

Julia Ream

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<https://juliaaream.github.io>

Education

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

Research Interests

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

Research Experience

- NSF Mathematical Sciences Graduate Internship** Berkeley, CA (remote)
Lawrence Berkeley National Laboratory June 2020 - Aug. 2020
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 *PeleLM* and *PeleC*

- NSF Mathematical Sciences Graduate Internship** Golden, CO
National Renewable Energy Laboratory June 2019 - Aug. 2019
Advisor: Marc T. Henry de Frahan
Analyzed turbulence physics around pseudocritical region of supercritical carbon dioxide round turbulent jet utilizing first-principles simulation code *PeleC* and high performance computing

Publications

- J. Ream, M. T. Henry de Frahan, S. Yellapantula, M. J. Martin, & R. W. Grout.
Investigating the turbulent statistics of the supercritical carbon dioxide jet using large eddy simulations, in preparation

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 72nd 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, 39th *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, 2nd *Annual Symposium on Diversity and Inclusion in Research and Teaching*, September 2019, Tallahassee, FL

Numerical Simulations of the Supercritical Carbon Dioxide Round Turbulent Jet, 5th *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 (virtual)

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 for Math Department

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

Teaching Experience

Instructor of Record

FSU, Dept. of Mathematics

Calculus with Analytic Geometry II Fall 2021

Calculus with Analytic Geometry I Spring 2021[†], Summer 2021[‡]

Spring 2020, Fall 2020

Pre-Calculus Fall 2018

Recitation Instructor

FSU, Dept. of Mathematics

Discrete Mathematics I Fall 2019

Calculus with Analytic Geometry I Spring 2019

[†] Combined section 120 person lecture assisted by 2 additional recitation TAs

[‡] Piloted new textbook and homework software on behalf of Textbook Committee

Outreach Experience

Undergraduate Student Mentor

Aug. 2019 - Present

FSU, AWM Student Chapter

#togetHER Panel: How Can Women Support Women at FSU? Nov. 2020

FSU, Women Wednesdays

Graduate Student Representative

Feb. 2020

Joint Mathematics Meeting, Graduate School Fair

Math Fun Day Volunteer

Feb. 2019, Feb. 2020

FSU, Dept. of Mathematics

Library Ambassador

May 2015 - Aug. 2016

FSU, Robert Manning Strozier Library

Leadership and Service

Co-Chair - Graduate Student Council

Aug. 2021 - Present

FSU, Dept. of Mathematics

(member since March 2020)

TA Representative - Textbook Committee

April 2020 - Aug. 2021

FSU, Dept. of Mathematics

President - Association for Women in Mathematics

April 2019 - May 2021

FSU, AWM Student Chapter

(member since Aug. 2018)

Fellowships, Scholarships, and Awards

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

Certification, Training, and Skills

Scientific Programming

C++, Python, Julia, Git, Bash, Fortran, Matlab, VisIt, Gmsh, R

Other

L^AT_EX, 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