

# Ethan K. Sun

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## Education

### Dartmouth College

*Bachelor of Arts - Economics Major Candidate on Honors Track*

**Hanover, NH**

*September 2022 - Present*

- GPA: 3.72 / 4.00
- Member of Dartmouth Economic Research Scholars Board of Directors

### Tacoma Community College

*Associate of Arts - Mathematics Specialization with High Honors*

**Tacoma, WA**

*September 2020 - June 2022*

- GPA: 3.98 / 4.00
- President of Phi Theta Kappa International Honors Society - January 2021
- Running Start dual-enrollment program. Earned Associate of Arts degree in mathematics during high school

## Research Experience

### Lead Economics Researcher

*Advisor - Erzo F.P. Luttmer*

**Hanover, NH**

*September 2024 - March 2025*

- First author studying the long-term effects of the ACA Medicaid expansions
- Use Python, Stata, Excel, and Slurm to analyze insurance coverage, labor force, and medical expense trends

### Economics Research Assistant

*Principal Investigator - Erzo F.P. Luttmer*

**Hanover, NH**

*September 2024 - March 2025*

- Work on The Dartmouth Professor in Economics Erzo F.P. Luttmer's team to value human lives based on respondents' choice between vignettes of life stories where life-time income and age of death are randomized
- Create literature reviews, test survey data to ensure randomizations are implemented correctly and that respondent responses are coded accurately, produce high-quality exhibits based on data analyzed by Professor Luttmer or other senior members of the research team, and help proofread, edit, and format the paper

### Pharmaceutical Engineering Research Assistant

*Principal Investigator - Xin Qi*

**Hanover, NH**

*March 2023 - November 2023*

- Worked in Assistant Professor Xin Qi's Qi Lab at Dartmouth and collaborated with pharmaceutical companies to develop antibodies to target Interleukin-33, a protein in the IL-1 family of cytokines known to be associated with various inflammatory and allergic conditions
- Analyzed data by utilizing RCSB, VMD, Pymol, and AlphaFold to visualize and analyze the structure of antibodies targeting Interleukin-33, then used GROMACS, Slurm, and Python to perform molecular dynamic simulations for data analysis and studying of their properties and binding efficacy to Interleukin-33

## Teaching Experience

### Economics Teaching Assistant

*Faculty - Diego Ramos-Toro*

**Hanover, NH**

*Fall 2024*

- The Price System: Analysis, Problems, and Policies Teaching Fellow - Graded problem sets, exams, and held weekly office hours for a class of 90 students to ask questions about the course material

### Music Teaching Assistant

*Faculty - Michael Zsoldos*

**Hanover, NH**

*Fall 2023, Spring 2024*

- Beginning Music Theory Teaching Assistant - Held weekly piano lessons for scales, dynamics, chords, theory, and a simple piece and held weekly office hours for a class of 11 students to ask questions about the course material

## Publications & Presentations

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- Sun, Alan, **Ethan Sun**, and Warren Shepard. "Algorithmic Phase Transitions in Large Language Models: A Mechanistic Case Study of Arithmetic." Paper presented at ATTRIB @ NeurIPS 2024 workshop, Vancouver, BC, Canada, December 14th, 2024. [[pdf](#)]

## Honors & Awards

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### **James O. Freedman Presidential Scholar**

*Dartmouth College Undergraduate Advising and Research*

**Hanover, NH**

*May 2024*

- Prestigious, GPA-based two-term undergraduate research program with \$3,200 grant

### **Dartmouth Economic Research Scholar**

*Dartmouth College Department of Economics*

**Hanover, NH**

*March 2024*

- Competitive selection-based program designed to support Presidential Scholars who are majoring in economics and provides additional mentoring and support to students with strong potential in economics research

### **William H. Neukom 1964 Scholar**

*The Neukom Institute for Computational Science*

**Hanover, NH**

*August 2023*

- Selective program that provides a \$1,600 grant to enrolled undergraduates engaged in faculty-advised research in the development of novel computational techniques as well as the application of computational methods to problems in the Sciences, Social Sciences, Humanities, and the Arts

### **Undergraduate Research Assistantships at Dartmouth Scholar**

*Dartmouth College Undergraduate Advising and Research*

**Hanover, NH**

*March 2023*

- Competitive program that provides a \$1,600 grant intended to introduce students to research with priority given to sophomores and juniors (received award as a freshman)

### **Citations for Meritorious Performance**

*Dartmouth College*

**Hanover, NH**

*Spring 2023, Summer 2024*

- Probability, Research Associate Linh Huynh - Summer 2024
- Introduction to Programming and Computation, Albert Bradley 1915 Third Century Professor in Computer Science Andrew Campbell - Spring 2023
- Italian Briefs, Dartmouth Faculty Michael Wyatt - Spring 2023

## Skills & Licenses

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- Python, Stata, LaTeX, Slurm, Excel
- National Registry of Emergency Medical Technicians - B License

## Relevant Coursework

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### **Dartmouth College**

*Bachelor of Arts*

**Hanover, NH**

*September 2022 - Present*

- *Economics* - advanced microeconomics, macroeconomics, econometrics, game theory, public economics, financial markets
- *Mathematics* - accelerated multivariable calculus, probability, differential equations

### **Tacoma Community College**

*Associate of Arts*

**Tacoma, WA**

*September 2020 - June 2022*

- *Mathematics* - calculus I/II/III, multivariable calculus, differential equations, linear algebra