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## Supporting Undergraduate Research for Globally Distributed Students and Mentors

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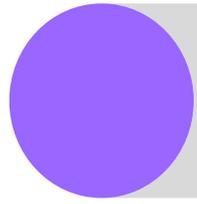
# **Supporting Undergraduate Research for Globally Distributed Students & Mentors**

Research supervision in credit-bearing experiences  
and research mentorship (an extra-curricular  
experience)

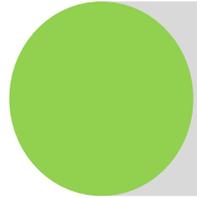
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Emily Faulconer, Brent Terwilliger, & Robert Deters  
Embry-Riddle Aeronautical University – Worldwide Campus

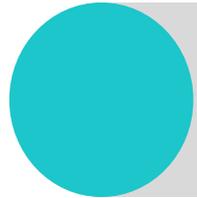
# Undergraduate research has many benefits for students & faculty (and institutions and field).



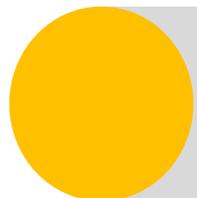
Gain practical experience



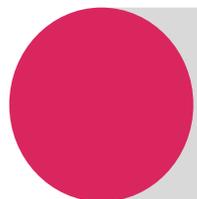
Gain feedback from experts



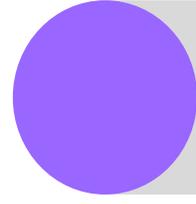
Disciplinary & transferable skills growth



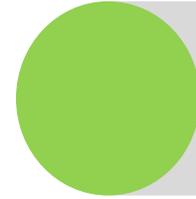
Networking



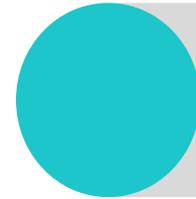
Degree persistence



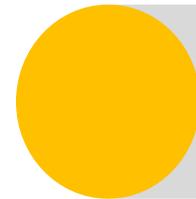
Improved understanding of student learning needs



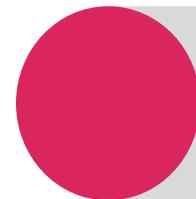
Improved teaching & research



Active role in students' professional growth



Student contributions to research program



Mentoring and supervision skills development

# There are notable barriers to undergraduate research participation.

<b>Unknown opportunities or benefits</b>
<i>Poor curricular timing</i>
<b>Confidence &amp; motivation</b>
<b>Financial or time burden</b>

**Student  
Barriers**

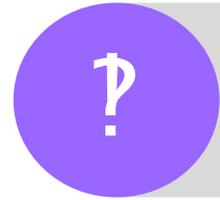
<b>Faculty status &amp; research program</b>
<b>Resources</b>
<i>Insufficient professional dev.</i>
<b>Time burden &amp; productivity impacts</b>

**Faculty  
Barriers**

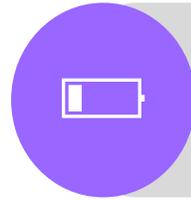
Investment
Training program (faculty & students)
Programmatic review
Institutional culture

**Institutional  
Barriers**

# In our faculty population, key barriers were student-focused.



Deficient student skills & knowledge



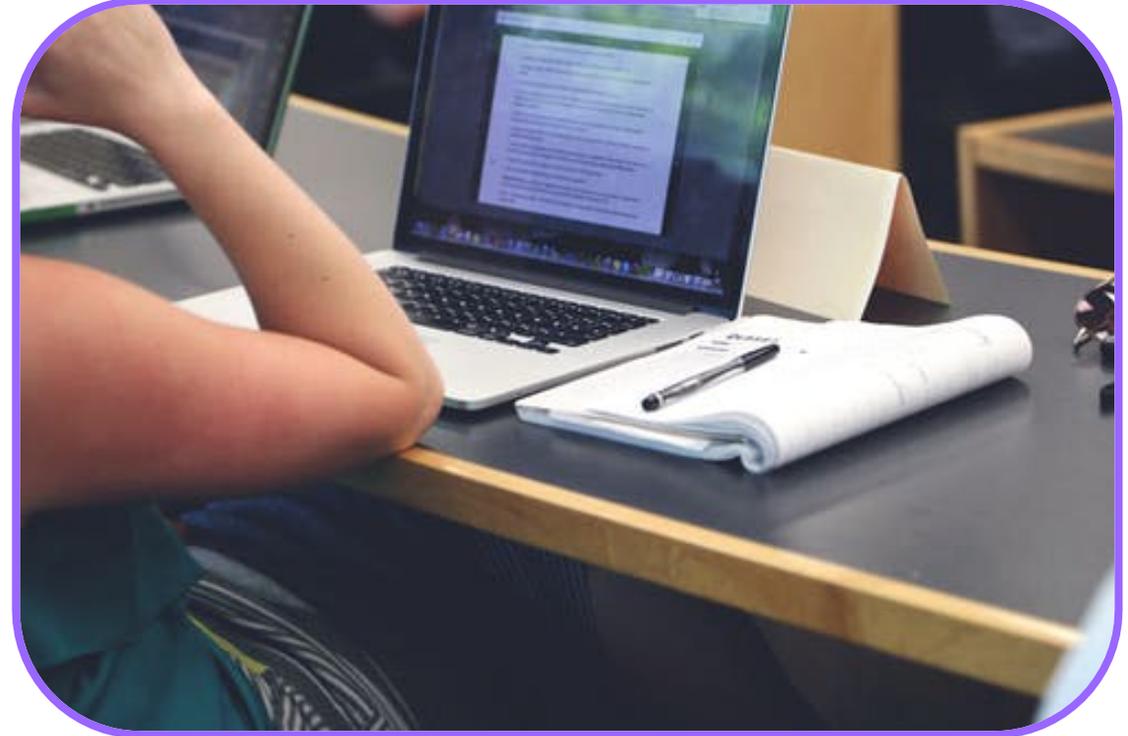
Student motivation



There are unique challenges to making undergraduate research accessible online.



Less **aware**



Not less **interested**

# Our Solution: a framework of support



**RSCH 202**

Credit-bearing  
introduction to  
research course



**Research  
Mentoring**

Long-term partnership  
with faculty



**Resources**

Workshops, tutoring,  
and other resources



**RSCH 395**

Credit-bearing  
independent research  
course

# Research on the pilot program was supported by the NSF (DUE – IUSE Level 1)

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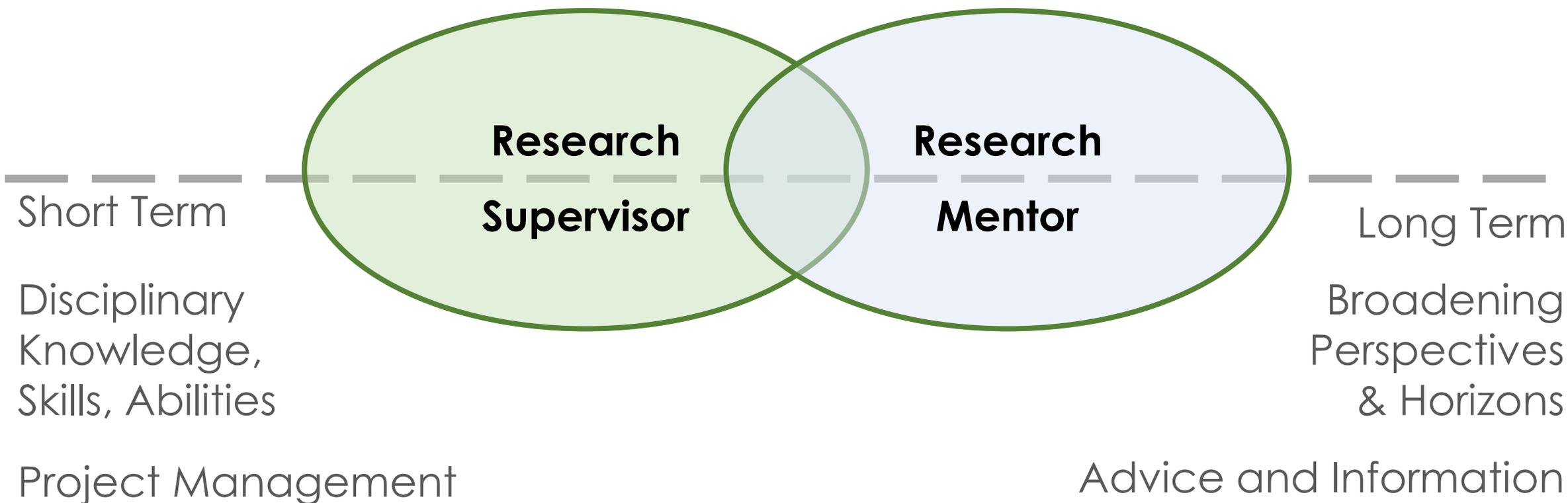
\$295,966

Start Date: 10/15/2020

Duration: 36 months

Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the view of the National Science Foundation.

# We disambiguated research support roles.



# Few students went the credit-bearing route.

Pitts, L. (2022) Flying under the radar: a survey of American air transport pilots to identify aeromedical nondisclosure and mental healthcare-seeking behaviors. [Manuscript submitted]



# More students have opted for extra-curricular research experiences.

## Publication

1. Faulconer, E., Wood, B., **Branton, A.** & **Chuaunsu, M.** (2022) Withdrawal in Online STEM courses. [Manuscript submitted]
2. Cerreta, J., **Denney, T.**, Burgess, S. S., Galante, A., Thirtyacre, D., Wilson, G. A., & Sherman, P. (2022). UAS for Public Safety: Active Threat Recognition. *International Journal of Aviation, Aeronautics, and Aerospace*, 9(2). Retrieved from <https://commons.erau.edu/ijaaa/vol9/iss2/1>

## Presentation

1. Chunara, N. (2023) UAS Perception Among Civilians. National Conference on Undergraduate Research, oral presentation, Eau Claire, WI.
2. Branton, A., Faulconer, E., Wood, B. (2022) Why students withdraw from online STEM courses. Embry-Riddle Aeronautical University Research Symposium, poster, Daytona beach, FL.
3. Chunara, N. (2022) UAS and the Psychological Influence. Embry-Riddle Aeronautical University Research Symposium, poster, online.
4. Adams, J. (2021) Sexuality: The Empathetic Liberator. Embry-Riddle Aeronautical University Research Symposium, poster, online.

# Mentoring has been a positive experience.

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- Improved confidence, increased STEM identity
- Improved research skills – contextualization, written communication, scope and focus, research ethics
- Improved transferable skills: collaboration, problem solving
- Challenges were administrative (faculty off-contract months) and interpersonal (imposter syndrome)

# Plan for Phase II

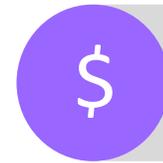
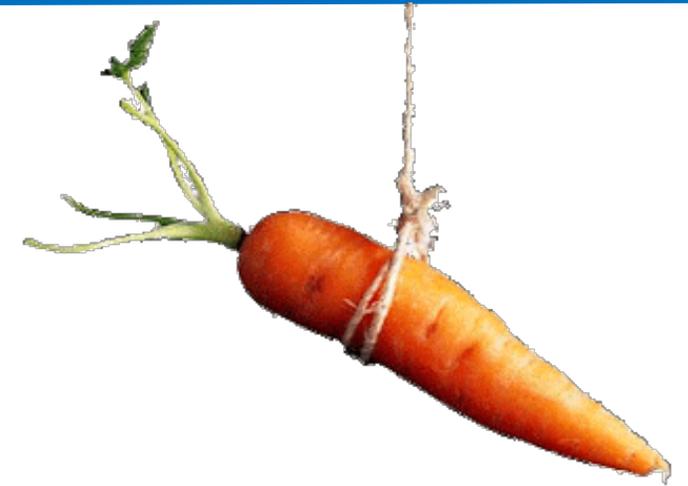
- Add near-peer mentoring
- Industry advisory board
- Continue workshops
- Independent Study → STEM Research Minor
- Student research & travel grants
- Research “classifieds” and workshop to help faculty explore possibilities in their research agenda



**Prepared students**



**Motivated students**



Stipend



Course credit



For-credit course  
assignment