

ENGR 3002 (CRN 26509)/BIOSC 3002 (CRN 26572)/CHEM 3002 (CRN 26521)
Advancing Learning Through Evidence-Based STEM Teaching

Days/Time	Thursdays 4:30 – 5:20 pm
Credits	1 credit
Location	Benedum Hall, room 318
Facilitator Contact Information	<ul style="list-style-type: none"> • Dr. April Dukes, <i>Faculty and Future Faculty Director, Engineering Education Research Center, Pitt-CIRTL Coordinator</i>; (412) 383-6014, B12 Benedum Hall; aprila@pitt.edu • Dr. Sam Donovan, <i>Lecturer, Biological Sciences</i>; 247 Crawford; (412) 624-4825; sdonovan@pitt.edu • Dr. Joseph Grabowski, <i>Associate Professor and Director of Undergraduate Studies, Chemistry</i>; 705 Chevron; (412) 624-8632; joeg@pitt.edu • Dr. Mary Besterfield-Sacre, <i>Associate Dean for Academic Affairs – Swanson School of Engineering, Nickolas A. DeCecco Professor, Industrial Engineering, Director, Engineering Education Research Center</i>, 148 Benedum Hall; (412) 624-9836; mbsacre@pitt.edu
Course Description:	<p>This course is designed for graduate students and postdocs preparing for academic careers in the STEM disciplines and interested in learning how to apply research principles to their disciplinary teaching. The primary focus of this course is to provide an introduction to "teaching-as-research (TAR)" - defined as "the deliberate, systematic, and reflective use of research methods to develop and implement teaching practices that advance the learning experiences and outcomes of both students and teachers." The course will utilize material presented in a Massive Open Online Course (MOOC) available through EdX.org and sponsored by the Center for the Integration of Research, Teaching and Learning (CIRTL). Participants will learn about effective teaching strategies and the research that supports them in addition to learning how to collect, analyze, and act upon their own evidence of student teaching.</p>
Textbook & Readings	<ul style="list-style-type: none"> • Videos and course materials will be made available on CourseWeb. • YouTube channel for course videos: https://www.youtube.com/playlist?list=PLJgGu0Z0ByF8nptqWtNW_25KnxSf5vznzb
Course Objectives	<ul style="list-style-type: none"> • Summarize and differentiate the evidence-based teaching research types: Scholarship of Teaching and Learning (SoTL), Discipline-based Education Research (DBER), and "Teaching-as-Research" (TAR). • Utilize your discipline-specific research to develop a plan for a TAR project. • Evaluate peer TAR project plans.
Participation	<ul style="list-style-type: none"> • This course is pass/fail (if taken for graduate credit). • You must attend 9 of the classes to pass if taken for graduate credit. • Attendance and participation in discussions is highly encouraged.
Assignments	<ul style="list-style-type: none"> • Watch Assigned Videos prior to class. • Participate in class discussions and activities. • Create a plan for a teaching-as-research project. • Provide peer-review for fellow classmates' plans.

ENGR 3002 (CRN 25739)/BIOSC 3002 (CRN 24489)/CHEM 3002 (CRN 25750)
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Spring 2019 Course Schedule
Thursdays 4:30 – 5:20pm

Date	Title	Topics	Speakers
Jan 10	Welcome	<ul style="list-style-type: none"> Syllabus Course Objectives and Requirements Pitt-CIRTL Practitioner level requirements 	April Dukes (Pitt-CIRTL)
Jan 17	Topics for Education Research	<ul style="list-style-type: none"> What questions do you have about teaching? Intro to TAR-on-a-page Developing a question 	April Dukes (Pitt-CIRTL)
Jan 24	Introduction to Evidence-Based Teaching	<ul style="list-style-type: none"> What is the Scholarship of Teaching and Learning (SoTL)? What is Discipline-Based Education Research (DBER)? Where does Teaching-As-Research (TAR) fit in? 	Sam Donovan (Biological Sciences)
Jan 31	What is a TAR Project?	<ul style="list-style-type: none"> Key elements of a TAR project – how to get started TAR project “speed dating” 	April Dukes (Pitt-CIRTL)
Feb 7	Problem-Based Learning & POGIL	<ul style="list-style-type: none"> What is PBL? POGIL? What’s it like using these techniques in a course? 	Sean Garrett Roe (Chemistry)
Feb 14	Accessing Education Literature	<ul style="list-style-type: none"> What is education literature? Where can I find it? 	April Dukes (Pitt-CIRTL)
Feb 21	Flipped Classroom	<ul style="list-style-type: none"> The advantages of flipping your class Holding your students accountable 	David Nero (Physics)
Feb 28	Inclusion and Diversity	<ul style="list-style-type: none"> Benefits of utilizing diversity in the classroom Strategies for promoting inclusive teaching 	Amina Shehu (Pharmacy)
Mar 7	Workshop: TAR Project Development		Joe Grabowski (Chemistry)
Mar 14	Spring Break- no class		
Mar 21	Inquiry Based Labs	<ul style="list-style-type: none"> What advantages and challenges are there to leading an inquiry-based lab? 	Katie Wagner (Biology) Kitty Liu (Chemistry)
Mar 28	Human Subjects Research Requirements	<ul style="list-style-type: none"> IRB basics Submitting through PittPro Changes to the ‘Common Rule’ 	Larry Ivanco (Human Research Protection Office)
Apr 4	Using Surveys to Guide Instruction	<ul style="list-style-type: none"> How to use informal assessments to improve instruction. 	Take home lesson
Apr 11	Workshop: TAR Project Development	<ul style="list-style-type: none"> Work on your TAR plan. 	Joe Grabowski (Chemistry)
Apr 18	TAR Project Peer Review	<ul style="list-style-type: none"> Bring 5 copies of your TAR project proposal outline for peer review. TAR Projects Proposal Due 	Sam Donovan (Biological Sciences)
<i>Apr 24 4-5pm</i>	<i>CIRTL Certification Ceremony *attendance is not required</i>	Benedum Hall Room 102	

- Dates in red** are days that April Dukes will be traveling, so Sam and/or Joe will be in charge of attendance.