



# David R. Needell

PhD Student

1200 E. California Blvd  
Caltech MC 128-95  
Pasadena, CA 91125

(303)-518-3785

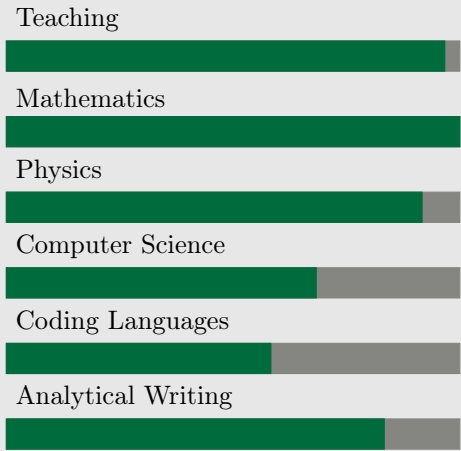
<https://www.drneedell.com>

[dneedell@caltech.edu](mailto:dneedell@caltech.edu)

## About me

I love to learn and teach. Whether this love manifests itself in understanding the thermodynamical limits for solar photovoltaic devices, developing my fluency of supersymmetry in Quantum Mechanics, lecturing to a class on improper integrals, tutoring a student one-on-one in complex analysis, or even learning a new method for centering clay on a pottery wheel, my greatest attribute lies in my curiosity and passion for acquiring and spreading knowledge.

## Skills



## Education

- 2017 – Present *California Institute of Technology* Ph.D.  
Materials Science and Applied Physics
- 2015 – 2017 *California Institute of Technology* M.S.  
Materials Science and Applied Physics
- 2011 – 2015 *Bowdoin College* B.A.  
Majors: Theoretical Physics and Applied Mathematics  
Minor: Computer Science

## Relevant Experience

- 2012 – 2015 *Introductory Physics Teaching Assistant* Bowdoin College  
Conducted bi-weekly study sessions for Physics I students at the undergraduate level
- 2014 – 2015 *Real Analysis Teaching Assistant* Bowdoin College  
Tutored and supervised over 30 students in advanced Real Analysis at the undergraduate level
- 2012 – 2015 *Residential Life Assistant and Team Leader* Bowdoin College  
Led a residential life staff team and ran a first-year undergraduate dormitory of over 70 students
- 2011 – 2014 *Introduction to Wheel Thrown Pottery Instructor* Bowdoin College  
Taught over six terms of beginner and intermediate wheel thrown pottery
- 2009 – 2011 *SSAT/SAT/ACT Mathematics Tutor* Highschool  
Tutored several highschool students on mathematics sections of standardized tests such as the SSAT, SAT, and ACT

## Awards and Honors

- 2017 California Institute of Technology Research Spotlight Recipient
- 2015 – 2016 Charles and Cynthia Zeller Resnick Institute Fellow
- 2012 – 2015 Sarah and James Bowdoin Scholar
- 2012 – 2015 Member of the Mathematics Association of America
- 2012 – 2015 Member of the Society for Industrial and Applied Mathematics
- 2014 National Science Foundation Research for Undergraduates Fellow

## Other information

### Relevant Coursework

- Mathematics** Advanced Integral Calculus, Multivariable Calculus, Advanced Linear Algebra, Mathematical Logic and Reasoning, Real Analysis, Complex Analysis, Ordinary and Partial Differential Equations, Advanced Perturbation Theory
- Physics** Introductory Classical Mechanics, Introductory Electromagnetism, Advanced Circuitry, Introductory Quantum Mechanics, Special and General Relativity, Advanced Methods of Theoretical Physics, Advanced Methods of Experimental Physics, Solid State Physics, Thermodynamics, Statistical Mechanics, Modern Electronics, Advanced Quantum Mechanics and Quantum Field Theory, Advanced Lagrangian Mechanics, Nanophotonics, Diffraction in Materials
- C.S.** Introductory Computer Science, Algorithms, Data Structures, Graph Theory, Nature Inspired Computation