and learning outcomes, and we outline practical requirements for scaling, including staffing, assessment, partner coordination, and large-enrollment delivery.

Reframed as a cross-sector approach, the case method uses authentic problems from scholarly literature, current events, and stakeholder needs to drive inquiry, discussion, and evidence-based decisions. Our interdisciplinary Chemistry and Art course demonstrates curriculum co-created with external partners (including museum professionals) that bridges scientific, cultural, and economic perspectives. Undergraduate researchers develop instructional materials and hands-on activities, producing shareable assets and creating pathways for sponsorship and applied collaboration. We conclude with actionable guidance for launching partner-engaged, internationally transferable programs that train the next generation of leaders in industry and academia—advancing innovation through both research partnerships and workforce development.

Index Terms

Case-Based Learning, Undergraduate Research Integration, Interdisciplinary Education, Collaborative Curriculum Design, Experiential Learning