



## Randi Sims

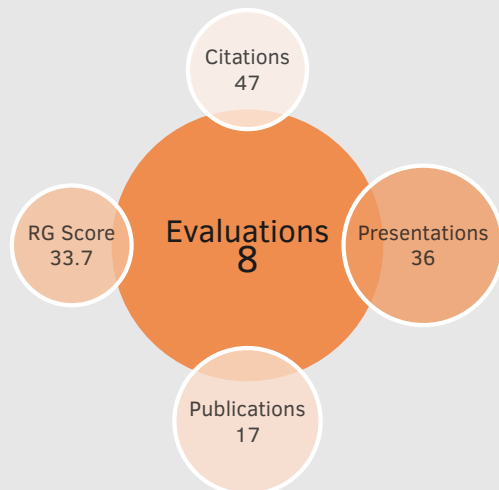
Ph.D. Candidate at  
Clemson University

- Graduation:** December 2025
- Easley, SC
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## Bio

Randi is a current Ph.D. candidate in Engineering and Science Education at Clemson University and a consultant at Quality Evaluation Designs. She has over 8 years of experience in program and institutional evaluation, utilizing both qualitative and advanced quantitative methods. Her quantitative knowledge includes advanced statistical techniques using tools like R, Python, and SPSS. Randi is passionate about enhancing the student experience through data-informed program improvements and innovation.

## Metrics



## Research and Evaluation Experience

### Independent Consulting

- 2024 – 2025 **Entrepreneurial Mindset and Cultural Wealth in Engineering**
- Developed and led research plan.
  - Deployed and validated measurement surveys.
  - Mentored first-year education researchers from planning through dissemination.

### Quality Evaluation Designs

#### Associate Consultant

- 2024 – 2025 **Advocacy Building Campaign for Engineering Education Research**
- Developed and led evaluation plan.
  - Supervised one graduate student.
  - Analyzed data and disseminated interim reports.
- In Review* **Peer Review as an Inclusive Mentoring Experience**
- Developed and implemented evaluation plan.
  - Created and managed evaluation budget.

#### Assistant Consultant

- 2025 **Penn State Acoustics Program**
- Led qualitative data collection and analysis; conducted quantitative analysis.
  - Assisted in developing program recommendations.
- 2024 – 2025 **RIEF - Virtual Community of Practice**
- Led qualitative data collection and analysis for evaluation.
  - Contributed to project update memo.
- IGE - Personalized Learning Module for Graduate STEM Education**
- Assisted with interviews for qualitative evaluation.
- 2024 **Engineering Education and Research Centers**
- Led quantitative and qualitative analysis and supported data collection.
  - Contributed to final report.
- Capacity Building for Research at Minority Serving Institutions**
- Led data collection and analysis.
  - Developed recommendations for stakeholder groups.
  - Contributed to final report.

### Clemson University

#### Graduate Research Assistant

- Oct 2024 – ongoing **Elevating Mentoring Practices in Graduate Studies**
- Led the design and implementation of a university-wide research and evaluation plan.
  - Managed three graduate and three undergraduate researchers.
  - Prepared data-driven evaluation report for advisory committee
- May 2022 – ongoing **Valuing Education and Career Transition Opportunities**
- Led research methods for NSF-funded study on vertical transfer students' strengths and experiences
  - Assisted PI with data collection, analysis, and dissemination related to transfer student outcomes.
  - Contributed to the development of a statewide dashboard for transfer students in South Carolina.
- May 2022 – May 2023 **Peer Review Training**
- Supported research and evaluation efforts.
  - Collaborated with evaluators and PIs on data analyses.
  - Contributed to journal publication and subsequent NSF proposal.

#### Professional Research Associate

- Aug 2017 – May 2020 **National Brick Research Center**
- Managed and trained five employees in materials engineering testing for ceramics.
  - Led development and implementation of curricula for industry professionals and university students.
  - Conducted analytical testing, managed instrument calibration, and ensured compliance with industry standards.
  - Earned certifications in ASTM testing, ISO training, X-ray diffraction, and X-ray fluorescence techniques.

## Profiles



## Interests

- Program Evaluation
- Institutional Evaluation
- Social Data Science
- Survey Development and Validation
- Undergraduate Research

## Memberships

American Society Engineering Education  
**Member**

American Evaluation Association  
**Member**

## References

**Dr. Karen High**  
Advisor – Clemson University  
[khigh@clemson.edu](mailto:khigh@clemson.edu)

**Dr. Gary Lichtenstein**  
Owner – Quality Evaluation Designs  
[gary@qualityevaluationdesigns.com](mailto:gary@qualityevaluationdesigns.com)

**Dr. Christy Brown**  
Faculty – Clemson University  
[cjb2@clemson.edu](mailto:cjb2@clemson.edu)

**Dr. Kristin Frady**  
Faculty – Clemson University  
[frady@clemson.edu](mailto:frady@clemson.edu)

## Education

### Postgraduate Studies

Currently Enrolled **Ph.D. in Engineering and Science Education** **Clemson, SC**  
**Title:** Investigating Undergraduate Biological Sciences Laboratory Research Culture at an R1 Institution

2020 – 2022 **M.S. in Biological Sciences** **Clemson, SC**  
**Title:** Evaluating the Impact of Research and Outreach Marine Science Programs on Elementary and Undergraduate Students

### Other Training

Fall 2023 **Data Science in Education with R Workgroup** **Clemson, SC**  
Training in advanced statistical techniques contextualized to education research and evaluation using R.

### Relevant Courses

|           |  |           |
|-----------|--|-----------|
| EDF 9080  | Advanced Educational Tests & Measurements    | Summer'23 |
| EDF 8710  | Research Methods in Science Education        | Fall'22   |
| BIOL 8710 | Experimental Design and Data Analysis with R | Fall'21   |

## Skills

### Programming

**R**  
*Advanced*

- Used for 30+ professional projects
- Tidyverse, haven, ggplot package knowledge
- Advanced visualization techniques
- Predictive, inferential, descriptive statistical analyses

**Python**  
*Proficient*

- Used for 3 professional and 10+ personal projects
- API's for data collection
- One project utilizing Scikit-learn and TensorFlow
- Predictive models and inferential statistical analyses

**JMP**  
*Proficient*

Experience with data analysis and visualization using native JMP tools on 3 projects. Used to process inferential and descriptive statistics.

## Administration and Mentoring

### Project Manager

|         |  |                   |
|---------|--|-------------------|
| Clemson | IGE: EMPOWERS<br>3 graduate mentees<br>3 undergraduate mentees | Fall'24 – Ongoing |
|---------|--|-------------------|

### Undergraduate Research Mentor

|           |  |  |
|-----------|--|--|
| ESED 4990 | Qualitative STEM Education Research<br>10 undergraduate mentees  | Fall'23 – Ongoing  |
| BIOL 4940 | What's in Our Waters<br>1 graduate mentee<br>4 undergraduate mentees<br>Conservation of Marine Resources<br>12 undergraduate mentees<br>Marine Ecology<br>10 undergraduate mentees<br>Something Very Fishy<br>50 undergraduate mentees | Fall'22 – Spring'23<br>Fall'20 – Spring'22<br>Fall'20 – Spring'22<br>Fall'19 – Spring'22 |
| MSE 4910  | NBRC Mobile Application Development<br>4 undergraduate mentees   | Fall'19 – Spring'20  |

### Analytical Testing Manager

|         |   |                     |
|---------|---|---------------------|
| Clemson | National Brick Research Center<br>1 full-time employee<br>4 part-time undergraduate employees | Fall'17 – Spring'20 |
|---------|---|---------------------|

# Publications

## Journal Articles

1. Payton, T. G., **Sims, Randi**, & Childress, M. J. (2024). Abundance, patterns, and taxa associations of anthropogenic marine debris on reefs in the middle Florida Keys. *Frontiers in Marine Science*, 11, 1412858. <https://doi.org/10.3389/fmars.2024.1412858>
2. Watts, K., **Sims, Randi**, Ko, E., Jensen, K., Bates, R., Lichtenstein, G., & Benson, L. (2023). Peer reviewer training to build capacity in engineering education research. *Australasian Journal of Engineering Education*, 1–22. <https://doi.org/10.1080/22054952.2023.2214459>
3. **Sims, Randi**, Tallapragada, M., Payton, T. G., Noonan, K., Prosser, K. L., & Childress, M. J. (2021). University Experiences of Marine Science Research and Outreach Beyond the Classroom. *Integrative and Comparative Biology*, 61(3), 1078–1088. <https://doi.org/10.1093/icb/icab104>
4. Tallapragada, M., Prosser, K. L., Braffitt, K. F., Bridgeford, K. E., Gleaton, E. C., Saverance, M. G., Noonan, K. R., Payton, T. G., **Sims, Randi J.**, Smith, K. M., & Childress, M. J. (2021). Something Very Fishy: An Informal STEAM Project Making a Case for Ocean Conservation and Climate Change. *Environmental Communication*, 15(7), 904–922. <https://doi.org/10.1080/17524032.2021.1913208>
5. Smith, K. M., Payton, T. G., **Sims, Randi J.**, Stroud, C. S., Jeanes, R. C., Hyatt, T. B., & Childress, M. J. (2019). Impacts of consecutive bleaching events and local algal abundance on transplanted coral colonies in the Florida Keys. *Coral Reefs*, 38(4), 851–861. <https://doi.org/10.1007/s00338-019-01823-7>

## Book Chapters

1. Tallapragada, M., **Sims, Randi J.**, Payton, T. G., Noonan, K. R., Bridgeford, K. E., Smith, K. M., Fuentes, M., Prosser, K. L., & Childress, M. J. (2023). Something Very Fishy (SVF): Avenues of Communication to Inspire Engagement with Climate and Marine Science. In J. G. Burchfield & A. A. Kedrowicz (Eds.), *Teaching communication across disciplines for professional development, civic engagement, and beyond*. Lexington Books

## Conference Proceedings

1. **Sims, Randi**, Watts, K., Stephan, A. T., Ngoc Y Ta, T., Sharpe, A., & Lichtenstein, G. (2025). MSI Faculty on the Rise: Strengthening Federal Grant Proposals through Cross-Institution Collaborations and Networking. *2025 ASEE Annual Conference & Exposition Proceedings*, 15
2. **Sims, Randi**, High, K. A., Van Puymbroeck, M., Brewer, S., & Fender, L. (2025). Piloting the EMPOWERS Program: Inaugurating Student-Centered Holistic Mentorship for STEM Practitioners in Academia. *2025 ASEE Annual Conference & Exposition Proceedings*, 15
3. Yeaman, A., Yuan, X., Lamas-Samanamud, G., Beem, H., Moore, J. M., & **Sims, Randi**. (2024). WIP: Survey validation to enable investigating community cultural wealth in engineering students' first year experiences (FYE). <https://doi.org/10.18260/1-2--48642>
4. Frady, K. K., **Sims, Randi**, & Brown, C. J. (2024). A quantitative exploration of geographic and demographic variance transfer-student capital assets and support for pre-transfer engineering students. Retrieved February 6, 2025, from <https://peer.asee.org/a-quantitative-exploration-of-geographic-and-demographic-variance-transfer-student-capital-assets-and-support-for-pre-transfer-engineering-students>
5. Frady, K. K., & **Sims, Randi**. (2024b). Board 402: The first two years: An overview of contributions of the NSF CAREER: Valuing education and career transition opportunities raising student success project. <https://doi.org/10.18260/1-2--46990>
6. Ransom, T., & **Sims, Randi** and Manning, J. A. (2024). Community Cultural Wealth from an Engineering and Science Education Department, 12. <https://doi.org/10.18260/1-2--45512>
7. Frady, K. K., & **Sims, Randi**. (2024a). Mapping and Impact of Digital Learning Tools Designed to Support Engineering Pre-Transfer Students, 14. <https://doi.org/10.18260/1-2--45542>
8. Frady, K. K., & **Sims, Randi**. (2023a). A Qualitative Exploration of an Assets-Based Approach to Building Engineering Transfer Student Capital. *2023 IEEE Frontiers in Education Conference (FIE)*, 1–5. <https://doi.org/10.1109/FIE58773.2023.10343352>
9. **Sims, Randi**, Watts, K., Ko, E., Bates, R., Lichtenstein, G., Jensen, K., & Benson, L. (2023). Overlooked, Underlying: Understanding tacit criteria of proposal reviewing during a mock panel review. *2023 ASEE Annual Conference & Exposition Proceedings*
10. Frady, K. K., & **Sims, Randi**. (2023b). Board 368: Regional Assets, Factors, and Strategies Supporting Engineering Pre-Transfer Pathways. *2023 ASEE Annual Conference & Exposition Proceedings*
11. Frady, K. K., & **Sims, Randi**. (2023c). Use of Transfer Student Capital in Engineering and STEM Education: A Systematic Literature Review. *2023 ASEE Annual Conference & Exposition Proceedings*
12. Bates, R. A., Benson, L., **Sims, Randi**, Watts, K., Jensen, K., Ko, E., & Lichtenstein, G. (2023). Board 194: A Community-Driven Process for Developing NSF Review Panelists. *2023 ASEE Annual Conference & Exposition Proceedings*
13. Bates, R., Benson, L., McGill, M. M., & **Sims, Randi**. (2023). Peer Reviewing: Cultivating an Equitable and Inclusive Scholarly Community. *Proceedings of the 54th ACM Technical Symposium on Computer Science Education V. 2*, 1183. <https://doi.org/10.1145/3545947.3569628>

# Presentations

## Oral Presentations

1. Ransom, T., Manning, J., & **Sims, Randi**. (2023, January). *A community of practice for STEM education graduate students: Lunch & Learn* [Southeastern STEM Education Research Conference] [Oral Presentation]. Cookeville, TN
2. **Sims, Randi** & Childress, M. (2022, January). *Projects are not just for kids: Integrating science outreach projects into undergraduate learning during a pandemic* [Society for Integrative and Comparative Biology] [Oral Presentation]. Virtual
3. Geray, C., **Sims, Randi**, Payton, T., & Childress, M. (2022, January). *The influence of damselfish territoriality on reef fish visitation to neon goby cleaning stations* [Society for Integrative and Comparative Biology] [Oral Presentation]. Virtual
4. **Sims, Randi**. (2021b, November). *Projects are not just for kids: Integrating science outreach projects into undergraduate learning during a pandemic* [South Carolina Marine Educators Association Annual Conference] [Oral Presentation]. Charleston, SC
5. Childress, M., Prosser, K., **Sims, Randi**, & Payton, T. (2021, November). *Something Very Fishy: A musical theatre STEAM program for elementary schools* [South Carolina Marine Educators Association Annual Conference] [Oral Presentation]. Charleston, SC
6. **Sims, Randi**. (2021a, October). *Projects are not just for kids: Integrating science outreach projects into undergraduate learning during a pandemic* [Association for College Undergraduate Biology Educators Annual Conference] [Oral Presentation]. Virtual
7. **Sims, Randi** & Childress, M. (2021, July). *Bridging the Gap Between Research and Outreach: Connecting Undergraduate Students to the Ocean Through Experiential Learning*. [National Marine Educator's Association Annual Conference] [Oral Presentation]. Virtual
8. Childress, M., **Sims, Randi**, Payton, T., Tallapragada, M., & Prosser, K. (2021, July). *Something Very Fishy: A STEAM Approach to Teaching Climate and Ocean Literacy* [National Marine Educator's Association Annual Conference] [Oral Presentation]. Virtual
9. **Sims, Randi**, Towe, A., Smith, K., & Childress, M. (2017b, April). *Defenders of the reef: Measuring the impacts of damselfish territoriality on coral reef transplants* [Benthic Ecology Meeting] [Oral Presentation]. Myrtle Beach, SC
10. **Sims, Randi**, Towe, A., Smith, K., & Childress, M. (2017a, January). *Defenders of the reef: Measuring the impacts of damselfish territoriality on coral reef community structure* [Society for Integrative and Comparative Biology] [Oral Presentation]. New Orleans, LA
11. **Sims, Randi**. (2015, June). *Damselfish: Chihuahuas of the reef* [Keys Marine Laboratory Science Night] [Oral Presentation]. Layton, FL

## Workshops

1. High, K. A., Brown, J., & **Sims, Randi**. (2023, June). *Faculty Development for Culturally Responsive Mentoring of Graduate and Undergraduate Students in Research: Challenges and Strategies* [2023 ASEE Annual Conference & Exposition] [Workshop]. Baltimore, Maryland
2. Benson, L., Bates, R., Kemnitzer, S., Jensen, K., Ko, E., Watts, K., **Sims, Randi**, & Lichtenstein, G. (2022, July). *Peer Reviewing: Cultivating an Equitable and Inclusive Scholarly Community* [American Society for Engineering Education Conference] [Workshop]. Minneapolis, MN

## Webinars

1. English, R., Shealy, K., & **Sims, Randi**. (2019, December). *Introduction to the National Brick Research Center Mobile Application* [National Brick Research Center Webinar Series] [Webinar]. Virtual

## Poster Presentations

1. Sims, A., Magnin, N., Montalvo, M., & **Sims, Randi**. (2023, April). *What's In Our Waters? We Offer Answers!* [Focus on Creative Inquiry] [Poster Presentation]. Clemson, SC
2. Ransom, T., **Sims, Randi**, & Manning, J. (2023, April). *Creating a Sense of Belonging and Inclusivity: A Lunch and Learn Community* [Cross Discipline Based Education Research Conference (XDBER)] [Poster Presentation]. Virtual
3. Rojumbokan, S., VandenBrekkel, M., Stephens, M., Doughty, S., Medina, K., Metzger, A., Ryan, P., **Sims, Randi**, & Childress, M. (2022, April). *Measuring Something Very Fishy: Assessment of children's identity after participation in a marine science outreach program* [Focus on Creative Inquiry] [Poster Presentation]. Clemson, SC
4. Molnar, D., Hays, K., Bulik, L., Britt, J., Geray, C., Ragland, M., Turner, A., Tucker, E., Payton, T., **Sims, Randi**, & Childress, M. (2022, April). *Conserving our marine resources by assessing reef community dynamics in the Florida Keys National Marine Sanctuary* [Focus on Creative Inquiry] [Poster Presentation]. Clemson, SC
5. Turner, A., Tucker, E., Payton, T., **Sims, Randi**, & Childress, M. (2022, February). *Out with the trash: Developing biomass estimates for marine debris management* [Clemson Biological Science Symposium] [Poster Presentation]. Virtual
6. Molnar, D., Payton, T., **Sims, Randi**, & Childress, M. (2022, February). *Follow the Leader: Investigating aggregation cues in the gregarious coral predator *Coralliophila galea* in the middle Florida Keys* [Clemson Biological Science Symposium] [Poster Presentation]. Virtual

7. Geray, C., Britt, J., **Sims, Randi**, Payton, T., & Childress, M. (2022, February). *The influence of Bicolor Damselfish (Stegastes partitus) territoriality on reef fish visitation to Neon Goby (Elacatinus oceanops) cleaning stations* [Clemson Biological Science Symposium] [Poster Presentation]. Virtual
8. Smith, K., **Sims, Randi**, Geray, C., & Childress, M. (2022, January). *Looking at the ocean through a different lense: Using virtual reality and citizen science to engage elementary students in marine education* [Society for Integrative and Comparative Biology] [Poster Presentation]. Virtual
9. Payton, T., **Sims, Randi**, & Childress, M. (2021, August). *The Science of the Childress Lab* [BioSci Research Exposition] [Poster Presentation]. Clemson, SC
10. Parker, M., Payton, T., **Sims, Randi**, & Childress, M. (2021, August). *Home is where the debris is: Assessing marine debris removal risks on coral reef communities* [Clemson University Creative Inquiry Summer Symposium] [Poster Presentation]. Clemson, SC
11. Molnar, D., Payton, T., **Sims, Randi**, & Childress, M. (2021, August). *Follow the Leader: Investigating coral predation behavior in the marine snail Coralliophila abbreviate in the Florida Keys* [Clemson University Creative Inquiry Summer Symposium] [Poster Presentation]. Clemson, SC
12. Geray, C., **Sims, Randi**, Payton, T., & Childress, M. (2021, August). *The Influence of Damselfish Territoriality on Reef Fish Visitation to Neon Goby Cleaning Stations* [Clemson University Creative Inquiry Summer Symposium] [Poster Presentation]. Clemson, SC
13. Turner, A., Geray, C., Smith, K., Shaw, D., Rees, A., **Sims, Randi**, & Childress, M. (2021b, April). *Clemson University's Creative Inquiry, Something Very Fishy: Marine Science Outreach in South Carolina for Elementary Schools* [Focus on Creative Inquiry] [Poster Presentation]. Virtual
14. Turner, A., Geray, C., Smith, K., Shaw, D., Rees, A., **Sims, Randi**, & Childress, M. (2021a, February). *Clemson University's Creative Inquiry, Something Very Fishy: Marine Science Outreach in South Carolina for Elementary Schools* [Clemson Biological Science Symposium] [Poster Presentation]. Virtual
15. Guryan, T., Elhert, A., **Sims, Randi**, Dubnicka, I., Ehlers, A., Whitaker, S., Rolfe, S., Krachman, H., Stroud, C., Smith, K., & Childress, M. (2017, April). *Forecasting the Future of Coral Reef Communities* [Focus on Creative Inquiry] [Poster Presentation]. Clemson, SC
16. Rolfe, S., Stroud, C., Towe, A., **Sims, Randi**, & Smith, K. (2017a, February). *Damsels in Distress: Influence of reef composition on abundance and behavior of damselfishes* [Benthic Ecology Meeting] [Poster Presentation]. Myrtle Beach, SC
17. Rolfe, S., Stroud, C., Towe, A., **Sims, Randi**, & Smith, K. (2017b, February). *Damsels in Distress: Influence of reef composition on abundance and behavior of damselfishes* [Clemson Biological Science Symposium] [Poster Presentation]. Clemson, SC
18. Guryan, T., Elhert, A., **Sims, Randi**, & Childress, M. (2017, February). *Clean Freaks: Neon gobies facilitate reef herbivore diversity* [Clemson Biological Science Symposium] [Poster Presentation]. Clemson, SC
19. **Sims, Randi**, Towe, A., Smith, K., & Childress, M. (2016b, March). *Defenders of the reef: Impacts of damselfish territoriality on coral reef algal community structure* [Southeastern Ecology and Evolution Conference] [Poster Presentation]. Tallahassee, FL
20. **Sims, Randi**, Towe, A., Smith, K., & Childress, M. (2016a, February). *Defenders of the reef: Impacts of damselfish territoriality on coral reef algal community structure* [Clemson Biological Science Symposium] [Poster Presentation]. Clemson, SC
21. Burgess, T., **Sims, Randi**, Smith, K., & Childress, M. (2015b, March). *Rescuing the reef: Monitoring the impacts of macroalgal competition and grazing on coral transplants* [Southeastern Ecology and Evolution Conference] [Poster Presentation]. Athens, GA
22. Burgess, T., **Sims, Randi**, Smith, K., & Childress, M. (2015a, February). *Rescuing the reef: Monitoring the impacts of macroalgal competition and grazing on coral transplants* [Clemson Biological Science Symposium] [Poster Presentation]. Clemson, SC