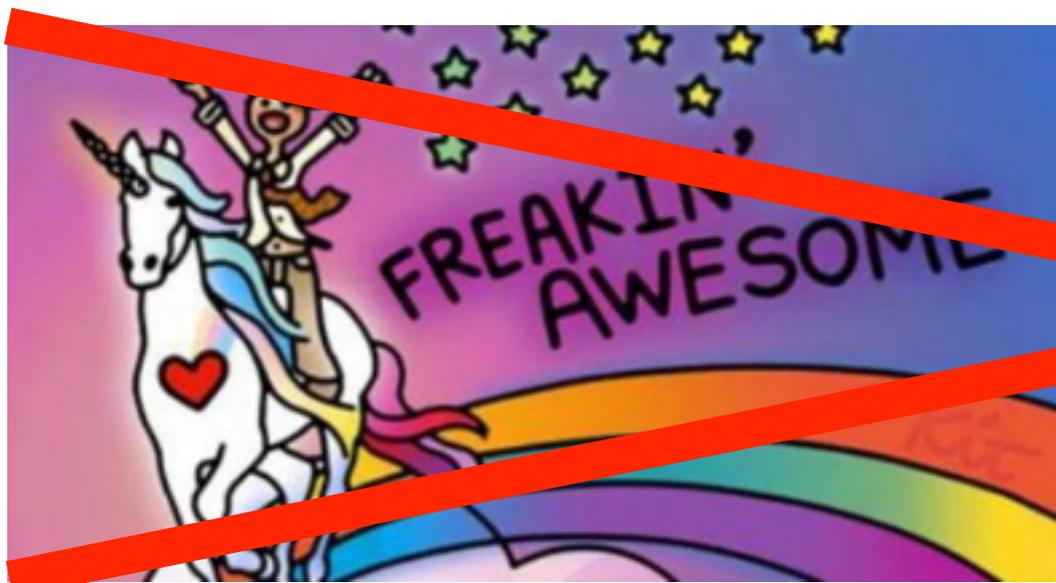


Mentoring undergraduates in a productive way, being a prolific scholar, and being a successful faculty at a liberal arts college in general

Chad Topaz (Williams College)



RISK OF *Awesome* TODAY



Backdrop

Advice?

I / M e

Privilege

(A non-exhaustive accounting)

- White
- Male
- Cisgender
- Non-disabled
- U.S. citizen
- Upper-middle class
- Tenured/promoted
- Well-funded school

Super-duper gay married... to a higher-ed administrator



Quitting 1-2-3



No laundry list



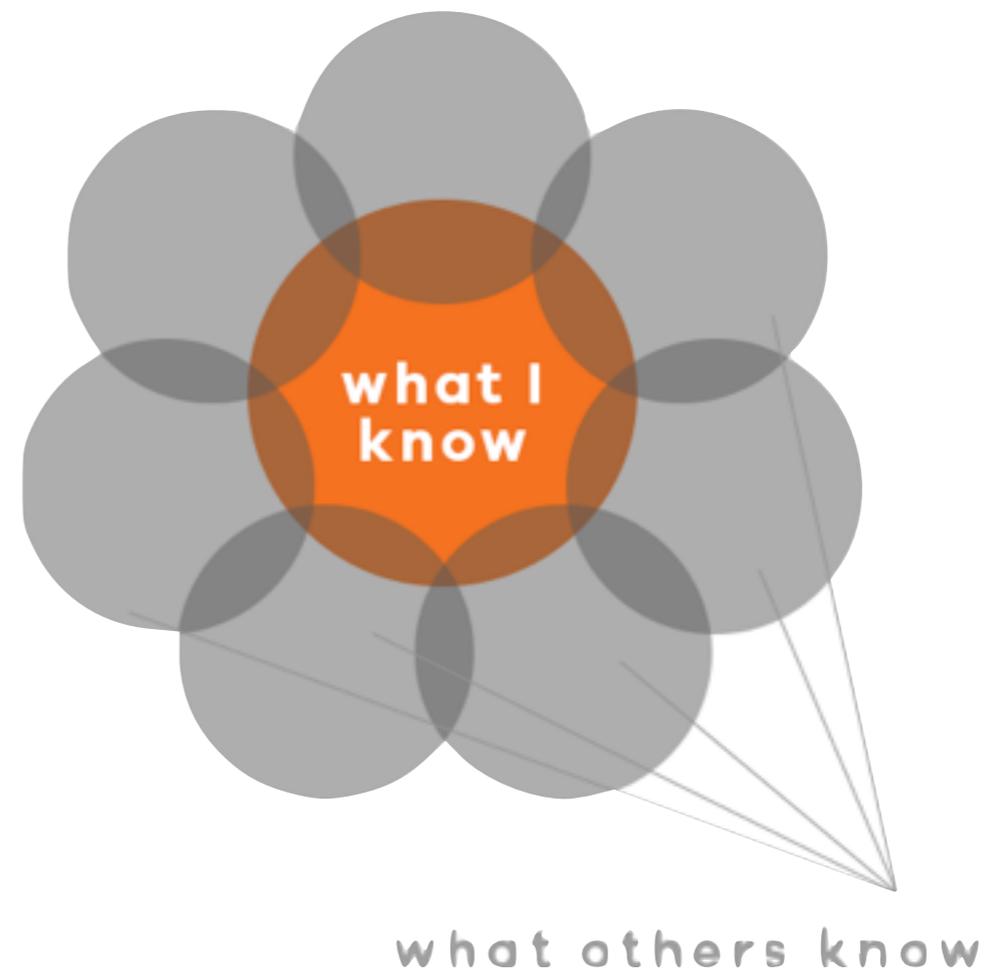
Guiding Principles

I am ok being a growth-minded impostor.

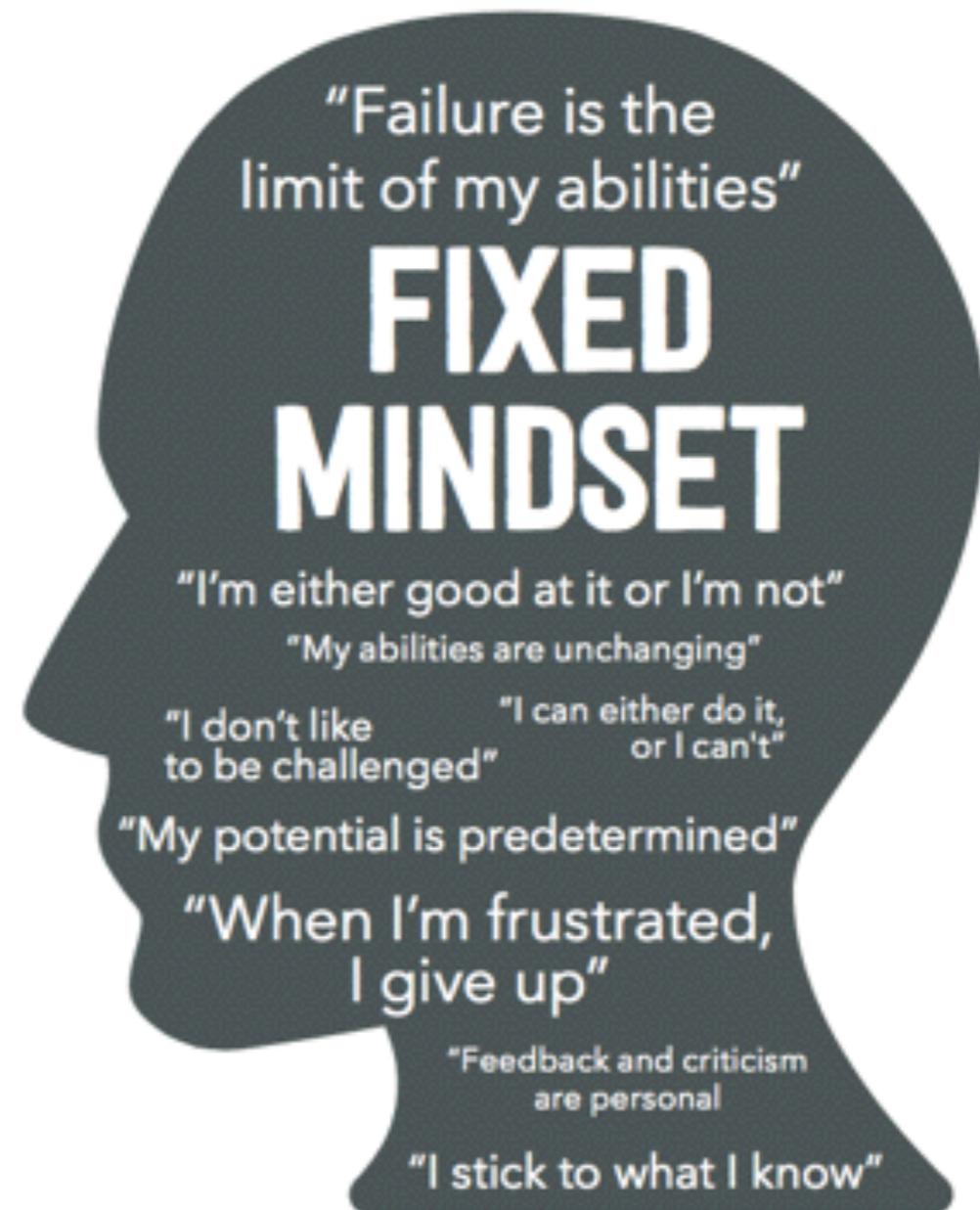
**IMPOSTOR
SYNDROME**



REALITY



I am ok being a growth-minded impostor.



I know my values.

No one in this room has to be working as a faculty member. Why are you doing this job?

Field	Ph.D.s*	Faculty*	Ratio	Likely to work in academia
All	41,180	199,500	0.21	24%
Physical sciences	4205	27,700	0.15	33%
Math	1696	14,500	0.12	43%
Computer	1574	5700	0.28	18%
Life/med sciences	15,440	64,800	0.24	21%
Engineering	8110	22,500	0.36	14%

*Data from *Science and Engineering Indicators 2012*

Science Magazine

I know my values.

No one in this room has to be working as a faculty member. Why are you doing this job?

Quick Facts: Mathematicians	
2016 Median Pay ?	\$105,810 per year \$50.87 per hour
Typical Entry-Level Education ?	Master's degree
Work Experience in a Related Occupation ?	None
On-the-job Training ?	None
Number of Jobs, 2014 ?	3,500
Job Outlook, 2014-24 ?	21% (Much faster than average)
Employment Change, 2014-24 ?	700

Bureau of Labor Statistics

I know my values.

Math is an underexploited tool for solving many of the world's problems and challenges. With as much freedom as possible, I want to solve those problems myself and train other people to solve them, too.

I know my institution's values.

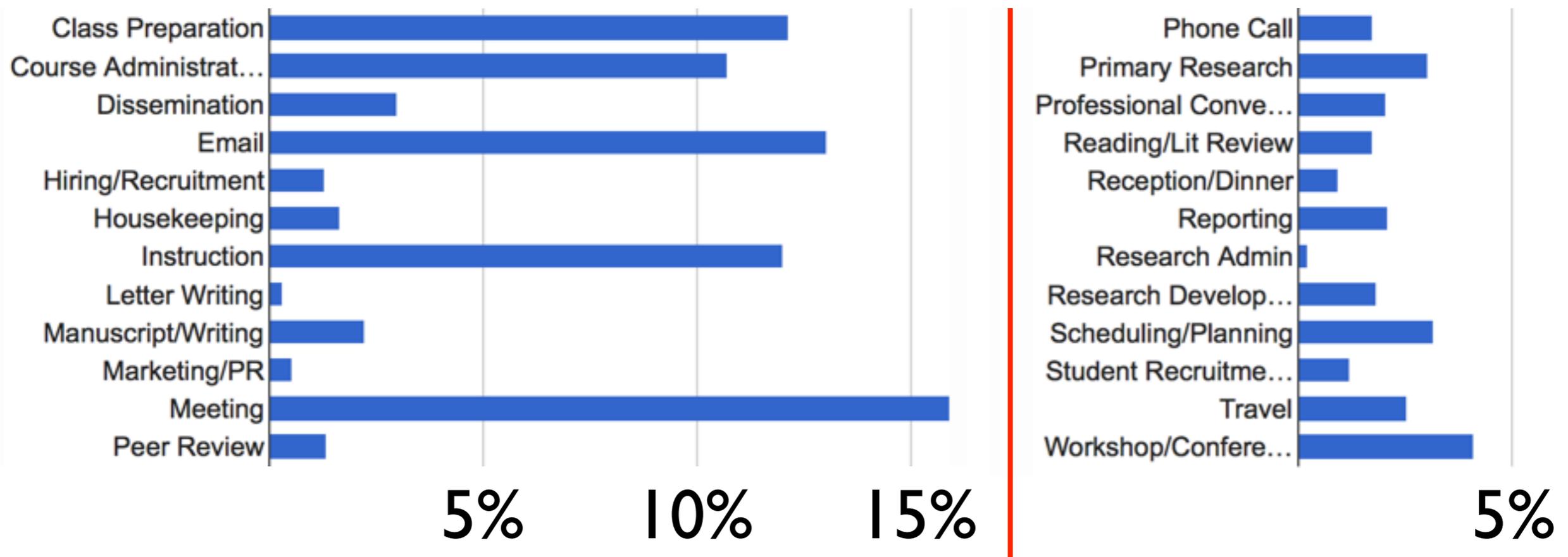
1. What is your institution's ideal teaching/research/service balance?
2. What is your ideal teaching/research/service balance?
3. How do you cope with the discrepancies?
4. Do you know your institution's tenure requirements? Do you know your institution's tenure process? Do you care?

I know my institution's values.

When I went through the tenure/promotion processes at my old institution, I knew every in-and-out of the process and set myself up for success accordingly. When my ideal professional portfolio became too out of balance with my institution's, I left. (This was a secondary reason for my move.)

I have more demands on my time than I have time.

How do faculty spend their time? (TAWKS study)



I have more demands on my
time than I have time.



I have more demands on my time than I have time.

Things I have stopped doing (examples):

- Having an office telephone
- Emailing after 6 am and before 8 pm
- Refereeing articles on which I am not expert
- Fixing other authors' mathematical issues
- Writing every letter of recommendation from scratch
- Attending meetings I don't need to be at
- Preparing for class in traditional ways
- LaTeXing quizzes and exams
- Underutilizing student TAs
- Underutilizing department/college admin staff

I have built a community.

Effects of Networking on Career Success: A Longitudinal Study

Hans-Georg Wolff and Klaus Moser, *J. Appl. Psych.* 94 (2009) 196 - 206

“Multilevel analyses showed that networking is related to concurrent salary and that it is related to the growth rate of salary over time. Networking is also related to concurrent career satisfaction.”

Ok, fine, a laundry list for mentoring student research.

- I am focusing on summer research
- More like teaching than research
- Set expectations with students (# hours, deliverables, setbacks, etc.)
- Give students a realistic experience
- Getting a paper out is secondary
- Have a long time horizon
- Continue in later summers, or via senior thesis, or course projects, or...
- Students work in teams of 2 - 3 (if resources allow)
- Meet with students every single day
- Code together with students
- Teach a lit review
- Teach organization (folders, commenting, BibTex, etc.)
- Teach/practice giving a talk
- Incorporate other professional development activities
- Incorporate social activities

And a laundry list for being a prolific scholar.

- Decide if you want to be
- Take advantage of collaborations, in-person and virtual
- Get money (we can talk about grants for hrs...)
- Make time
- Do small tasks regularly (don't wait for big chunks of time)
- Make strategic decisions about where to publish
- Network at conferences, workshops
- Get your work out there so it gets publicized and cited

**But most of all, just have good
general principles.**

Growth mindset

Values

Time management

Community

<http://www.ams.org/profession/2018MRC-Agent>

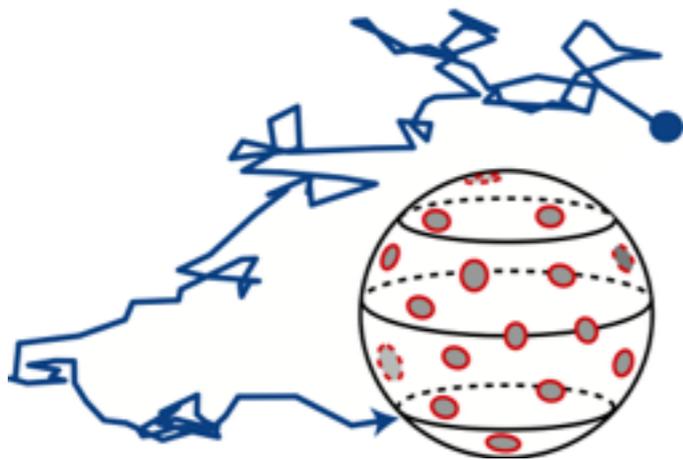
American Mathematical Society Mathematics Research Community

Agent-Based Modeling in Biological and Social Systems

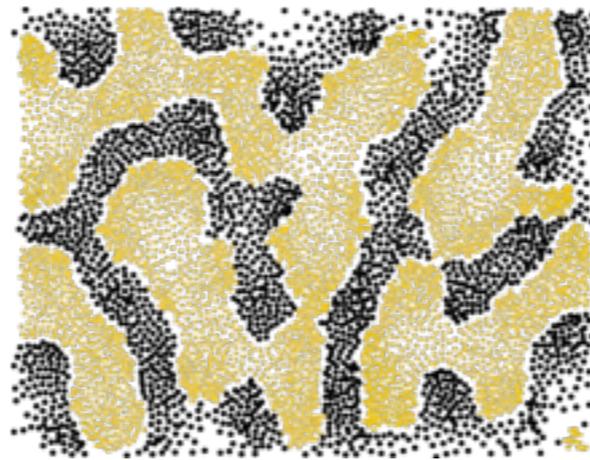
A practicum for graduate students and recent PhD's
June 17 - 23, 2018

Whispering Pines Conference Center, West Greenwich, Rhode Island

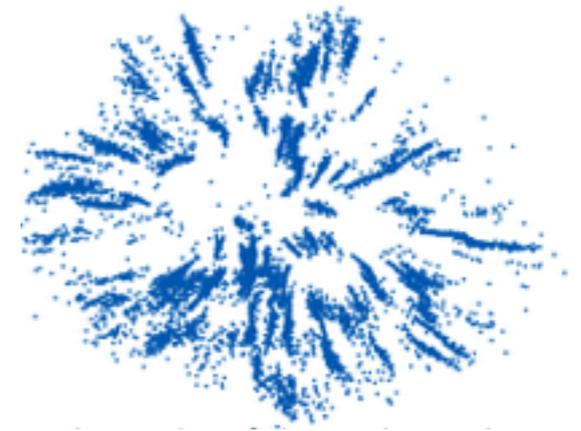
Andrew Bernoff (Harvey Mudd College), Leah Edelstein-Keshet (University of British Columbia), Alan Lindsay (University of Notre Dame), Chad Topaz (Williams College), Alexandria Volkening, (MBI @ Ohio State), Lori Ziegelmeier (Macalester College)



Diffusive signaling problems in chemoreception
(Bernoff & Lindsay 2017)



Agent-based model of zebrafish stripes
(Volkening & Sandstede 2015)



Agent-based model of locust hopper bands
(Bernoff, Devore, Jones, Zhang & Topaz 2017)