

# Julia Ream

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<https://juliaaream.github.io>

## Education

<b>Ph.D. in Mathematics</b> Florida State University Advisors: Mark Sussman and Marc T. Henry de Frahan	2023 (expected)
<b>M.S. in Mathematics</b> Florida State University Focus Area: Applied and Computational Mathematics	2020
<b>B.S. in Mathematics</b> Florida State University Focus Area: Applied and Computational Mathematics	2017
<b>B.A. in Humanities</b> Florida State University Focus Areas: Film Studies, Music History, English	2017

## Research Interests

Hybrid Methods for Computational Fluid Dynamics, Multiphase Fluid Interaction, Numerical Methods for PDEs, Turbulence, High Performance Computing

## Research Experience

<b>NSF Mathematical Sciences Graduate Internship</b> Lawrence Berkeley National Laboratory Advisors: Anne Felden and Marc Day Developed general software framework to build reduced chemical models based on Quasi-Steady State Approximations for incorporation into Exascale Computing Project's combustion codes <i>PeleLM</i> and <i>PeleC</i>	Berkeley, CA (remote) June 2020 - Aug. 2020
<b>NSF Mathematical Sciences Graduate Internship</b> National Renewable Energy Laboratory Advisor: Marc T. Henry de Frahan Analyzed turbulence physics around pseudocritical region of supercritical carbon dioxide round turbulent jet utilizing first-principles simulation code <i>PeleC</i> and high performance computing	Golden, CO June 2019 - Aug. 2019

## Presentations

### Talks

**Adaptive Mesh Refinement Large Eddy Simulation of the Supercritical Carbon Dioxide Round Turbulent Jet**, *SIAM Conference on Computational Science and Engineering*, March 2021, Virtual

**Investigating the Turbulence Physics of a Supercritical Carbon Dioxide Round Jet**, *APS 72<sup>nd</sup> Meeting of the Division of Fluid Dynamics*, Nov. 2019, Seattle, WA

**Investigating the Impact of Supercritical Fluid Properties on the Turbulence Physics of the Round Turbulent Jet**, *39<sup>th</sup> Southeastern-Atlantic Regional Conference on Differential Equations*, Oct. 2019, Daytona, FL

**Association for Women in Mathematics Mentoring Network: Building Community and a Sense of Belonging in the Mathematical Sciences**, *2<sup>nd</sup> Annual Symposium on Diversity and Inclusion in Research and Teaching*, September 2019, Tallahassee, FL

**Numerical Simulations of the Supercritical Carbon Dioxide Round Turbulent Jet**, *5<sup>th</sup> Annual Rocky Mountain Fluid Mechanics Research Symposium*, July 2019, Boulder, CO

## Posters

**Using computer simulations to understand complex fluids**, *2022 FSU Fellows Forum*, March 2022, Tallahassee, FL (virtual)

**Reducing the cost of chemical kinetics in combustion simulations**, *2020 Summer Student Poster Session*, Aug. 2020, Berkeley, CA (remote)

**Investigating Flow Field Properties of the Supercritical Carbon Dioxide Round Turbulent Jet**, *2019 Summer Intern Poster Symposium*, Aug. 2019, Golden, CO

## Employment

**Graduate Teaching Assistant** Aug. 2017 - present  
FSU, Dept. of Mathematics

Taught variety of undergraduate math courses and additionally served as Administrative TA

**Private Tutor** Jan. 2022 - present  
Tallahassee, FL

Tutored variety of math topics at the undergraduate and graduate level

**Teaching Assistant** June 2022 - Aug. 2022  
Amherst College, Thrive Scholars Summer Program

Helped run 6-week Calculus I course for rising high school seniors from underserved communities across the US

**Outreach and Programming Assistant** March 2015 - July 2017  
FSU, Robert Manning Strozier Library

Organized and participated in library outreach events including Resource Fair, Graduate Student Social, Monthly Book Display, Incoming Student Orientation, etc.

**Peer Tutor** Aug. 2015 - May 2017  
FSU, Academic Center for Excellence

Led group review sessions and one-on-one appointments for courses up through Ordinary Differential Equations and Applied Linear Algebra

## Teaching Experience

### Instructor of Record

FSU, Dept. of Mathematics

Calculus with Analytic Geometry II

Fall 2021

Calculus with Analytic Geometry I

Spring 2021<sup>†</sup>, Summer 2021<sup>‡</sup>

Pre-Calculus

Spring 2020, Fall 2020

Fall 2018

### Recitation Instructor

FSU, Dept. of Mathematics

Discrete Mathematics I

Fall 2019

Calculus with Analytic Geometry I

Spring 2019

<sup>†</sup> Combined section 120 person lecture assisted by 2 additional recitation TAs

<sup>‡</sup> Piloted new textbook and homework software as on behalf of Textbook Search Committee

## Outreach Experience

<b>Undergraduate Student Mentor</b> FSU, AWM Student Chapter	Aug. 2019 - Present
<b>#togetHER Panel: How Can Women Support Women at FSU?</b> FSU, Women Wednesdays	Nov. 2020
<b>Graduate Student Representative</b> Joint Mathematics Meeting, Graduate School Fair	Feb. 2020
<b>Math Fun Day Volunteer</b> FSU, Dept. of Mathematics	Feb. 2019, Feb. 2020
<b>Library Ambassador</b> FSU, Robert Manning Strozier Library	May 2015 - Aug. 2016

## Leadership

<b>Co-Chair - Graduate Student Council</b> FSU, Dept. of Mathematics	Aug. 2021 - Present (member since March 2020)
<b>President - Association for Women in Mathematics</b> FSU, AWM Student Chapter	April 2019 - May 2021 (member since Aug. 2018)
<b>Peer Leader - Outreach and Programming</b> FSU, Robert Manning Strozier Library	Feb. 2016 - May 2017

## Fellowships, Scholarships, and Awards

<b>Clara Kibler Davis Award for Graduate Women</b> FSU, Dept. of Mathematics	2019, 2021, 2022
<b>Bettina Zoeller Richmond Award</b> FSU, Dept. of Mathematics	2020, 2022
<b>Graduate Student Leadership Award (nominated)</b> FSU, Graduate School	2022
<b>Distinguished Teaching Assistant</b> FSU, Dept. of Mathematics	2021
<b>Dwight B. Goodner Fellowship in Mathematics</b> FSU, Dept. of Mathematics	2021
<b>Best Presentation of Research</b> Rocky Mountain Fluid Mechanics Research Symposium	2019

## Certification, Training, and Skills

<b>Scientific Programming</b> C++, Python, Julia, Git, Bash, Fortran, Matlab, VisIt, Gmsh, R
<b>Other</b> L <sup>A</sup> T <sub>E</sub> X, MS Office Suite

## Memberships

Association for Women in Mathematics  
American Physical Society  
American Mathematical Society  
Society for Industrial and Applied Mathematics  
Pi Mu Epsilon Math Honor Society