REALISE

Realising Inclusive Science Excellence

October 2018

What is REALISE?

The challenge: From 2013-2015, Biology, Chemistry, and Physics retained ~50% of new majors. Another subset persisted, but didn't thrive academically or engage in the experiences we know are most impactful for our students.

The goal: To improve student success through strategic, evidence-based reforms targeting freshman, sophomore and transfer students.

The rationale: We know close student-faculty relationships, mentored research, student STEM clubs, and the like are amazing for our students. But we lose ~1/2 of our students before they can participate in our most valuable experiences. More students will succeed if we can provide those experiences earlier, and critically, provide them within courses where they are available to everyone.

What REALISE offers faculty:
- Support to pursue impactful and inclusive educational practices, such as project-based learning and course-embedded research projects.
- Opportunities to just talk with your colleagues about what works for them, in their classrooms.
- Time – time to reflect, think, plan, and implement the kind of lessons you wish you had the time to do.

What REALISE offers students:
It may be surprising, but most students drop out of STEM not from disinterest or inability to meet the academic challenges, but because they don't feel like they belong, or don't feel welcome. Thus, REALISE is trying to generate stronger social and academic support networks among student peers and between students and faculty.

Highlights:

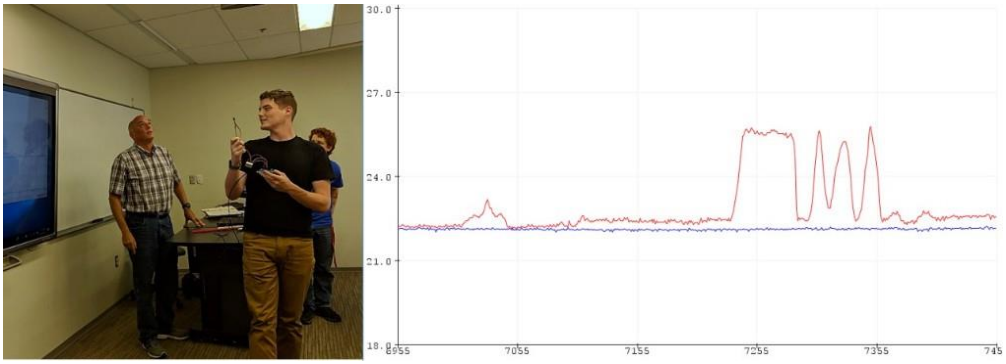
Course Spotlight: Teaching thermo-dynamics through project-based learning.

Let's talk! How do you help students change course after a disappointing exam?

Peer Role Model Drop-In Sessions offer near-peer support.

STEMed Reading Group meets alternate Fridays @ 2pm. Join the conversation about teaching "New Majority" students.

Course Spotlight: PHYS 330



Left: PHYS 330 students AJ Greene and Connor Parks use an Arduino microcomputer with a temperature probe to measure the infrared radiation (IR) being emitted by an overhead light fixture. Professor Rhett Herman supervises. Right: A software logs real-time IR data on a plot like the example pictured left.

Rhett Herman (Physics) re-designed **PHYS 330 Thermodynamics and Statistical Mechanics,** a lecture-based course on thermal physics, after attending a workshop on project-based learning hosted by REALISE and the Worchester Polytechnic Institute in January 2018.

In the newest iteration of PHYS 330, students apply principles of thermo-dynamics to a real-world problem. Their task? Analyze the energy inflows and outflows of a building on Radford's campus. Assignments due every ~2 weeks build to a research poster that students will present a forum at the end of the semester.

Thoughts from Rhett:

What does a typical day of class look like?: The class is broken up into 15 minute chunks. Rhett lectures for 10 minutes, then students derive equations related to their projects for 5 minutes.

What has been the biggest challenge so far?: "Creating the project grading rubric. This was a pain."

What would "success" look like for you in this class?: "Students being able to write down on their resume that they can analyze energy flows for an engineering company."

Thinking about embedding a project-based learning assignment in one of your classes? Check out Rhett's project description and grading rubric on the REASLIE D2L page for ideas. *If this link doesn't work for you, you may need to contact Tara to be added to the D2L page.*

A Nudge Towards Success?

How can we help students change course after a disappointing exam? Short emails "nudging" students in a new direction might be something to consider. The purpose of these "nudges," as described in a recent article in *The Chronicle of Higher Education*, is to acknowledge the student's performance, prompt the student to think about what went wrong, and suggest actionable steps to improve, such as joining a study group or attending office hours.

There is evidence supporting the efficacy of this simple strategy. In a working paper, Carrell *et al.* showed that students in an introductory microeconomics class randomly assigned to receive short, supportive emails after first exam scored significantly higher on subsequent exams than peers who did not.

Do you send "nudge" emails to students after the first exam? What other tactics do you use to help students change course? Join the conversation on the REALISE D2L page to share your strategies with colleagues. *If this link doesn't work for you, you may need to contact Tara to be added to the D2L page.*

Peer Role Models

Ashley Austin introduces the Peer Role Model program to BIOL 131 students.

300+ students reached

The **Peer Role Models** are a group of 12 students majoring in Biology, Chemistry, or Physics offering tips and tricks to help new STEM majors succeed. Since the beginning of the semester, Peer Role Models spoke at 12 science classes and in a mandatory meeting for new biology majors, reaching over 300 Radford science students.

Peer Role Model Leslie Molina-Arana (front right) shares scheduling tips with chemistry students Jacey Estep, Rebecca Salen, and Kayla Snyde at a Drop-In session.

Drop-In Sessions

The Peer Role Models are now hosting **Drop-In Sessions.** Students can stop by to chat, vent, or strategize. No appointment necessary! Contact Tara to receive weekly schedules of Drop-In times and locations. Schedules will also be posted throughout the Center for the Sciences.

Students interview faculty to match the "fun fact" with the professor and win prizes in a scavenger hunt.

Student-Faculty Mixer

Thanks for helping to make September's Student-Faculty Mixer a success! At least 41 students and 19 faculty attended the mixer. Highlander scientists socialized during an evening full of snacks, stars (in a planetarium show), and a scavenger hunt.

STEMed Reading Group

Every other Friday @ 2:00 PM in CS 286
Hosted by the Center for Innovative Teaching and Learning and the REALISE Program

The Fall 2018 STEMed Reading Group text is ***Breakthrough Strategies: Classroom-Based Practices to Support New Majority College Students*** by Kathleen A Ross (Harvard Education Press, 2017).

By meeting regularly throughout the semester to discuss *Breakthrough Strategies,* we hope to create

a community of scholarly dialogue around teaching, blending the best ideas of experts with the local wisdom and experience of our faculty.

Come when you can! The readings are modular, such that discussing any topic in isolation will still be valuable. **Faculty are welcome to attend any/all session(s).**

Email us for a free copy of the book!

Date	Topic
October 5	Chapters 5-6 Helping Students Ask Questions Engaging Students with Analogies
October 19	Chapters 7-8 Welcoming Students with First-Day Activities Relating to Student's Life Situations
November 2	Chapters 9-10 Reframing the Classroom as Community Creating Confidence: A Professor's Role
November 16	Chapters 11-12 Journaling for Confidence and Deeper Thinking Developing Student's Own Academic Ideas
November 30	Chapters 13-14 Envisioning and Academic Identity: How Professors Can Help Building Professional Identities to Counter Stereotypes

Request for Proposals:

Kickbox Minigrants

Kickbox Minigrants are a virtual "**box**" of resources that **kick**start faculty-student making-themed or project-based learning pilot projects.

Proposals are accepted throughout the year and are reviewed on a rolling basis.

Want to learn more?

Check Out D2L!

We are compiling a growing library of shared resources on the REALISE program's D2L page. On tap:

- Writing welcoming syllabi
- Group work
- Project-based learning

Awards are up to **$500**.

Reach out before you write:
Tara Phelps-Durr or Jeremy Wojdak can work with you to clarify grant guidelines and make suggestions that might sharpen your proposal.

Microaggressions
The Kickbox Minigrant RFP
REALISE project details

- ... and more!

Contact Tara to be added to the REALISE D2L page.

As a result of the Faculty Learning Communities, book groups, departmental reform efforts, and plain old hard work, our faculty are busy crafting great new classroom modules. We are developing an easy way to share educational resources across instructors, that tracks contributions and usage, providing a mechanism for you to earn credit for your teaching scholarship. Stay tuned!

An open invitation...

Whether you are interested, excited, nervous, or skeptical, we'd love to meet with you on-on-one to chat about how we can:

Help you share your own expertise and experience with others.
Use your concerns to improve the project as we go.
Help you find what you need to try something new in your course (e.g., materials, time, technical/instructional expertise).
Help you identify a part of the initiative that resonates with what you already do and value.
Plan for how you can get involved.

- Figure out what the heck "Inclusive Excellence" means.

Contact Sarah, Tara, or Jeremy and we can share ideas over coffee.

RADFORD UNIVERSITY

Artis College of Science and Technology