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Starting STEM on the Right Foot: Developing a Student Success OER for First-Year STEM Students

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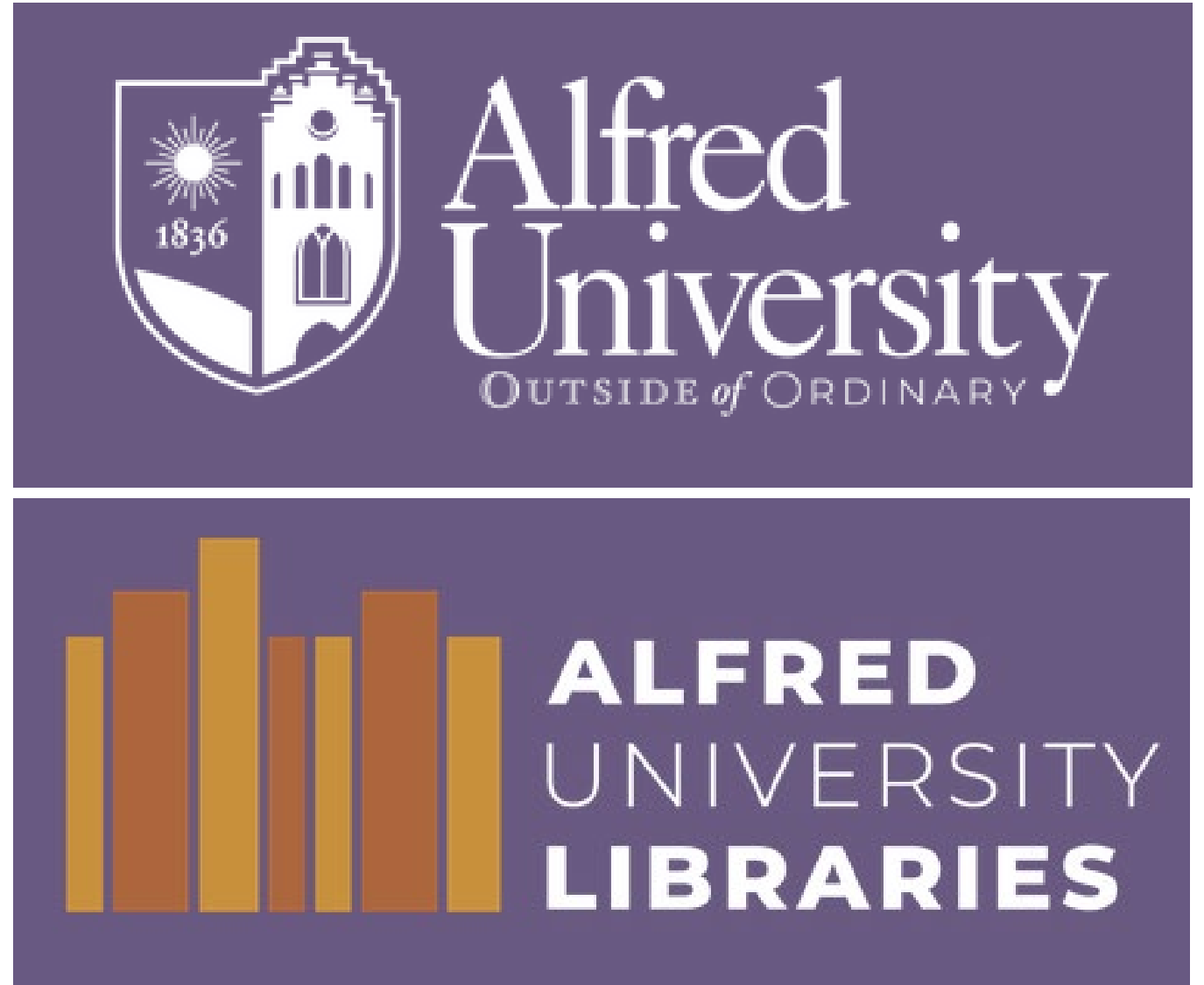
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Starting STEM on the Right Foot: Developing a Student Success OER for First-Year STEM Students

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Communication Librarian

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Assistant Professor of
Mathematics



About Us

Samantha Dannick


- Liaison librarian for School of Engineering and physical sciences
- Advocate and primary support for open educational resources, open access, and universal design for learning at AU

Elizabeth Matson, PhD

- Tenure-Track Assistant Professor of Mathematics
- Taught 5.25 years at AU
- Often teach first year STEM students and noted gaps and frustrations incoming to AU



About Alfred University

- Small, primarily undergraduate institution (<2,000 FTE)
 - Wide range of undergraduate programs
 - Graduate programs and research in engineering, fine arts, psychology, and business
 - Claim to fame is ceramic engineering, glass science, and ceramic and glass art – New York State College of Ceramics
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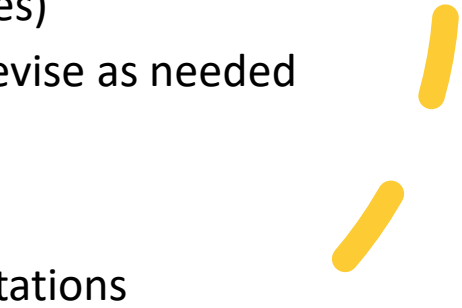
What's an OER?

- Open Educational Resources are learning objects which are freely available (or available at-cost) and openly licensed
- "5 R's" freedoms
- Reduce cost barriers of course materials for students
- Allow teachers to customize content
- Students can create or contribute to course materials

Motivations


- Studying STEM requires additional skills
- STEM courses are sequential
- "Push and pull signals" from early courses
- Are students less prepared for college?
- "Leaky STEM pipeline" especially impacts women and minority populations

Project Plan

1. Groundwork
 - Review guidance for OER creation
 - Develop surveys and complete the IRB Process
 2. Needs Assessment
 - Identify areas first-year STEM students need additional support
 3. Materials Review
 - Identify what OER already exists, can be adapted, or needs to be created
 4. Content Creation
 - Adapt/remix existing OER and/or create additional resources
 - Pull together into a cohesive learning object or series
 5. Pilot Period
 - Deploy resource in first-year-specific STEM class(es)
 - Collect feedback from students and faculty and revise as needed
 6. Share OER
 - Make resource available to the wider world
 - Invite feedback and suggestions and collect adaptations
- 



Completed Steps

1. Groundwork
 - Develop student-facing survey
 - Develop faculty-facing survey
 - IRB application for initial surveys
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In-Progress Steps

2. Needs Assessment
 - Distribute surveys to students and faculty
3. Materials Review
 - Compile list of currently available OER, focusing on college success and STEM-related skills



Planned Steps

2. Needs Assessment cont'd
 - Analyze survey results
 - Develop (and/or prioritize) list of areas needing support
3. Materials Review cont'd
 - Review currently available OER
4. Content Creation
 - Adapt existing resources as appropriate
 - Draft content as needed
5. Pilot Period
 - Trial OER with first-year STEM students and incorporate feedback
6. Share OER for broader use



Questions?

We'll move to a group discussion
after answering your questions.

Conversation



- What common issues have you seen for first-year STEM students?
- Do you have any recommended resources to inform the project or include in the OER?
- Overall thoughts or suggestions?

Let's chat!

Or add to our shared Google Doc!

<http://tiny.cc/4d8cvz>

Contact Us!

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- Elizabeth Matson, PhD – Assistant Professor of Mathematics
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