

# David Seiden

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## EDUCATION

### University of Georgia

*Bachelor of Science in Physics*

*Bachelor of Science in Science Education*

Athens, GA

May 2023

## RESEARCH EXPERIENCE

### Graduate Research Assistant, *University of Georgia*

Athens, GA

August 2024-Present

- Aid in various research projects related to physics and astronomy education
- Mentor undergraduates participating in physics and astronomy education research

### Physics Education Post-Baccalaureate, *University of Georgia*

Athens, GA

August 2023- July 2024

- Participate in research surrounding course structure and pedagogical improvement for introductory physics classes at the University of Georgia
- Attend introductory mechanics classes to aid in answering questions, hosting office hours, and aid in instruction when necessary
- Mentor undergraduate students participating in physics and astronomy education research

### Undergraduate Physics Education Research, *University of Georgia*

Athens, GA

*Undergraduate Research Assistant*

January 2023- May 2023

- Analyze student feedback on labs and lectures to develop curriculum suggestions for physics instructors
- Analyze quantitative and qualitative data relating to student performance and satisfaction after curriculum interventions

### Joint Motivation Lab, *University of Georgia*

Athens, GA

*Research Assistant*

August 2021-May 2023

- Participate in motivation research in areas of educational psychology
- Identify motivational constructs in recorded videos of parents teaching their children
- Design and execute individual research project, including literature reviews and data analysis

### Physics and Astronomy REU, *Michigan State University*

East Lansing, MI

*Research Affiliate*

May 2022-July 2022

- Participate in Physics Education Research projects
- Cleaned and analyzed quantitative self-efficacy data from a large N study
- Developed a new self-efficacy survey item

## PRESENTATIONS

### Poster Presentations:

1. **Seiden, D.**, Bork, S.J., Young, N., Weliweriya, N., Examining the Experiences of Physics and Astronomy Graduate Teaching Assistants using Photovoice. American Association of Physics Teachers and Physics Education Research Conference (AAPT/PERC) Summer Meeting, Boston, MA. July 2024
2. **Seiden, D.**, Sargent, J., Charania, Z., Weliweriya, N., Enhancing Student Learning through Video-Based Exam Corrections (Pencasts) in Introductory Physics Courses. South-Atlantic Coast Section of American Association of Physics Teachers (SACS-AAPT) Spring Conference, Columbia, SC. April 2024
3. **Seiden, D.**, Allen, R., Weliweriya, N., Laboratory Instruction Enhancement: Utilizing QR Codes and Digital Resources in Introductory STEM Courses. South-Atlantic Coast Section of American Association of Physics Teachers (SACS-AAPT) Spring Conference, Columbia, SC. April 2024
4. **Seiden, D.**, Sargent, J., Charania, Z., Weliweriya, N., Enhancing Student Learning through Video-Based Exam Corrections (Pencasts) in Introductory Physics Courses. Southeastern Section of the American Physical Society (SESAPS), Richmond, KY. November 2023

5. **Seiden, D.**, Allen, R., Weliweriya, N., Laboratory Instruction Enhancement: Utilizing QR Codes and Digital Resources in Introductory STEM Courses. Southeastern Section of the American Physical Society (SESAPS), Richmond, KY. November 2023
6. Allen, R., **Seiden, D.**, Weliweriya, N., Song, I., Enhancing Astronomy Education: Demonstrating Astronomical Phenomena using Immersive 3D Learning Experiences. Southeastern Section of the American Physical Society (SESAPS), Richmond, KY. November 2023
7. Pickett, M., **Seiden, D.**, Weliweriya, N., Abdeen, S., Cai, M. Integrating Well-Aligned Pre-Lecture videos in Student-Centered Large Enrollment Undergraduate Physics Courses. UGA Center for Undergraduate Research Opportunities (CURO), Athens, GA, April 2023
8. Song, Y., Barger, M. M., Rosenzweig, E. Q., **Seiden, D. J.**, Pottorff, G. A., Brown, M. L., Sampson, M. K., Jokay, C., Levin, A., Pomerantz, E. M. (2023). Observing parents' behaviors that foster or undermine children's motivation in math learning. American Educational Research Association, Chicago, IL, United States
9. **Seiden, D.**, Myers, C., Henderson, R., Sawtelle, V. Creating a Dictionary from an ESM Survey. Physics Education Research Conference (PERC) Summer Meeting, Grand Rapids, MI, July 2022
10. **Seiden, D.**, Myers, C., Henderson, R., Sawtelle, V. Creating a Dictionary from an ESM Survey. Mid-Michigan Symposium for Undergraduate Research Experiences (Mid-SURE), East Lansing, MI, July 2022

#### Oral Presentations:

1. **Seiden, D.**, Ogle, M., Kuchibhotla, A., Weliweriya, N., Wiegert, C., Evolution of Graduate Teaching Assistants' Educational Practices. American Association of Physics Teachers (AAPT), Boston, MA, July 2024
2. **Seiden, D.**, Weliweriya, N., Wiegert, C., Investigating Lab Teaching Quality of Graduate TAs as Novice Instructors. University System of Georgia Teaching & Learning Conference, Athens, GA, April 2024
3. **Seiden, D.**, Rosenzweig, E., Do People Who Change Their Career Plans Experience Higher Career Motivation? UGA Center for Undergraduate Research Opportunities (CURO), Athens, GA, April 2022

#### Workshops:

1. Weliweriya, N., Allen, R., **Seiden, D.**, Charania, Z., Effective Active Learning: Exploring Both Challenges and Solutions. South-Atlantic Coast Section of American Association of Physics Teachers (SACS-AAPT) Spring Conference, Columbia, SC. April 2024

#### Invited Lectures:

1. Observing Lectures to Develop Teaching Styles: Developing a Tool for Graduate Students, **University of Georgia** GRSC 7770, October 6, 2023
2. Grad Admissions: Timelines, Do's and Don't's, and Other Advice, **University of Georgia**, Society of Physics Students, April 9, 2024

#### TEACHING EXPERIENCE

##### University of Georgia Department of Physics and Astronomy

###### Teaching Assistant

Athens, GA

August 2023- Present

August 2022-December 2022

- Create and update physics labs in line with current pedagogical research
- Lecture on introductory physics content across various subjects
- Monitor lab students to ensure safety and answer student questions
- Grade approximately 80 lab reports a week

##### Belmont City College

###### Student Teacher

Perth, Australia

March 2023- May 2023

- Teach various levels of middle and high school physics, chemistry, biology, earth science, and ecology under supervision
- Create and implement lesson plans to ensure all students are supported in their learning

**Clarke Central High School**

Athens, GA

*Student Teacher*

January 2023- March 2023

- Teach various levels of high school physics under supervision of a veteran mentor teacher
- Create and implement lesson plans to ensure all students are supported in their learning
- Participate in weekly professional learning community (PLC) meetings to plan curriculum
- Participate in monthly equity roundtable discussions on encouraging success in the diverse student-body

**University of Georgia Department of Physics and Astronomy**

Athens, GA

*Content Developer*

December 2023-Present

- Design, create, and film prelecture videos for introductory calculus-based physics courses
- Create multiple choice questions integrated into each video using educational theories including Universal Design for Learning and Near and Far Transfer

**Science Guyz**

Athens, GA

*Physics Tutor and Content Developer*

January 2022-May 2022

- Tutor UGA students in various introductory physics courses
- Design and create review guides and videos explaining material for introductory physics courses

**University of Georgia Department of Academic Enhancement**

Athens, GA

*CRLA Certified Master III Peer Tutor*

October 2020 - October 2021

- Tutored UGA students in various introductory physics courses.
- Engaged with students in academic activities on both one-on-one and group bases
- Utilized online teaching platforms to give meaningful instruction in the midst of the COVID-19 pandemic

**Congregation Gesher L'Torah Religious School**

Johns Creek, GA

*Teacher's Assistant*

August 2013 - May 2019

- Aided in planning fun and educational activities for 12-15 children ages 8 to 9.
- Taught Hebrew characters, vocabulary, and basic sentence structure.
- Ensured the safety, health, and wellbeing of the students.

**Imagine That! And Future Tech**

Johns Creek, GA

*Teacher's Assistant*

May 2015 – July 2018 (Seasonal)

- Aided in the planning and execution of fun and educational activities for 10-20 children ages 5-13.
- Taught various scientific subjects such as chemistry, archaeology, forensics, coding, robotics, circuits, and computer-aided design.
- Ensured the safety, health, and wellbeing of the students.

**AWARDS**

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| • <b>David and Elaine Shealy Graduate Fellowship</b>           | August 2024 |
| • <b>SACS-AAPT Spring Conference 2024</b><br>Best Poster Award | April 2024  |
| • <b>NSF GRFP</b><br>Honorable Mention                         | May 2023    |

**CERTIFICATIONS****T-4 Secondary Science Education Grades 6-12 Teacher**

May 2023

**CRLA Certified Master III Peer Tutor**

June 2021

## CAMPUS & COMMUNITY INVOLVEMENT

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### **Director of Graduate Affairs, UGA Catalyst Journal**

August 2024 - Present

- Oversee graduate student reviewers of undergraduate research journal
- Design and monitor reviews of research
- Assist in administrative tasks

### **Graduate Representative, UGA Physics and Astronomy**

August 2024 - Present

#### Committee for Equity, Diversity, and Inclusion

- Attend biannual meetings to plan inclusive events
- Implement planned events, such as displays featuring diverse scientists in respective heritage history months, department picnics, and movie nights celebrating diversity

### **Physics Community Outreach for K-12 Schools, UGA Physics and Astronomy**

October 2022 - Present

- Design age-appropriate demonstrations and activities related to scientific concepts being learned in class
- Travel to local K-12 schools to perform these activities, enhancing scientific learning
- Plan and lead astronomy observations with related activities

### **Undergraduate Representative, UGA Physics and Astronomy**

August 2022 - July 2024

#### Committee for Equity, Diversity, and Inclusion

- Attend biannual meetings to plan inclusive events
- Design and setup displays highlighting physicists of historically underrepresented groups

### **President, UGA Physics Club**

August 2019 - July 2022

- Attend biweekly meetings to discuss current topics in physics.
- Contribute meaningful input and ideas to discussions.

## UNDERGRADUATES MENTORED

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### **Madison Ogle**

October 2023- Present

- Poster Presentation: Ogle, M., **Seiden, D.**, Kuchibhotla, A., Weliweriya, N., Wiegert, C., How Do Physics Teaching Assistants Adapt Their Pedagogy as They Repeat Instruction?. Center for Undergraduate Research Opportunities (CURO) Symposium, Athens, GA, April 2024.

### **Noah Burns**

October 2023-May 2024

- Poster Presentation: Burns, M., **Seiden, D.**, Weliweriya, N., Abdeen, S., Integrating Augmented Reality (AR) into Inherently 3D Physics. Center for Undergraduate Research Opportunities (CURO) Symposium, Athens, GA, April 2024.