

# Curriculum Vitae

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## Timmy Ma

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## Research Interests

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Applied Mathematics - stochastic processes, Markov chains, statistical learning, probability  
Complex Social Phenomena - linguistics, language learning

## Education

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Ph.D. Mathematics   University of California, Irvine	May 2018
Thesis Advisor: Natalia Komarova, Ph.D.	
Dissertation: A Nonlinear Approach To Learning From an Inconsistent Source (with some applications)	
M.S. in Mathematics   University of California, Irvine	Sept 2014
B.A. in Mathematics   University of California, Berkeley	May 2011
A.S. in Mathematics   El Camino Community College	May 2009

## Papers and Preprints

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Chen, X., Wang, X., Ma, T., Escudero, D., & Fu, F. (2020). "Effectiveness of Massive Travel Restrictions on Mitigating outbreaks of COVID-19 in China." in review.

Dong, T., Zeng, R., & Ma, T. (2019). "Diplomatic Dynamics of International Treaty Negotiations." *The PUMP Journal of Undergraduate Research*, 2, 199-224.

Ma, T., Lameira, A., & Komarova, N. L., (2019) "The Evolution And Meaning Of The First Word." In review *Proceedings B*

Ma, T., & Komarova, N. L. (2019), "Object-Label-Order Effect When Learning From an Inconsistent Source." *Cogn Sci*, 43: e12737. doi:<https://10.1111/cogs.12737>

Ma, T., Wood, K., Xu, D., Guidotti, P., Pantano, A., & Komarova, N.L., (2017), "Diversity and Admission Predictors for Mathematics PhD Success." *Notices of the AMS*, vol 65, No 6, p 676.

Ma, T., & Komarova, N.L., (2017), "Mathematical Modeling of Learning from an Inconsistent Source: A Nonlinear Approach." *Bulletin of mathematical biology*, 79(3), pp.635-661.

## Employment

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Assistant Professor   Xavier University of Louisiana	Aug 2021 - Present
Instructor in Applied and Computational Mathematics   Dartmouth College	2018 - 2021
Graduate Student Researcher   University of California, Irvine	2012 - 2018
Teaching Associate   University of California, Irvine	2017 - 2018
Teaching Assistant   University of California, Irvine	2012 - 2017
Instructor   California Alliance for Minority Participation	2015 - 2017
Graduate Student Instructor   University of California, Berkeley	2011-2012

## Research Experience

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Assistant Professor   Xavier University of Louisiana	Aug 2021 - Present
Advising undergraduate students in research projects in math biology, language regularization, and mathematical modeling.	
Creating mathematical models to explain complex social phenomena with MATLAB and R.	
Research Associate II   Dartmouth College	July 2018 - July 2021
Creating mathematical models to explain complex social phenomena with MATLAB and R.	
Participating member of the Fu Lab.	
Advising undergraduate students in their research projects in epidemiology, immunology, opioid crisis, art history, sports analytics.	
Advising Women In Science Program students in immunology research.	
Teaching an undergraduate topics course in Applied Math. Topics include: Language algorithms, Markov chains, stochastic processes.	
Facilitating the Future Faculty Program to prepare math graduate students for the academic job market.	
Organizing the Applied and Computational Mathematics weekly seminars.	
Presenting research at the JMM.	
Conducting human subject experiments with IRB approval.	
Graduate Student Researcher   University of California, Irvine	Aug 2012 - July 2018
Creating mathematical models to explain complex social phenomena with MATLAB.	
Advising undergraduate students in their research projects in language learning, color categorization.	
Conducting human experiments to compare simulated data from mathematical models on language learning.	
Writing and receiving approval from Institutional Review Board to conduct human experiments.	
Conducting statistical analysis of graduate performance in a Math PhD program to predict the success of a prospective graduate student.	
Presenting research at the JMM and Mathfest.	

## Teaching Experience & Fellowship

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Assistant Professor | Xavier University of Louisiana, New Orleans, LA 2021 - Present

Coordinating the Math 1070 Calculus team by managing administrative duties with assignments, midterms, integration of Khan Academy, and final

Creating, implementing, and devising lesson plans for various undergraduate math courses.

Mentoring Supplemental Instructors from XULA's Tutoring center to help facilitate lectures in the classroom.

Writing, proctoring, and grading quizzes/exams.

Maintaining grade-book for lecture courses.

Creating and maintaining a healthy working and learning environment.

Providing support and guidance for students academically inside and outside the classroom.

Courses taught:

Single Variable Calculus (Fall 2021, Spring 2022, Fall 2021)

Developmental Math Drill

Instructor | Dartmouth College, Hanover, New Hampshire 2018 - 2021

Coordinating the Math 3 Calculus team by managing administrative duties with assignments, midterms, integration of Khan Academy, and final

Creating, implementing, and devising lesson plans for various undergraduate math courses.

Mentoring Learning Fellows from the Dartmouth Center for the Advancement of Learning to help facilitate lectures in the classroom.

Utilizing online-centered educational tools such as Kahoot! and Khan Academy to formatively assess a classroom of 30-50 students.

Writing, proctoring, and grading quizzes/exams.

Maintaining grade-book for lecture courses.

Creating and maintaining a healthy working and learning environment.

Providing support and guidance for students academically inside and outside the classroom.

Courses taught:

Single Variable Calculus (Fall 2018 (2 courses), Fall 2019, Winter 2020)

Topics in Applied Mathematics (Winter 2019)

Differential Equations (Fall 2019)

Teaching Associate (Instructor) | University of California, Irvine Fall 2017 - Winter 2018

Teaching Associate for Math 2B (Integral Calculus)

Creating, implementing, and devising lesson plans for lecture.

Utilizing online-centered educational tools to formatively assess a classroom of 50-70 students.

Mentoring Teaching Assistants to facilitate the discussion sections.

Writing, proctoring, and grading quizzes/exams.

Maintaining grade-book for lecture courses.

Creating and maintaining a healthy working and learning environment.

Providing support and guidance for students academically inside and outside the classroom.

## Teaching Experience & Fellowship Cont'd

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Pedagogical Fellow | University of California, Irvine 2016 - 2017

Creating, implementing, and designing Teaching workshops for the Teaching Assistant Professional Development Program. Workshops include: quiz writing, active learning, diversity, microteaching, utilizing technology in the classroom, and office hours.

Designing a course to succeed on the academic job market and develop plans for long-term development on teaching.

Improving Teaching Assistants in the School of Physical Sciences through consultations of their pedagogical skills.

Mentoring other Teaching Assistants within the Math department in regards to teaching and pedagogy.

Studying both general and math-specific pedagogical theory, as well as observing and implementing evidence-based teaching practices in discussion sections.

Teaching Assistant | University of California, Irvine Fall 2012{Winter 2018

Creating, implementing, and devising lesson plans for discussion sections.

Utilizing online-centered educational tools to assess students formatively in the classroom.

Writing, proctoring, and grading quizzes/exams.

Maintaining grade-book for lecture courses.

Courses Taught:

Calculus 1 (2 Quarters) { Differential calculus

Calculus 2 (4 Quarters) { Integral calculus

Multivariable Calculus (5 Quarters) { Calculus with several variables

Numerical Analysis { Root finding methods, interpolation, numerical differentiation and integration, numerical linear algebra

Introduction to Group Theory { Groups, subgroups, normal groups, isomorphisms

Introduction to Proofs (2 Quarters) { Set theory, if/then statements, induction, relations

Linear Algebra { vector spaces, null-rank theorem, linear independence

Differential Equations { separation of variables, heat equation, wave equation

Instructor | California Alliance for Minority Participation (CAMP) Summer 2015 - 2017

Developing and implementing a unique three-week curriculum on Calculus and problem solving and paradoxes of infinities.

Teaching students about related rates, optimization, Riemann Sums, Fundamental Theorem of Calculus, volumes of objects with integrals.

Informing, advising, and mentoring students about career choices and opportunities from UCI.

Preparing incoming freshmen for their transition from high school to UCI.

Utilizing online-centered educational tools to assess students formatively in the classroom.

Graduate Student Instructor | University of California, Berkeley Fall 2011

Teaching Assistant for one semester-long Calculus course in Fall Program for Freshman.

Providing support and guidance for students academically inside and outside the classroom.

## Seminar and Conference Talks

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Mathfest 2022, Philadelphia, PA	August 2022
Bee Colony Optimization for Travelling Salesperson problem: New Orleans tour	
JMM 2019, Baltimore MD	January 2019
Object-Label-Order Effect in a noisy learning environment	
JMM 2018, San Diego CA	January 2018
Feature-Label-Order Effect in a noisy learning environment	
JMM 2018, San Diego CA	January 2018
Using Kahoot! in the classroom to engage calculus students	
Mathfest 2017, Chicago IL	July 28, 2017
Admission Predictors for PhD Success: Preliminary Results	
Math Graduate Seminar, Irvine CA	May 26, 2017
Informational meeting: Follow-up on teaching and improvements for TAPDP	
Diversity in Mathematics Festival, Irvine CA	Apr 15, 2017
Admission Predictors for PhD Success: Preliminary Results	
LUCE Graduate Student Conference, Irvine CA	May 27th, 2016
Regularization of languages: A new mathematical framework of learning from an inconsistent source	
Joint Mathematics Meetings, Seattle WA	Jan 4-9, 2016
Regularization of languages: A new mathematical framework of learning from an inconsistent source	
Joint Mathematics Meetings, Seattle WA	Jan 4-9, 2016
Curriculum development for the California Alliance for Minority Participation Summer Science Academy	



## Honors and Awards

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Postdoctoral Scholar Professional Development Award (Dartmouth College)	2019
Jean-Claude Falmagne Dissertation Award (UC Irvine)	2018

## References

Feng Fu, Ph.D  
Assistant Professor  
Dartmouth College  
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Natalia Komarova, Ph.D (Thesis Advisor)  
Professor  
University of California, Irvine  
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Daniel Mann, Ph.D (teaching reference)  
Director, Graduate Student and Postdoctoral Scholar Instructional  
Development  
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Nathan Kaplan, Ph.D (teaching reference)  
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Scott Pauls, Ph.D  
Professor  
Cheheyl Professor and Director, Dartmouth Center for Advancement  
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Rachel Lehman, Ph.D (teaching reference)  
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Last updated: Wednesday 17<sup>th</sup> August, 2022