

Thriving your Way Through Graduate School

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**Society for
Mathematical
Biology**



**14th European
Conference on
Mathematical &
Theoretical Biology**

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Overview of my journey

- BS Computational Mathematical Sciences, Arizona State (ASU) May 2009
- MA Mathematics, ASU, May 2011
- PhD Applied Mathematics, ASU, August 2014
 - Advisor: Yang Kuang
- Postdoctoral fellow at NIMBioS, U. Tennessee Knoxville
- Assistant professor, Texas Tech 2015
- Associate professor, Texas Tech 2021
- Professor, Texas Tech, 2025
- Professor, Virginia Tech, 2026

Surviving your way through graduate school

- It's a good portion of your life. Aim to thrive - not just survive.
- Math is hard!
 - Learn new things
 - Research - you have control to choose the area/problems to work on**
 - Your colleagues may become life-long friends
- Experience new places
 - Some move to new cities for graduate school
 - Travel to conference/workshops
- Find what works for you and take care of your mental health:
exercise, meditation, talking to people, professional help

**All programs are different and this transition from math classes/assignments to developing your own research program may not feel so clear yet.

Thriving

~~Surviving~~ your way through graduate school

- It's a good portion of your life. Aim to thrive - not just survive.
- Math is ~~hard!~~ fun!
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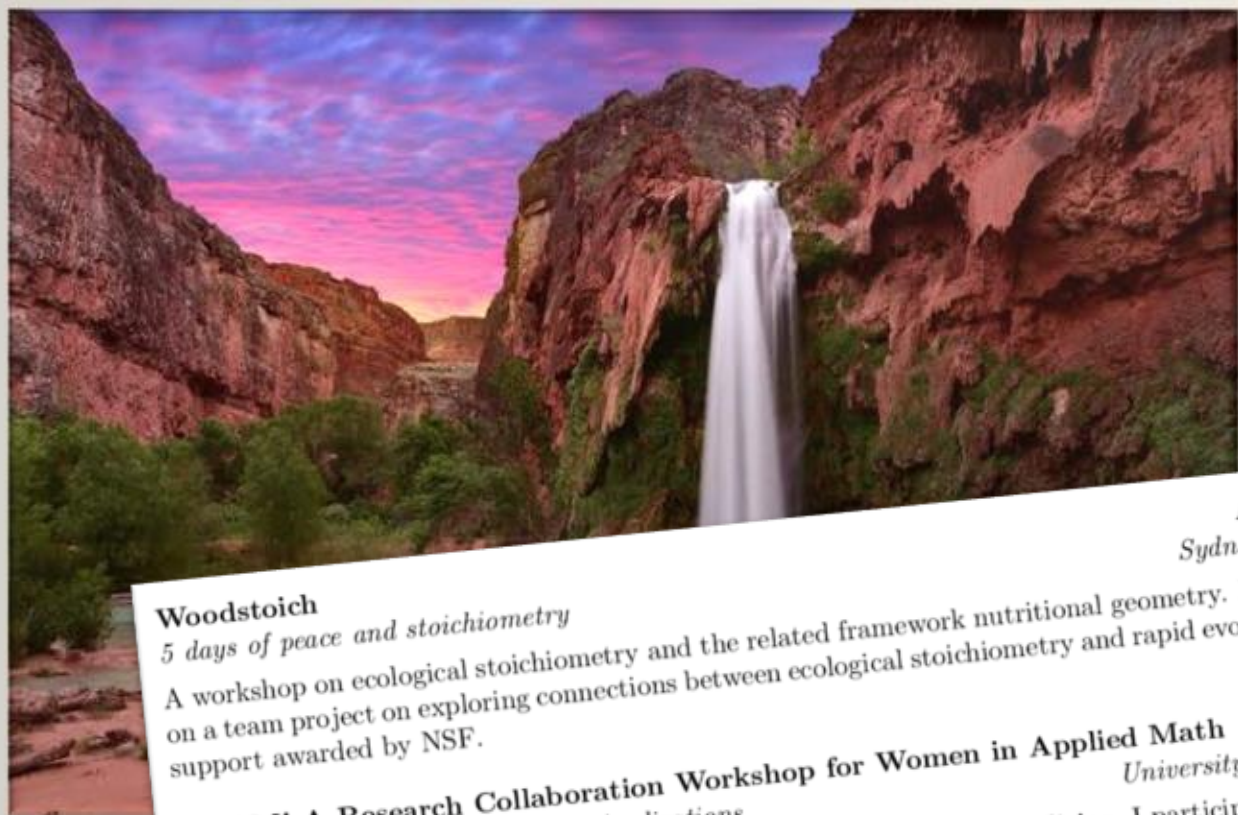
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Advisor-student relationship

- Role of the advisor
 - Your primary mentor (academic & professional)
 - Often key for career growth & new opportunities
 - Your co-author and future collaborator
- Building the *relationship*
 - Choose intentionally and find an advisor who will help you **THRIVE**.
 - It's a two-way street: requires work, commitment, and adaptation from BOTH sides
 - Seek outside perspective: ask peers and collaborators for advice on managing the relationship.

What I did as a student to ^{love}~~survive~~ graduate school

- Diversified my world
 - Sought out cross-disciplinary collaborations (working with biologists)
 - Found supportive colleagues (some I still work with today!)
 - Took creative "sanity classes" entirely for fun (woodworking, yoga, calligraphy)
- Expanded my horizons
 - Traveled actively to conferences and intensive workshops
 - Explored the local landscape – Arizona is beautiful!
- Prepared
 - Focused on submitting and publishing papers before my defense
 - Applied for postdocs



Woodstoich

5 days of peace and stoichiometry

A workshop on ecological stoichiometry and the related framework nutritional geometry. I participated on a team project on exploring connections between ecological stoichiometry and rapid evolution. Travel support awarded by NSF.

WhAM! A Research Collaboration Workshop for Women in Applied Math

Sept 2013

University of Minnesota

Institute for Mathematics and its Applications

A workshop on dynamical systems with applications to biology and medicine. I participated on a team project on 'Intermittent Preventive Treatment and the Spread of Drug Resistance to Malaria'. Travel support awarded by Institute for Mathematics and its Applications.

Mathematical Problems in Industry

29th Annual Workshop

I participated on a team project collaborating with the company Pall on Changes in Capture Efficiency Due to Folding. Pall makes very fine porous filter media and are interested in predicting the changes that may occur in the ability of the membrane to capture particles of various sizes when the filter is folded. Travel support awarded by Institute for Mathematics and its Applications.

European Study Group with Industry

91st Annual Study Group

I participated on a team project collaborating with the Norwegian company Teknova/Elkem on modeling of continuous casting of silicon. Travel support

August 2014

Sydney, Australia



~~love~~ enjoy

What I do now so my students ~~survive~~ graduate school

- Mentor for mutual success and align passions with productivity
 - I steer students toward high-priority, collaborative projects that move both our research agendas forward.
 - Life is too short to work on boring science with people you don't like.
- Normalizing the invisible side of academia
 - I actively train them in critical, transferable career skills (not just math but writing, presentation, and classroom instruction).
 - I try to demystify rejections by sharing my own declined grants and papers.
- Navigating the work life balance together
 - The ongoing struggle: I openly model how hard it is to say "no" to exciting projects.
 - Try to practice setting boundaries and identify burnout early.
 - I encourage them to hunt for family, travel, and institutional resources to support their life outside of math.

rhythm

Work-life ~~balance~~

- Guard your time and build a life outside of math.
 - You aren't putting your personal life on pause for a degree; you are building a sustainable rhythm right now.
- Recognize that your professional career begins today.
 - You aren't just a student waiting to start; you are an early-career researcher who needs to establish boundaries now.
- Create a strategic, yet highly adjustable plan.
 - Map out your long-term milestones, but allow your expectations to shift as life and research inevitably change.

Mathematician and a mom



Professor Life



Research & Professional Development

Learn

Attend talks/seminars

Write/submit papers

Present posters/talks

Network at conferences

Teaching & Mentoring

Classroom instruction

Course design

Student mentorship

Office hours

Grading

Funding & Growth

Apply for research funding

Manage budgets & timelines

Help students apply for opportunities

Write letters of rec

Service & Community

Departmental/University committees

Public engagement

Field service (reviewing papers/organizing sessions)

Fostering inclusive academic spaces

Grad Professor Life



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Modern struggles

- Navigating the AI Landscape.
 - View AI as a tireless collaborator, not a shortcut. Use LLMs to help debug code, brainstorm outlines, or act as an initial peer reviewer for your writing.
 - Protect and cultivate your **unique scientific voice**. Tools can polish your text, but critical thinking, deep insights, and authentic storytelling must come from you.
- Beating Digital Fatigue
 - Schedule intentional blocks for uninterrupted deep work. Turn off notifications and step away from the screen when necessary; resting your brain is required for high-level math.

I love my job

- I work on cool science with cool people
 - Life is far too short to spend your energy on boring projects or toxic collaborations.
- I still struggle with rejections and finding the perfect rhythm.
 - Even with tenure, managing failure is an ongoing process
 - I am shifting my mindset to actively "aim for rejections."
 - Failing to fail means I probably didn't aim high enough.
- I am working hard to master the art of saying "no."
 - I still get easily excited by new ideas, but learning to protect my time is a lifelong practice.

I made it and so can you!



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