

Jeffrey A. Anderson
Foothill College Math Professor, Education Consultant,
Author & Content Creator, Learning Skills and Scholarship Coach

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Teaching Website: <http://www.appliedlinearalgebra.com/blog/about>

YouTube Channel: <https://www.youtube.com/c/JeffAndersonMath/>

Learning Blog: <http://www.appliedlinearalgebra.com/blog/jeffs-tlc-blog-posts/>

Teaching Blog: <https://www.appliedlinearalgebra.com/blog/jeff-anderson-math-blog-posts/>

EDUCATION

Ph.D. Mathematics, University of California at Davis, August '13

M.A. Mathematics, University of California at Davis, June '10

B.S. Mathematics, University of California at Santa Barbara, June '07 (*summa cum laude* with honors)

TEACHING EXPERIENCE

Full-Time Instructor of Mathematics, Foothill College, Fall '13 – Present

Developed course syllabus. Produced all course content including YouTube videos and open-access textbook manuscripts. Designed course assignments and generated solution sets. Encouraged learning in office hours via one-on-one/group tutoring. Built course webpage. Wrote and evaluated all in-class assessments. Assigned final grades. Please see [my course history page](#) for detailed information about my teaching experience at Foothill.

Associate Instructor, University of California at Davis, Mathematics Department

Developed course syllabus. Planned and delivered lectures. Designed course assignments and generated solution sets. Encouraged learning in office hours via one-on-one/group tutoring. Built course webpage. Wrote and evaluated in-class exams. Created grading rubrics for all graded work. Assigned final grades.

Differential Calculus (Math 21A), Fall '12

Introduction to Abstract Math (Math 108), Summer '12

Short Calculus (Math 16A), Summer '10, Summer '09

Teaching Assistant: University of California, Davis, Mathematics Department, Fall '08 – Spring '13

Planned and delivered weekly discussions. Authored solutions to assigned problem sets. Graded student exams and homework. Provided individual and group tutoring in office hours. Created review sessions for each exam.

Sequences, Series and Vector Calculus (4 sections of Math 21C), Spring '13, Winter '13, '10, '11

Integral Calculus (2 sections of Math 16B), Winter '09

Differential Calculus (2 sections of Math 21A), Fall '08

Guest lectured. Planned and delivered weekly discussions. Built course webpage. Administered and graded in-class exams. Produced grade sheets to give to Instructor of Record for final grade calculations. Guided student problem solving in office hours. Created grading rubrics including solutions for homework assignments/exams.

Advanced Linear Algebra (Math 167), Spring '12

Graduate Analysis (Math 201A), Fall '09

Developed course materials. Created grading rubrics for assignments & exams. Maintained course webpage. Managed student records. Promoted student-teacher communication using online surveys. Lead workshops on using LaTeX, MATLAB and Excel to complete homework assignments.

Mathematical Finance (Math 133), Spring '11

Lead Teaching Assistant: University of California at Davis,

Managed three teaching assistants. Administered homework assignment using online homework system.

Administered course. Advocated for students with disabilities. Managed email from 198 students.

Linear Algebra (Math 22A), Spring '10

TEACHING CONSULTING

Math Faculty Learning Cohort Facilitator, Fall '21 - Present

Develop learning cohort model to support Foothill Math Department Faculty in continual professional development. Under this model, participating faculty can earn Professional Development units toward their next salary scale increase or receive a direct cash stipend for their participation.

[2023 – 2024 Math Faculty Learning Cohort Activities – *Ungrading* by Susan Blum et. al](#), Fall 23 – Spring 24

[2021 - 2022 Math Faculty Learning Cohort Activities – *Grading for Equity* by Joe Feldman](#), Fall '21 – Spring '22

Alternative Assessment Consultant, Jan '21 – Present

Coach college STEM faculty in re-imagining their approach to assessment and teaching. Meet with small faculty teams and individually to guide thinking, provide support, and give feedback on transformative teaching policies. Invite faculty for in-class observation and discussion. Deliver talks and presentations at professional conferences.

Community College Faculty Mentor, Fall '15 – Present

Mentor part-time community college faculty, graduate students, and undergraduates with an interest in earning full-time community college teaching jobs. Support professional growth in the areas of anti-racism, alternative assessment, resume building, productivity systems for teaching, and continual professional development. Coach applicants through full-time job search process, interview strategies, and thriving during the tenure process. Achieved a success ratio of 2-out-of-3 so far: Out of the three applicants who I worked during their full-time job search, two of them landed full-time, tenure track positions at a community college of their choice.

Teaching Assistant Consultant, UCD Center for Excellent in Teaching & Learning, Fall '11 - Winter '12

Coordinated team-taught CETL (Center for Excellence in Teaching and Learning) workshop on Creating Inclusive Classrooms for Students with Disabilities, Best Practices in Syllabus Design and Problem-Based Learning. Co-instructed TA Orientation workshops. Consulted graduate students via mid-term evaluations and video-recording consultations. Planned and delivered teacher training workshops on Peer Instruction.

PROFESSIONAL PRESENTATIONS, TALKS, INTERVIEWS, AND PUBLIC APPEARANCES

See [Jeff Anderson's Talks and Presentation page](#) for a detailed list of public appearances

On [Jeff's Talks page](#) is a list of support websites and links to video recordings for each talk I have given in the last few years. As part of the presentation process, I make all resources available online so that attendees and others can refer back to the presentation and share the resources freely.

WHERE DOES JEFF'S CONSULTING AND AUTHORSHIP INCOME GO?

When I earn money as an educational consultant or when I get paid to give talks, I invest every penny of those earnings into anti-racist research projects to transform STEM education. As I discuss below, I am writing a linear algebra textbook (for more info, check out my [Applied Linear Algebra Fundamentals textbook project homepage](#)). I also am writing a [non-fiction book on how to become a strategic deep learner](#) and another [non-fiction book on ungrading](#) which presents effective ways to abandon letter grades and improve student learning.

As I engage in that work, I hold high standard for how I fund that project. To learn more, please read about [my content creation policies here](#). The gist of that policy is this: I want 100% of my content to be available with no paywall. Thus, when I get consulting income, or get paid to give public talks, I put that money into an authorship account. Sometime in the future, I will use that money to pay out my teaching contract so that I can do my content creation work during daylight hours (rather than via unpaid labor in the early AM, on weekends, and over academic breaks). For detailed information on this approach, I share [my financial plans for content creation here](#). This approach implies that I move slower than if I sold this work to a publishing house. But I don't care about going fast: I care about making lasting changes that completely transform the way college STEM classes can be taught. And, from that angle, this approach guarantees free and open access to excellent educational curriculum for decades into the future. To learn more about how you can invest in this vision for our field, please check out [my support page](#).

RESEACH EXPERIENCE

My approach to research is different than many of my peers. I do not measure my performance as a researcher using traditional metrics for success. I do not place a primary focus for my scholarship on maximizing my [citation metrics](#), publication frequency, citation counts, and money earned in competitive grants. These metrics shift my focus away from doing creative and transformative work with students. The measurement I use to manage my scholarship is one that I call “the lives-transformed and communities empowered metric.” This counts the number of students who report that they use the time we spent together to completely transform the trajectory of their life in ways they feel are meaningful and lead to anti-oppressive action being integrated into their identities as workers, family members, and community organizers. While I am open to publishing my scholarship in peer-reviewed journals, my primary focus is on using my research skills to create liberatory educational resources and policies at a local level. In other words, my major intellectual output is *teaching and learning policies*. I have two target audiences that I intend to influence. The first audience and the one that I put the highest priority on is my students. My second audience is other college STEM researchers and educators who want to leverage their research skills to transform college STEM education. I plan to write more about this approach on [my blog](#) in the future. Below you can find some output from my research career.

Jeff Anderson’s Ungrading Project, Winter ’21 – Present

Implement fully ungraded classroom in which teacher and students minimize the use of grades to guide student learning. This approach to teaching routinely produces at least 90% success rates. Develop a retention system to work with students who don’t succeed in the quarter they enroll to keep these students engaged in their education and making progress towards their degree. This approach to assessment leads students to produce much higher levels academic achievement, results in stronger engagement, and improved retention compared with traditional methods. [See Jeff Anderson’s Ungrading Project homepage](#) for more detailed information.

Linear Algebraic Nodal Analysis Project, Summer ’18 – Fall ’23

Design an interdisciplinary learning activity along with a novel mathematical algorithm for nodal analysis that engages students in using linear systems of equations to model the behavior of practical electric circuits. This activity fits nicely into standard introductory linear algebra curricula and is designed to excite students majoring in engineering, physics, or applied mathematics. Provide a collection of open-access resources to support instructors who want to use this material in project-based, flipped-learning, inquiry-oriented, or independent-study environments. [See Jeff Anderson’s Electrify the Linear Systems Problem project homepage](#) for more detailed information

Power Blocks Design Project, Winter ’20 – Spring ’21

Work with a team of electrical engineers to create a low-cost Electronics Learning Laboratory Kit to empower students studying engineering, mathematics, and physics to discover STEM theory through direct observation and measurements. Develop custom-built dc power blocks (P-Blocks) that transform a 9V battery into either a dc voltage or dc current source that act like ideal dc power sources. The p-blocks are easy-to-use, inexpensive to reproduce, portable, and safe. These components can be used in any classroom and do not require special facilities, not even a power outlet. This is particularly useful for virtual environments and at-home learning in STEM Courses. [See Jeff Anderson’s Powerblock project homepage](#) for more detailed information

Make Eigenvalues Resonate Project, Fall ’15 – Spring ’18

Work with an experimental physicist to design an innovative learning activity that enables students to apply eigenvalue theory to investigate a practical modeling problem. Demonstrate how to build a low-cost spring-coupled pair of pendula and describe how students can measure the movements of these pendula using open-source image processing software. Illustrate how to analyze this position data and provide supporting theory that enables students to accurately model this system using eigenvalues. This hands-on activity prepares students to model other complex systems using linear ordinary differential equations. [See Jeff Anderson’s Make Eigenvalues Resonate project homepage](#) for more detailed information

Structure Exploiting Arnoldi Algorithm Ph.D. Thesis Project, Winter ’10 – Summer ’13

Use linear algebraic research in industrial engineering applications to improve computational run time and accuracy of CAD processes. Develop a set of mathematical algorithms for computer-aided design and testing of the interconnect network for microprocessors. These algorithms add to a library of model-order reduction techniques for higher-order linear dynamical systems and in systems of first-order integro-differential-algebraic equations.

CONTENT CREATION AND AUTHORSHIP

Jeff Anderson Math YouTube Channel, November '14 – Present

Write, produce, and upload over 680 mathematics and deep learning videos. As of 1/1/2024, this channel features 1.32K subscribers and resulted in more than 3900 public watch hours in 2023. Channel provides video series for [Applied Linear Algebra](#), [Programming and Problem Solving in MATLAB](#), [Multivariable Differential Calculus](#), Intermediate Algebra, and Pre-Calculus. From fall 2018 – present day, these videos combined with corresponding textbook manuscripts saved my students between \$15K - \$30K per academic year since all this content is available with no paywall and I do not require students to purchase textbooks. To learn more, see [my content creation policies](#).

Applied Linear Algebra Fundamentals Textbook Manuscript, Fall '12 – Present

Write, edit, and publish over 500 pages of an Applied Linear Algebra textbook manuscript that complements the YouTube videos described above. This textbook focuses on introducing students to the theory of linear algebra through the study of real-world, applied problems that relate to students' larger academic and career interests. See my [Applied Linear Algebra Fundamentals textbook project homepage](#) for a detailed description of this project

Jeff Anderson Math Blog, Fall '18 – Present

Write over 131K words in 74 posts on transformative teaching practices and policies for college STEM teachers, video creation for math faculty, applied linear algebra education, and applied math education. Between 2018 – 2023, this blog accrued over 10.8K views from over 4.6K visitors.

See my [Jeff Anderson Math Blog posts](#) for more information.

The Learning Code Blog, Aug '20 – April '22

Work in a team of three authors to write 96K words in 53 posts to present research-based learning practices that improve student performance in STEM classes, help students earn scholarships, internships, and paid work experience, and help students build grit. Between 2020 – 2023, this blog accrued over 22K views from over 8.9K visitors.

See Jeff's [The Learning Code Blog posts](#) or Jeff's [Conquering College project homepage](#) for more details

CURRICULUM AND COURSE DEVELOPMENT

Foothill College's Math 2BL – Applied Linear Algebra Laboratory Experiences, Fall '22 – Present

Create a 1-unit, 3-hour math laboratory course for students who are enrolled in or have already finished Foothill College's Math 2B (Linear Algebra). In this Math 2BL Lab course, students learn how to use linear algebra to create, develop, and analyze mathematical models of real-world problems related to their academic and career interests. In the 2023 – 2024 academic year, this course is working it's way through the curriculum process and is projected to be available to students starting winter 2025.

Foothill College's Engr 11 Course – Programming and Problem Solving in MATLAB, Fall '14 – Present

Work with a team of faculty to create Foothill's Engr 11 course to teach the fundamentals of MATLAB programming language. In the six years teaching this course, I helped grow enrollment in this class by 3X. For the first time, Foothill will be offering two sections of this course during the 2023 – 2024 academic year.

TEACHING ADMINISTRATION

UC Davis Math Circle Director, Fall '12 – Spring '13

Managed graduate student instructors. Recruited and managed 12 undergraduate teaching assistants. Publicized program and recruited over 50 student participants. Successfully encouraged participation of women and underrepresented groups in mathematics, including over 50% female participation (a program record). Wrote grants and earned funding for guest lecture series. Created, developed, and advertised guest lecture series incorporating industrial mathematicians and engineers from AAA, Intel, Genentech, Google and Delta V Biomechanics. Designed standards for curriculum and educational methods. Supervised website improvement project.

OTHER TEACHING AND LEADERSHIP EXPERIENCE

Get Paid to Learn Scholarship Coach, Fall '17 – Present

Coach students in applying for and earning scholarship money. As of 1/10/2024, this coaching has resulted combined earnings of over \$120K for several Foothill students. The two highest single earners report earning over \$50K each by using the techniques Jeff teaches. Many of Jeff's mentees have also earned regionally and nationally competitive internships and paid work experiences in their industry of choice.

See Jeff's [How to Become a Strategic Deep Learning project homepage](#) for more details

Conquering College Coach, Fall '15 – Present

Coach students in improving their approach to thriving in college. This includes many students who report going from a 2.0 gpa to a 3.7+ gpa over the coaching period. Many mentees report higher levels of engagement in school and much higher performance in their academic work for years after the coaching sessions end.

See Jeff's [How to Become a Strategic Deep Learning project homepage](#) for more details

Math Circle Instructor, Winter '13, '12, '11

Developed course in developmental mathematics for the study of Math Finance for high school and junior high school students from diverse backgrounds. Formulated learning objectives. Created course syllabus. Authored course material with real world applications. Supervised and advised undergraduate teaching assistants.

Professor for the Future Fellow, Fall '12 – Spring '13

Participated in competitive fellowship program to develop leadership skills of outstanding graduate students who demonstrate commitment to professionalism, integrity, and academic service. Developed course redesign project for incorporating technology in the classroom. Worked with faculty members and Center for Excellence in Teaching in Learning to create flipped classroom methods with video delivery of content and in-class problem solving. Developed [workshop series on using video in the classroom](#). Participated in Ethics and Professionalism in the University seminar.

Assistant Language Teacher, JET Program, Ageo City, Japan, Aug. '07 - '08

Develop English language curriculum for Japanese high school students. Facilitate student-centered English lessons. Design three separate semester-long English language modules. Organize yearlong English language instructor's manual and student workbook. Facilitate advanced English conversation course for advanced students. Coach English speech team to first and second place medalists in Saitama Prefectural English Speech Contest. Join Toastmasters International Club and give speeches in Japanese including a 15-minute speech in Japanese to an audience of 500+.

Resident Assistant, University of California at Santa Barbara, Aug. '04 – June '06

Managed university resident hall with diverse undergraduate students. Planned professional development for staff members. Participated in extensive training including cultural awareness, cross cultural communication, sexual and gender diversity, safe space training, leadership training, and conflict resolution. Developed, advertised and conducted educational programs on diversity, academic performance, community outreach, personal development, health, wellness, and communication skills. Provided paraprofessional advising to undergraduate students.

PROFESSIONAL DEVELOPMENT

Develop reading systems to read over 15 books a year at multiple levels of depth, Fall '13 – Present

- [Jeff's Comprehensive Reading list](#)
- [Jeff's Essential UNgrading reading list](#) and [Jeff's Anti-Racist Reading list](#)
- [Jeff's List of 40+ Books to Enhance and Deepen Your College Education](#)

Certificate from Advanced Seminar in College Teaching, March '13

Certificate from Winter Workshop Series on College Teaching, Winter '11

Certificate from Summer Seminar on College Teaching, Summer '10

Active Member of UC Davis Graduate Teaching Community Fall '10 – Spring '13

Participated in workshops on encouraging diversity in the STEM classrooms, encouraging women in STEM fields, supporting students with disabilities, fostering student learning, organizing inclusive classrooms, promoting student engagement, improving student discussions, using technology in the classroom, using video to enhance learning, creating hybrid classrooms, formative assessment, creating effective course syllabus, and grading rubrics.

MEDIA APPEARANCES

Transforming Post-Secondary Education in Mathematics, [Conversations about Alternative Assessment](#) (1/4/2024)
UC Davis GradPathways Institute Spotlight: [Innovation for Empowering Others](#) (9/16/2021)

AWARDS, HONORS, AND CERTIFICATIONS

Student Success in Equity and Innovation Grant, Fall '19 – Spring '20
Foothill College Outstanding Faculty Award, June '17
UC Davis Professors for the Future Fellowship, Fall '12 - Spring '13
UC Davis Math Circle Directorship, Winter '13 – Spring '13
NSF VIGRE Research Fellowship, Summer '12, Fall '11, Summer '11, Fall '10
Schwarze Scholarship for Outstanding Teaching in Mathematics, Spring '12
UC Davis Block Grant in Mathematics, Winter '12, Spring '11, Winter '11, Spring 10, Winter '10
Outstanding Graduate Student Teaching Award Nominee, Winter '12, Winter '10
Teaching Consultant Fellowship, Spring '11 – Winter '12
Toastmasters Competent Communicator Public Speaking Certificate, January '10

LANGUAGES

Japanese: Beginning-level conversational Japanese. Elementary reading, writing and academic skills.
Spanish: Intermediate-level conversational Spanish and intermediate-level reading, writing and academic skills.

MATH EDUCATION TECHNOLOGY SKILLS

MATLAB, MATHEMATICA, LaTeX, Microsoft Office Suite Camtasia Studio, Adobe eLearning Suite

References available upon request – please ask me about the projects that most interest you and I can help you get in contact with folks who know more about my work in those spaces.