



Randi Sims

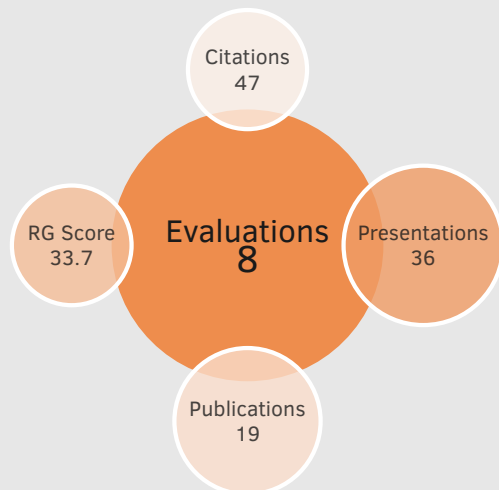
Ph.D. Candidate at
Clemson University

- Graduation:** December 2025
- Easley, SC
- 803-468-2119
- rsims@clemson.edu
- Google Scholar:** R.J. Sims
- ORCID: 0000-0002-6380-2460

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 eight 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 reports.
- 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
- Survey Development and Validation
- Undergraduate Research

Memberships

American Society Engineering Education
Member

American Evaluation Association
Member

Management

Manager

National Brick Research Center

1 full-time employee

4 part-time undergraduate employees

Project Manager

Clemson University

4 faculty mentees

3 graduate mentees

3 undergraduate mentees

Undergraduate Research Mentor

Clemson University

1 graduate mentee

90 undergraduate mentees

References

Dr. Karen High

Advisor – Clemson University

khigh@clemson.edu

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

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

2023

EDF 8710

Research Methods in Science Education

2022

BIOL 8710

Experimental Design and Data Analysis with R

2021

Skills

Programming and Statistics

Advanced

R

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

Proficient

Python

- 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

- 3 professional projects
- Data analysis, visualization, reporting
- Inferential and descriptive statistical analyses

SPSS

- 2 professional projects
- Data analysis and visualization
- Inferential statistical analyses

Professional Expertise

Advanced

Evaluation Planning and Implementation

- 9 professional evaluations (3 as lead)
- Development of evaluation questions and plans
- Budgetary expertise for multi-million dollar projects
- Report development and dissemination
- Experience with institutional review boards (4 institutions)

Survey Development and Validation

- 10+ developed and 4 fully validated surveys (2 published)
- Factor analyses (exploratory and confirmatory)
- Experience with Qualtrics and SurveyMonkey

Qualitative Research

- Developed qualitative instruments for 20+ projects
- Extensive experience implementing observations, interviews, and focus groups
- Experience coding and analyzing qualitative data sets
- Advanced knowledge of utilizing multi and mixed methods for evaluation and research

Proficient

Grant Proposal Development

- Developed 5 national (2 funded) and 10+ state grant proposals (6 funded)
- Designed research plans (2 national, all state)
- Designed evaluation plans (3 national)
- Developed budgets (2 national, 10+ state)

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