



REALISE

Realising Inclusive Science Excellence

April 2019

Highlights:



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Ask Your Students To Take Our Survey!

To help enhance student retention, the REALISE team is gathering information about our students' sense of belonging, identities as scientists, and self-efficacy. We have created an IRB-approved survey with literature validated questions to ask our students about their experiences at Radford University and within their major. In order to obtain meaningful results, it is imperative that we get a large number of student responses. We are asking all ACSAT faculty to please send our survey out to all students enrolled in their courses each semester. We expect that by having you send this survey out to your students they will be more likely to respond.

Here is some sample text that you can use to email the survey to your students:

The Artis College faculty are working collectively to enhance the student experience at Radford University and you can help! We have a survey that will take you about 5-10 minutes to complete that will ask you about your perceptions of science, your major, and Radford University. Please click the link below to take the survey.

Recap of March + April Events



March and April were busy months for the REALISE community! Clockwise from upper left: **1.** Students show off their tie-dyed REALISE t-shirts. **2.** Sara O'Brien (Biology) presents an assignment designed to help students take better notes at the REALISE faculty mixer on April 11th. **3.** Fifty-nine Highlanders attended the conversations about Women in STEM event on March 21st. This event was held in conjunction with university-wide programming for Women's History Month. **4.** Cassandra Wiggins (Geology + Environmental Biology) 3D prints for the first time at the SciArt 3D Printing Workshop in the Peery Hall Makerspace on March 19th.

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Teaching Students How to Learn

“My students don’t seem to be studying effectively...these exam grades are horrible!”

Have you found yourself thinking this way? A group of STEM faculty have been wrestling with this and exploring new ways to teach our students how to learn. The Spring STEMed Reading Group has been meeting the last Friday of each month to discuss Sandra McGuire’s *Teach Students How to Learn*. McGuire encourages instructors to teach about growth mindset vs. fixed mindset, let students in on the ideas of Bloom’s taxonomy, and aid students in adopting metacognitive strategies while using the study cycle.

Several faculty have adapted McGuire’s resources to encourage students to reflect on their study habits and start using more effective strategies. These strategies push students to learn the material in such depth that they should be able to teach the material, not just earn an A on the test. Here's how some of our faculty have been helping students develop metacognitive skills this semester:

- **Tim Fuhrer** (Chemistry) devoted an entire lecture to metacognition after the first Physical Chemistry (P-chem) exam. For homework prior to the lecture, students assessed their study habits using a learning strategies inventory. In lecture, students mapped their current study habits against Bloom's taxonomy. Most students studied using strategies ranking low on Bloom's hierarchy (remembering and understanding), but needed to reach the upper levels of the hierarchy (creating, evaluating, and analyzing) to do well on P-chem exams. To encourage students to adopt new study strategies, Tim required students to write their own practice exams before exams two and three. Tim's [lecture](#) and [study skills inventory](#) are available on the REALISE D2L page.
- **Elizabeth Hamman** (Biology) asked Parasitology students to examine their study habits throughout the semester. Students completed a [short assignment](#) on fixed vs. growth mindsets after the first exam. After exam two, students wrote short paragraphs reflecting on how their study habits have changed, and how they thought these changes might have impacted their exam grades.
- **Sandy Liss** (Physics) asked students in her introductory astronomy class to adopt one new study strategy such as reading actively or joining a study group between exams one and two. Sandy's [metacognition lecture](#) (adapted from slides Tim created and shared) is available on the REALISE D2L page.

By explicitly showing students how to approach studying, these faculty are equipping students with skills they will need to succeed throughout their academic careers.

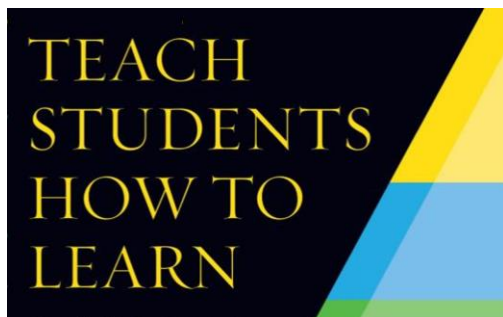
So... all this metacognition stuff... does it work? It would be nice if a few slides about study skills boosted exam averages, but as instructors, we know shifting students' study habits

takes time. Tim, Elizabeth, and Sandy all shared that exam averages in their courses have fluctuated throughout the semester. But they are seeing positive changes. Increasingly, students in all three courses can articulate why their study strategies are working... and why they aren't. This self-awareness suggests the work these faculty are doing to build students' metacognitive skills is paying off. Studies corroborate the idea that small, short interventions matter. [For example](#), asking students to write down what they are worried about for seven minutes before an exam can boost scores enough to affect a course letter grade.

How are you helping students prepare for finals? Come to the STEMEd Reading Group April 26th to share your ideas with colleagues!

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STEMEd Reading Group



Last meeting this semester!

April 26th @ 1:00 **PM in CS 286**

*Hosted by the Center for Innovative
Teaching and Learning
and the REALISE Program*

The Spring 2019 STEMEd Reading Group book is ***Teach Students How to Learn*** by Sandra McGuire (Stylus Publishing, 2015).

By meeting regularly throughout the semester to discuss this text, 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).**

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Request for Proposals:
Kickbox Minigrants

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

Awards are up to **\$500**.

Reach out before you write:

[Tara Phelps-Durr](#) can work with you to clarify grant guidelines and make suggestions that might sharpen your proposal.



Want to learn more?
Check Out D2L!

We are all stretched for time, with too many tasks to fit in each week. Leveraging our colleagues expertise and their existing resources just makes sense as a survival strategy. We are compiling a growing library of shared resources on the REALISE program's [D2L page](#). Examples include:

- Writing welcoming syllabi
- Managing group projects
- Designing project-based learning activities
- Handling microaggressions in the classroom
- ... and more!

Like what you see? Feel free to adapt for your courses!

Contact [Tara](#) to be added to the REALISE D2L page.

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What Is REALISE?

The challenge: From 2013-2015, Biology, Chemistry, and Physics retained ~50% of

What REALISE offers faculty:
- Support to pursue impactful and inclusive

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.

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.

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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](#) or [Tara](#) and we can share ideas over coffee.

Contact [Ariel Firebaugh](#) to be added to or removed from the newsletter subscriber list.

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