Randi Sims

Ph.D. Candidate at
Clemson University

Graduation: December 2025

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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. Her research focuses on using innovative quantitative techniques to understand undergraduate research experiences. Randi specializes in designing and implementing evaluation and research plans. She specializes in advanced statistical techniques using tools like R, Python, and SPSS. She aims to pursue a career in educational research and evaluation.

Skills

- **Statistics:**
  - Descriptive
  - Inferential
  - Predictive
- **Programming:**
  - R
  - Python
  - SAS
- **Professional:**
  - Data Processing
  - Survey Development
  - Research Design
  - Evaluation Design

Evaluation and Consulting Experience

Independent Consulting

2024 – 2025 **Entrepreneurial Mindset and Cultural Wealth in Engineering (EM-FYE)** — **Northeastern University**
Developed and led the data collection and analysis plan. Deployed and validated measurement tools. Mentored first-year education researchers from research planning through dissemination.

Quality Evaluation Designs - Associate Consultant

2024 – 2025 **Advocacy Building Campaign for Engineering Education Research (ABC for EER)** — **Clemson University**
Developed and led the evaluation plan for the ABC for EER. Supervised a graduate student through data collection, analysis, and reporting. Created interim reports.

In Review **Peer Review as an Inclusive Mentoring Experience (PRIME)** — **Clemson University**
Led evaluation plan and budget development for NSF BPE proposal submission.

Quality Evaluation Designs - Assistant Consultant

2025 **Penn State Acoustics Program (PSA Program)** — **Penn State University**
Led qualitative data collection and analysis, and conducted quantitative data analysis for evaluation of the PSA Program. Assisted in developing program recommendations and the final report.

2024 – 2025 **RIEF - Virtual Community of Practice (RIEF: VCoP)** — **University of Georgia**
Led qualitative data collection and analysis for evaluation of the VCoP initiative for the NSF RIEF program. Contributed to project update memo.

IGE - Personalized Learning Module for Graduate STEM Education (IGE: PLM) — **University of Pittsburgh**
Assisted with conducting interviews for qualitative components.

2024 **Engineering Education and Research Centers (EEC/ERC)** — **NSF/ASEE**
Led quantitative and qualitative analysis and supported data collection for evaluation of the NSF EEC annual grantees conference and ERC biennial meeting. Contributed to final report.

Capacity Building for Research at Minority Serving Institutions (CyBR-MSI) — **NSF/ASEE**
Led data collection and analysis for evaluation of the CyBR-MSI initiative. Developed recommendations for stakeholder groups within the program and contributed to final report.

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

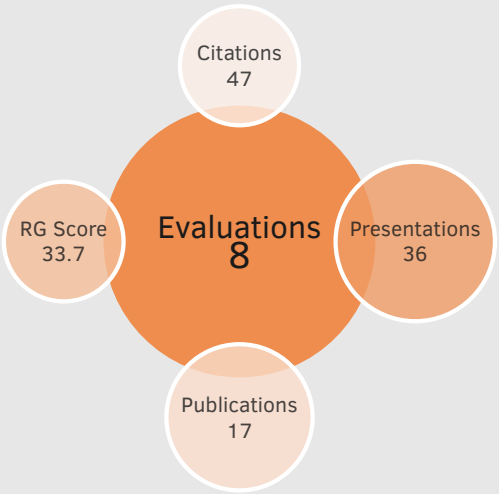
EDF 9080	Advanced Educational Tests & Measurements	Summer'23
EDF 8710	Research Methods in Science Education	Fall'22
BIOL 8710	Experimental Design and Data Analysis with R	Fall'21

Profiles

Interests

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

Metrics



References

Dr. Karen High
Advisor – Clemson University
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Dr. Gary Lichtenstein
Owner – Quality Evaluation Designs
gary@qualityevaluationdesigns.com

Dr. Christy Brown
Faculty – Clemson University
cjb2@clemson.edu

Dr. Kristin Frady
Faculty – Clemson University
frady@clemson.edu

Research Experience

Graduate Research Assistant

October, 2024 – ongoing — **EMPOWERS - PI: Dr. Karen High** — **Clemson University, SC**
Led the design and implementation of a university-wide research and evaluation plan for NSF-funded (IGE) study on the systemic impact of holistic mentor training. Managed three graduate and three undergraduate researchers. Contributed to institutional change efforts through data-driven evaluation strategies.

May, 2022 – ongoing — **VECTORS - PI: Dr. Kristin Frady** — **Clemson University, SC**
Led implementation of research methods for an NSF-funded (CAREER) study on strengths and experiences of vertical transfer students. Supported PI in data collection, analysis, and dissemination. Contributed to the development of a statewide transfer student dashboard for South Carolina

May, 2022 – May, 2023 — **PERT - PI: Dr. Lisa Benson** — **Clemson University, SC**
Supported research and evaluation efforts for an NSF-funded (EAGER) study on mentored peer review training for journal and proposal reviews. Collaborated with evaluators and PIs to conduct and analyze qualitative data. Developed annual report and contributed to a subsequent NSF (BCSER) proposal.

Professional Research Associate

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

Memberships

Member	American Evaluation Association	2024 – Current
	American Society for Engineering Education	2023 – Current
	American Education Research Association	2023 – 2024

Administration and Mentoring

Project Manager

Clemson	IGE: EMPOWERS *3 graduate mentees* *3 undergraduate mentees*	Fall'24 – Ongoing

Undergraduate Research Mentor

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

Analytical Testing Manager

Clemson	National Brick Research Center *1 full-time employee* *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 vistation 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. Rojugbokan, S., VandenBrekel, 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