

Catharine Vetter Alvarez, PhD

Math Instructor

Location: Fremont, CA

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Phone: (510) 552-4350

Education

1998 **Doctor of Philosophy, Applied Mathematics**

University of California, Berkeley, CA

1990 **Bachelor of Science, Mathematics**

Linfield University, McMinnville, OR

2023 **Bachelor of Science, Psychology**

Excelsior University, Albany, NY

2022 **Certificate, College Counseling**

UCLA Extension, Los Angeles, CA

Teaching Experience

2023 - Current **Math Instructor II**

Art of Problem Solving Academy

Teaching in person, two classes per week, 3.5 hours per week.

Courses taught: Beast Academy Level 4, Algebra 1, Algebra 2, Geometry, High School Contest Math, Calculus

Skills: group instruction for up to 16 students, gifted education, learner-centered pedagogical style

2020 - Current **Director**

Rivendell Academy of Fremont

Founder and director of a private school satellite program (PSP) which is an umbrella school for homeschoolers in California. Offering to homeschoolers including math tutoring, educational consulting, private school enrollment, college counseling, and exam proctoring.

Skills: business management, educational consulting, college counseling

2018 - Current **Professional Advanced Mathematics Tutor**

Self Employed

Certified advanced math tutor with over 1000 hours of tutoring experience including AP® Calculus AB, AP® Calculus BC, Linear Algebra, Statistics, Pre-Algebra, Algebra 1, Algebra 2, Trigonometry, and Geometry. Experience with multiple curriculum providers including Art of Problem Solving, EMF Math, ALEKS, Khan Academy, IXL, and Denison.

Skills: advanced pedagogical skills, working with math anxiety, hands-on activities that enhance learning

2019 - 2022 **Distance Education Instructor, Mathematics**

Johns Hopkins Center for Talented Youth

Contributed to curriculum development project for online Calculus AB and Calculus BC courses, including customizing the Moodle course appearance and writing and editing problems and solutions in LaTeX.

Skills: curriculum development, editing, advanced Moodle settings, LaTeX.

2014 - 2015 **Math Coach**

OnlineG3.com

Provided individualized online coaching for math students using the ALEKS adaptive math program, grades 7-12.

Skills: tutoring, gifted education, mathematics education.

2006 - 2008	Math Lab Coordinator <i>Warwick Elementary School PTA Volunteer</i> Organized the Math Wizards math enrichment program, created lesson plans, and taught students in grades 2 through 3 for three hours a week. Skills: Curriculum development, math enrichment, classroom management
1998 - 1999	Lecturer <i>University of Wisconsin, Madison</i> Taught three sections of college algebra as a postdoctoral lecturer. Worked with students one-on-one during office hours. Proctored exams. Skills: Math education, oral presentation, classroom management
1997 - 1997	Teaching Assistant <i>University of California, Berkeley</i> Led discussion sections for the Numerical Methods course in the math department, and concurrently received training in math instruction. Worked with students one-on-one during office hours. Skills: Math education, oral presentation, classroom management

Publications

Alvarez, C. V. (1998). *Inverse nodal problems with mixed boundary conditions* [Dissertation (Ph. D. in Applied Mathematics)--University of California, Berkeley, May 1998.]. <https://www.proquest.com/docview/304419901>

Alvarez, C. V., & Brown, D. L. (1996). (tech.). *The performance of a fourth-order Runge-Kutta scheme with cell-edge spatial differences* (pp. 1–11). Los Alamos, NM: Los Alamos National Laboratory, LA-UR-96-4011.

Alvarez, C. V., Brown, D. L., & Sjögreen, B. (1993). (tech.). *CGTVD: A two-dimensional TVD code for composite overlapping grids* (pp. 1–12). Los Alamos, NM: Los Alamos National Laboratory, LA-UR-93-3197.

Mackie, W. A., Hinrichs, C. H., Cohen, I. M., Alin, J. S., Schnitzler, D. T., Carleson, P., Ginn, R., Krueger, P., **Vetter, C. G.**, & Davis, P. R. (1990). Effective thermionic work function measurements of zirconium carbide using a computer-processed image of a thermionic projection microscope pattern. *Journal of Vacuum Science & Technology A: Vacuum, Surfaces, and Films*, 8(3), 2333–2337. <https://doi.org/10.1116/1.576759>

Vetter, C. G. (1990). *The behavior of Newton's method when applied to complex transcendental equations* [Thesis (B.S. in Mathematics)--Linfield University, McMinnville, OR, May 1990.]. Linfield University Archives.

Certifications

2022 - Current	Advanced Professional Tutor, National Tutoring Association
2022 - Current	Mathematics Tutor, National Tutoring Association
2018 - Current	Child Passenger Safety Technician, Safe Kids Worldwide

Awards

1990-1998	National Physical Sciences Consortium Fellow
1986-1990	Linfield University Honors Scholar
1989	Honorable Mention William Lowell Putnam Mathematical Competition
1989	Barry M. Goldwater Scholar