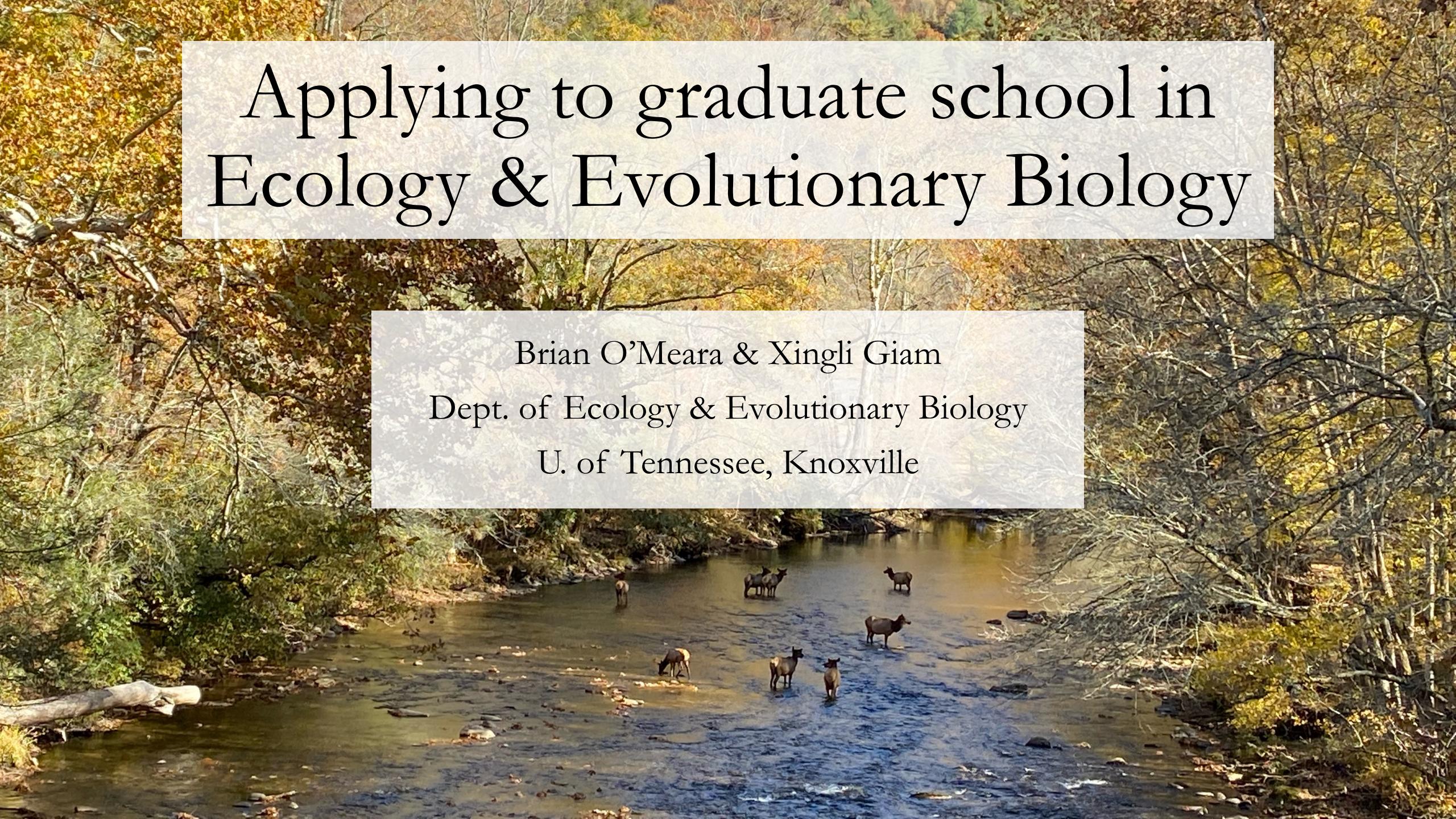


Applying to graduate school in Ecology & Evolutionary Biology

Brian O'Meara & Xingli Giam

Dept. of Ecology & Evolutionary Biology

U. of Tennessee, Knoxville



Caveats

- Focus on US-based schools
- Focus on programs with research-based Masters and PhD
- Focus on ecology and evolution
- Our experiences might not be predictive of yours: people are often treated differently due to age, gender, ethnicity, marital status, national origin, regional accents, wealth, and much more

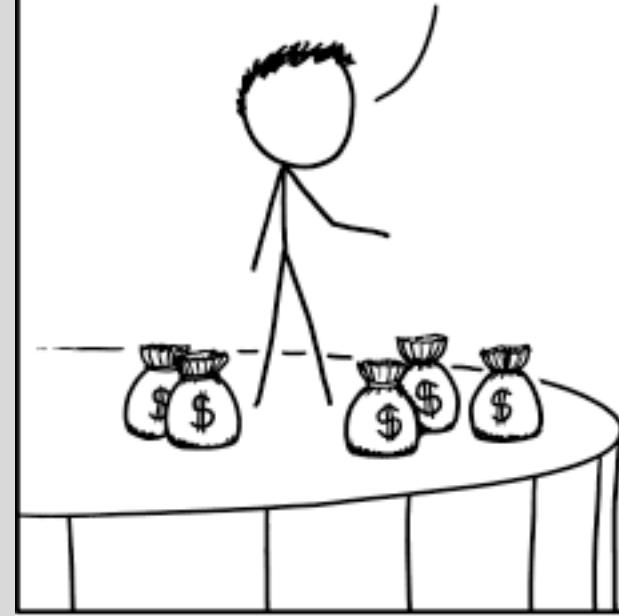
Careers in EEB with a Masters or PhD

- **Non-governmental Organizations (NGOs):** Conservation, remediation, education
- **Government agencies:** National / state parks, wildlife agencies, regulatory agencies
- **Academia:** Lab manager, curator, tenure-stream faculty, non tenure-stream faculty
- **Industry:** Research, data analysis, sustainability initiatives
- **Transferable skills:** Organize multiyear projects, write software, machine learning, data analytics, teaching

NEVER STOP BUYING LOTTERY TICKETS,
NO MATTER WHAT ANYONE TELLS YOU.

I FAILED AGAIN AND AGAIN, BUT I NEVER
GAVE UP. I TOOK EXTRA JOBS AND
POURED THE MONEY INTO TICKETS.

AND HERE I AM, PROOF THAT IF YOU
PUT IN THE TIME, IT PAYS OFF!



EVERY INSPIRATIONAL SPEECH BY SOMEONE
SUCCESSFUL SHOULD HAVE TO START WITH
A DISCLAIMER ABOUT SURVIVORSHIP BIAS.

XKCD by Randall Munroe

Factor	Coursework Masters	Research Masters	PhD
Chapters (paper equivalents)	0	1+	3+
Years	2+	2-3	5-6
Prereq	BA/BS	BA/BS	BA/BS (most) Masters (some)
Cost	Student pays	Student or institution pays	Institution pays

In EEB programs, you typically get paid

- This is very different from undergrad, med school, vet school, law school, etc.
- The pay isn't for school per se
 - Teaching assistant, who often will assist a professor in teaching, run labs, or run discussion sessions
 - Research assistant who helps a professor with their research
- The pay is typically for 9 months of work; it can be paid out over 9 or 12 months. It usually only starts the month after you start working
- It should be promised in your admission letter
- Tuition should be included, also subsidized health care.
- Fees may or may not be included (but this should be clear)

PhD Stipend Survey Results

The living wage ratio (LW ratio) normalizes each gross pay entry to the local living wage for a single person in a one-bedroom apartment in different cost-of-living areas. See the [FAQ](#) for more information.

Show entries

University	Department	Overall Pay	Academic Year	Program Year
University of Kansas (KU)	Ecology and Evolutionary Biology	\$24,000	2024-2025	1st
Cornell University (CU)	Ecology and Evolutionary Biology	\$43,326	2023-2024	1st
Oregon State University (OSU)	Ecology	\$24,000	2022-2023	1st
Pennsylvania State University (Penn State)	Ecology	\$21,489	2022-2023	6th and up
University of Wisconsin - Madison (UW)	Human Ecology	\$23,227	2022-2023	1st

Can be

- Base pay for TA
- Base pay + special fellowships for TA
- RA pay from institution
- RA pay from NSF
- RA pay from NIH

Not necessarily predictive of what *you* will be paid, but good for comparison

Living Wage Calculation for Boston-Cambridge-Newton, MA

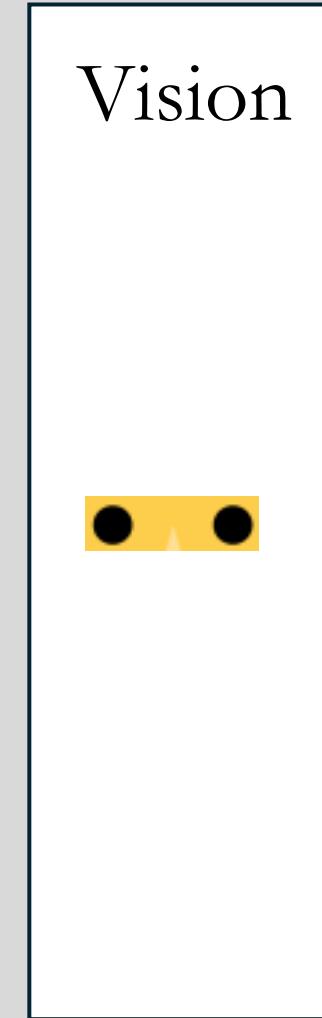
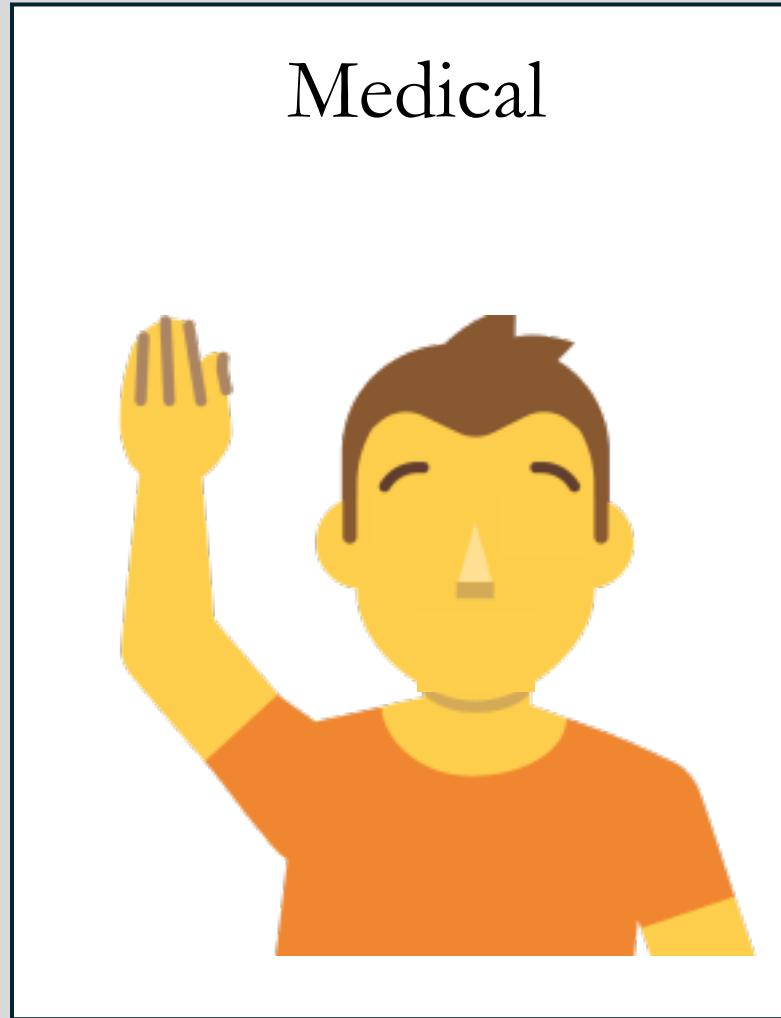
The living wage shown is the hourly rate that an **individual** in a household must earn to support themselves and/or their family, working full-time, or 2080 hours per year. The tables below provide living wage estimates for individuals and households with one or two working adults and zero to three children. In households with two working adults, all hourly values reflect what one working adult requires to earn to meet their families' basic needs, assuming the other adult also earns the same.

The poverty wage and state minimum wage are for reference purposes. Poverty wage estimates come from the Department of Health and Human Services' [Poverty Guidelines](#) for 2024 and have been converted from an annual value to an hourly wage for ease of comparison. The state minimum wage data is sourced from the [Labor Law Center](#) and includes the minimum wage in a given state as of January of that year.

For further detail, please reference the [Methodology](#) page. The data on this page was last updated on February 14, 2024.

\$30.04/hr * 2080 hr =
\$62,483 living wage for
the year

Healthcare



Healthcare

Mental



Many stressors in grad school

- (Typically) new location and people
- Grade stress (though classes become less important as one advances)
- Qualifying exam
- Research failure
- Peer review rejection
- Low stipends

Studies show depression is common in PhD students

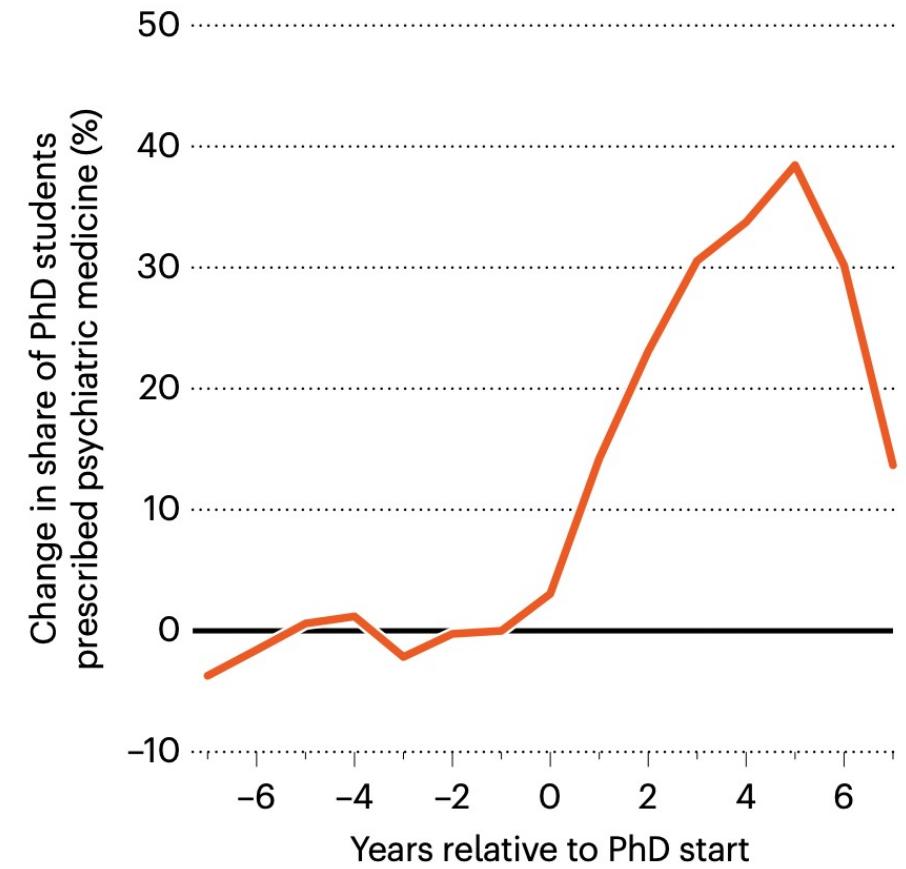
How does mental health care work for grad students?

Mental health

- Depression in US: 8.3%
- Depression in UC Berkeley STEM grad students: 42-48%

PHD PRESSURES

A study that followed all the PhD students in Sweden in 2006–17 shows that the likelihood of doctoral candidates needing medication for mental-health issues increases sharply after the start of their studies.



Schwaller, 2024, describing Bergvall et al. 2024

Mentorship

- “Who was your advisor?” not
“Where did you go to school?”
Someone who will guide your career
for 2-6+ years
- Their personality, advising style,
resources, and lab culture, will be
very important
- **Identify potential advisor(s) first,**
then look at the department, school,
and location



Photo of UN-NYG mentoring, IAEA Imagebank

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 fulltext

includes ▾

"salamander phylogeography" 

Works



Genetic Diversity and Population Structure of the Endangered Salamander *Hynobius yiwuensis* Inferred from Mitochondrial DNA Sequences

2024 · Liangliang Zhang, Pierfrancesco Sechi, et al. · *Life*

Cited by 0 PDF

What's in a name? Using species delimitation to inform conservation practice for Chinese giant salamanders (*Andrias* spp.)

2024 · Melissa Marr, Kevin Hopkins, et al. · *Evolutionary Journal of the Linnean Society*

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Population Structure and Species Delimitation in the Wehrle's Salamander Complex

2024 · Shawn R. Kuchta, Brian P. Waldron, et al. · *Herpetologica*

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Comprehensive Sampling Clarifies Phylogeography and Historical Biogeography of Slimy Salamanders West of the Mississippi River

2024 · Makenzie L. Meacham, Kelly J. Irwin, et al. · *Herpetologica*

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Multilocus Phylogeography of Eastern Red-Backed Salamanders (*Plethodon cinereus*): Cryptic Appalachian Diversity and Postglacial Range Expansion

[T Radomski](#), [MM Hantak](#), [AD Brown](#)... - ..., 2020 - [meridian.allenpress.com](#)

... investigations is that southern populations exhibit relatively high levels of **phylogeographic**

... results of a **phylogeographic** investigation of Eastern Red-backed **Salamander** (*Plethodon* ...

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Comprehensive sampling clarifies phylogeography and historical biogeography of slimy salamanders west of the Mississippi River

[ML Meacham](#), [KJ Irwin](#), [DB Shepard](#) - [Herpetologica](#), 2024 - [meridian.allenpress.com](#)

... distributions of some Slimy **Salamanders** is based on coarse ... sequences of 434 individual Slimy **Salamanders**, 412 of which are ... ranks and management of western Slimy **Salamanders**. ...

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Phylogeography of the Cow Knob Salamander (*Plethodon punctatus* Highton): populations on isolated Appalachian mountaintops are disjunct but not divergent

[MR Graham](#), [WD Flint](#), [AM Powell](#), [V Fet](#)... - [Frontiers in Amphibian ...](#), 2023 - [frontiersin.org](#)

... Pleistocene climate fluctuations impacted **phylogeographic** patterns of a montane **salamander** in the Central Appalachians. Results from our **phylogeographic** analyses and hypothesis ...

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Speciation Hypotheses from Phylogeographic Delimitation Yield an Integrative Taxonomy for Seal Salamanders (*Desmognathus monticola*)

[RA Pyron](#), [KA O'Connell](#), [SC Duncan](#)... - [Systematic ...](#), 2023 - [academic.oup.com](#)

... We illustrate this approach here with Seal **Salamanders** (*Desmognathus monticola*) ...

salamanders are renowned for their morphological conservatism despite extensive **phylogeographic** ...

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Evolution of reproductive strategies: sex roles, sex ratios and phylogenies

2023 · Tamás Székely · *Biologia Futura*

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Conceptual and empirical bridges between micro- and macroevolution

2023 · Jonathan Rolland, L. Francisco Henao-Díaz, et al. · *Nature Ecology & Evolution*

Cited by 23

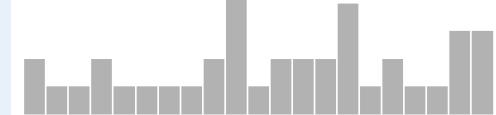
Impacts of Quaternary glaciation, geological history and geography on animal species history in continental East Asia: A phylogeographic review

2023 · Jinzhong Fu, Longying Wen · *Molecular Ecology*

Cited by 21

What we know and don't know about the invasive zebra (*Dreissena polymorpha*) and quagga (*Dreissena rostriformis bugensis*) mussels2022 · Alexander Y. Karatayev, Lyubov E. Burlakova · *Hydrobiologia***39 results**

year



topic

 Population Genetic Structure and Dynamics 13 Global Amphibian Declines and Extinctions 6 Species Distribution Modeling and Climate 3



VASCONCELOS LAB

plant ecology, evolution & systematics

Welcome!

We are botanists at the Department of Ecology and Evolutionary Biology, University of Michigan - Ann Arbor!

September 4th, 2024

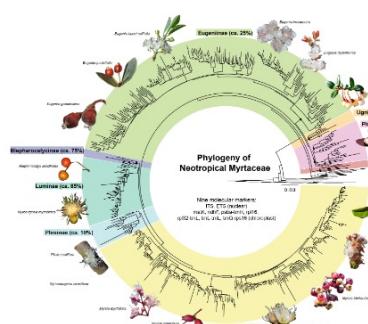
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Our research

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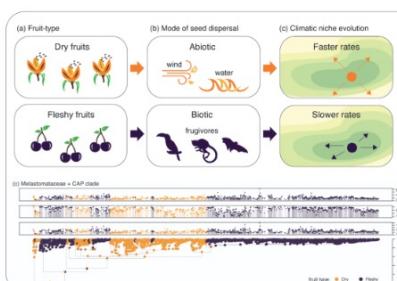
Phylogeny of Myrteae – Neotropical Myrtaceae Working Group (2024)
Am.J.Botany

Discovering the rules of plant biogeography using a trait-based approach

We utilize natural history collections and trait characterization tools to gather large sets of occurrence data and functional traits. These datasets are then combined with molecular phylogenies and phylogenetic comparative methods to quantify the correlation between traits and environments throughout the evolution of flowering plants. Our goal is to utilize trait-environment correlation analyses to uncover general patterns in plant biogeography by measuring how unrelated plant lineages have evolved similar traits in response to a specific environment.

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Linking seed dispersal traits and climatic niche evolution in plants - modified from Vasconcelos et al. (2023) J. Biogeography

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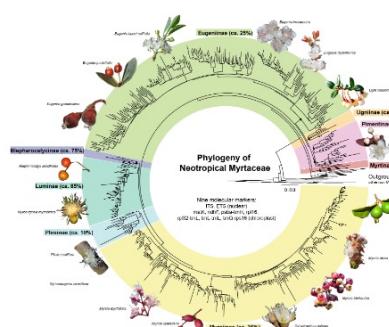
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She wants students {

Our research

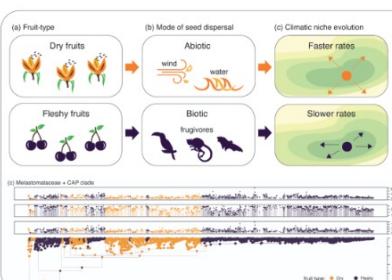
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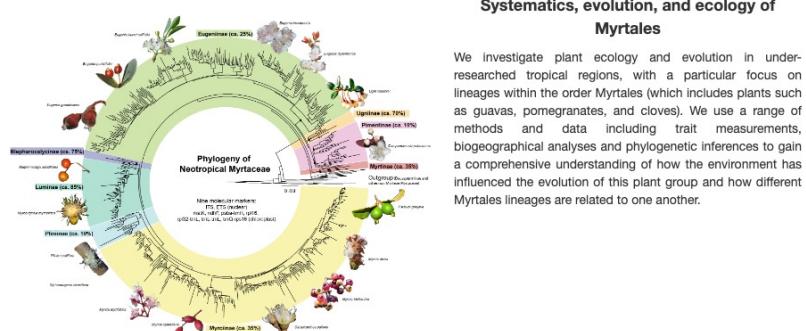
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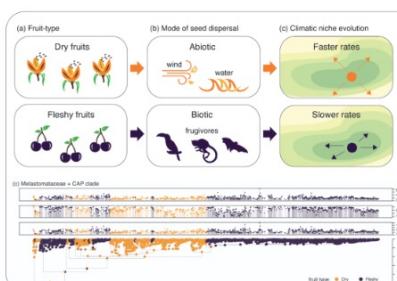
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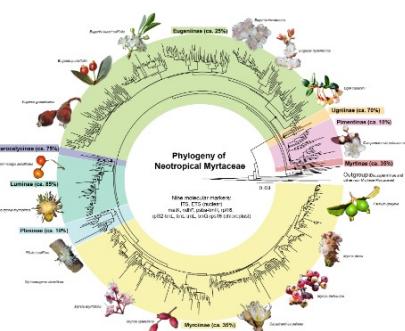
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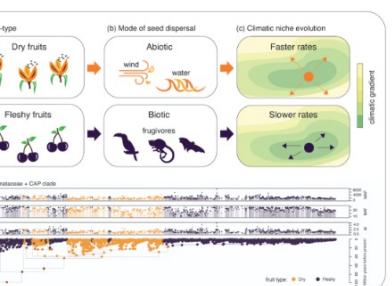
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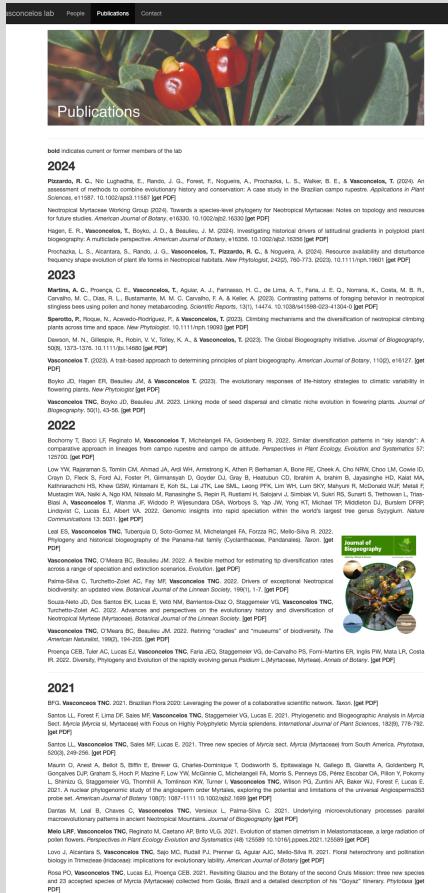
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Recent publications:
research active, see
current directions



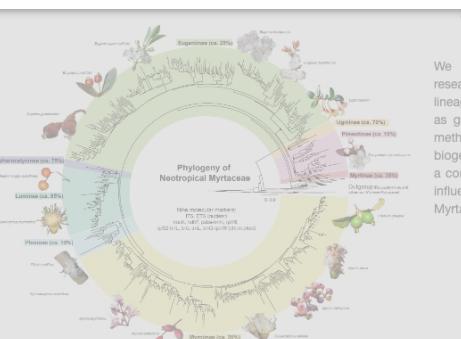
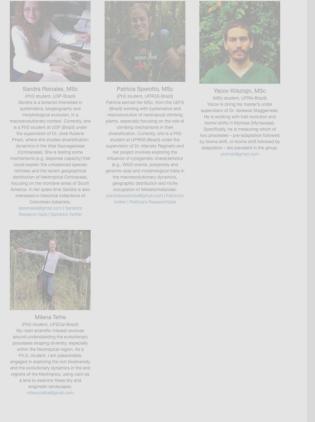
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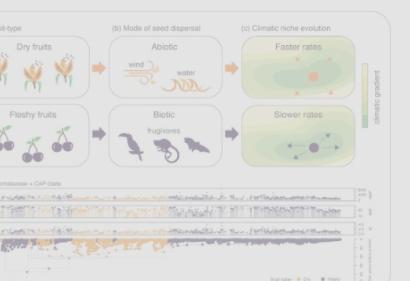
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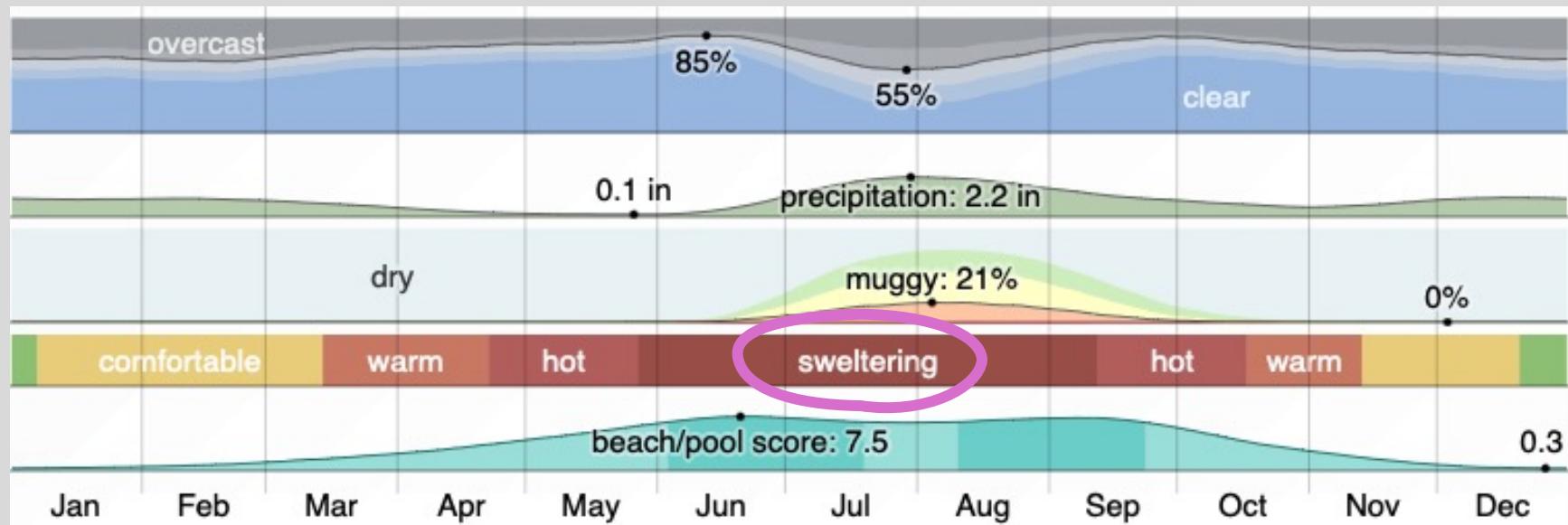
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When evaluating advisor

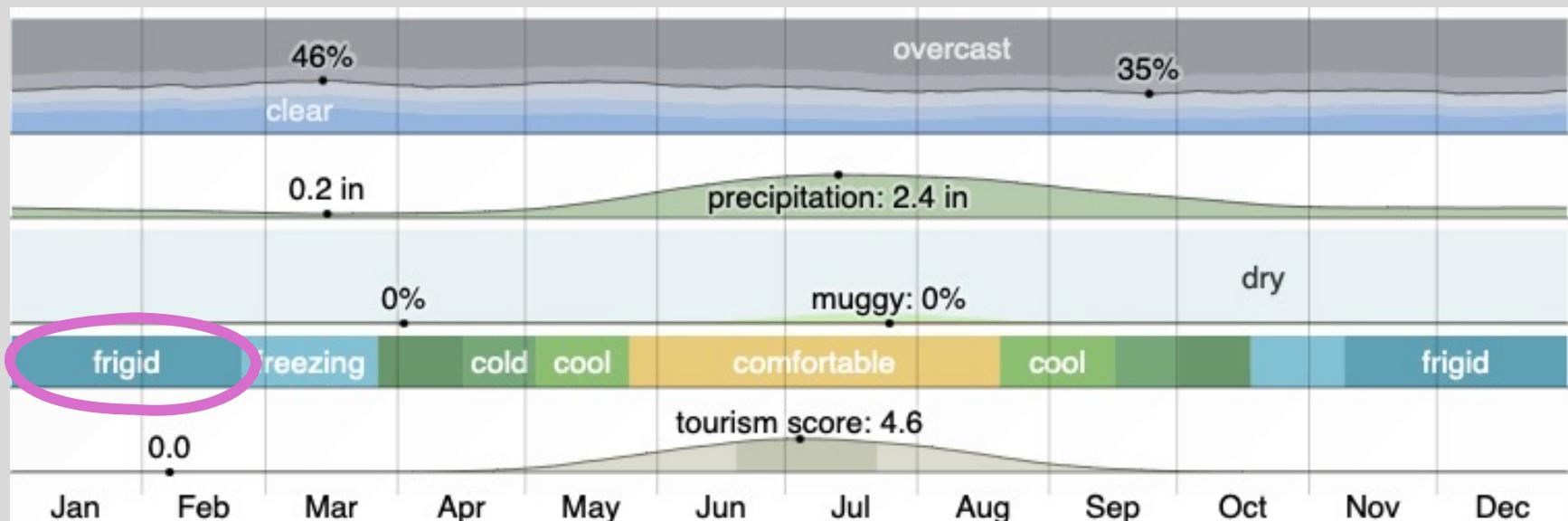
- Read their most cited and most recent papers
- Get a sense of their priorities (website, social media, recorded talks)
- Look at current and past students (Internet Archive's Wayback Machine to look at “lab people” in earlier years; reach out to them)
- Talk to current trusted people about the advisor
- Check <https://academic-sexual-misconduct-database.org/> (also good to see how the institution in general handles harassment)
- What is their career stage? Are they on the tenure-track? Are they fairly new (less experience, perhaps more individual attention), near retirement, planning to move?
- What do they expect of students? What can students expect of them?

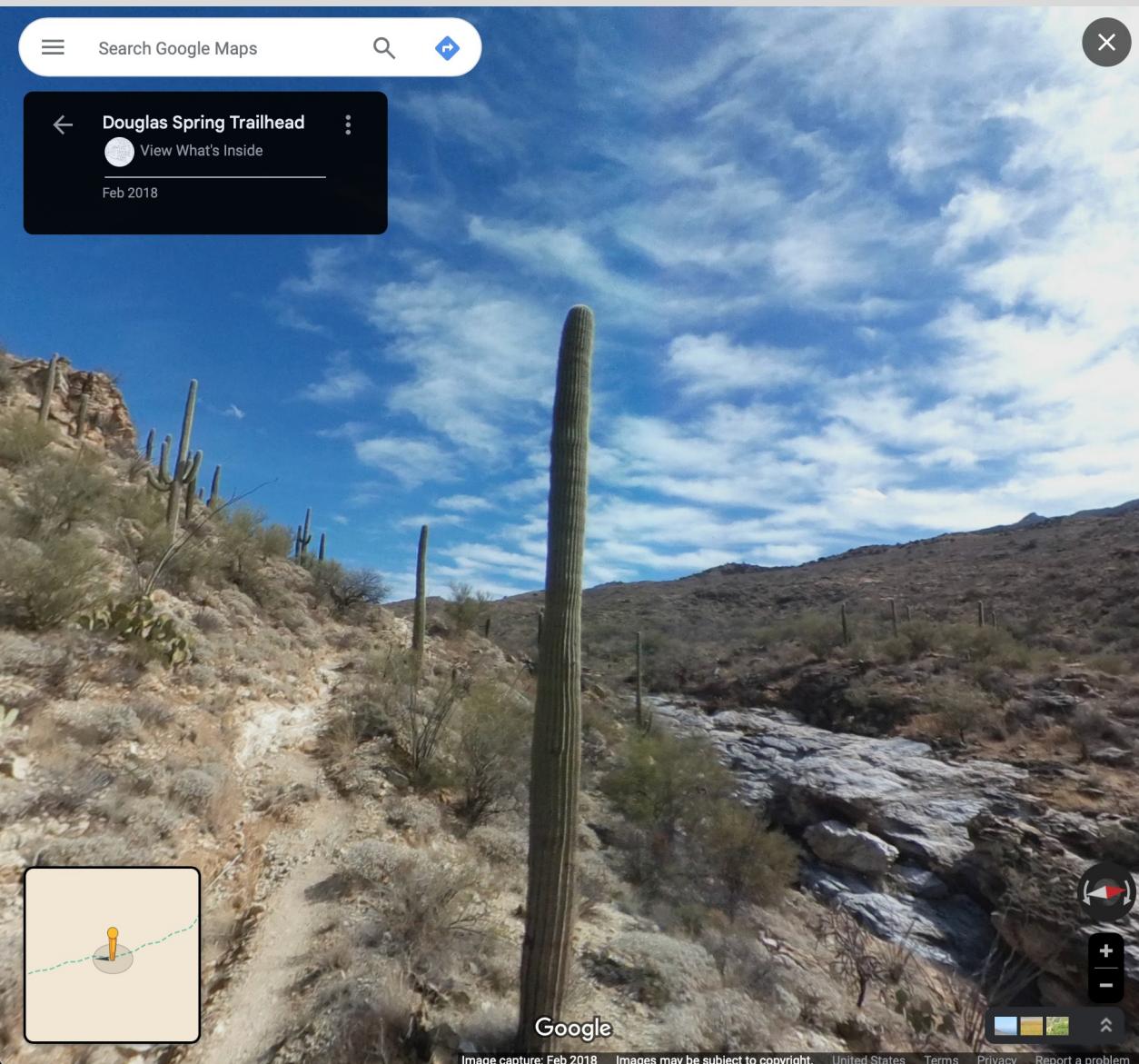
Location

Tucson, Arizona

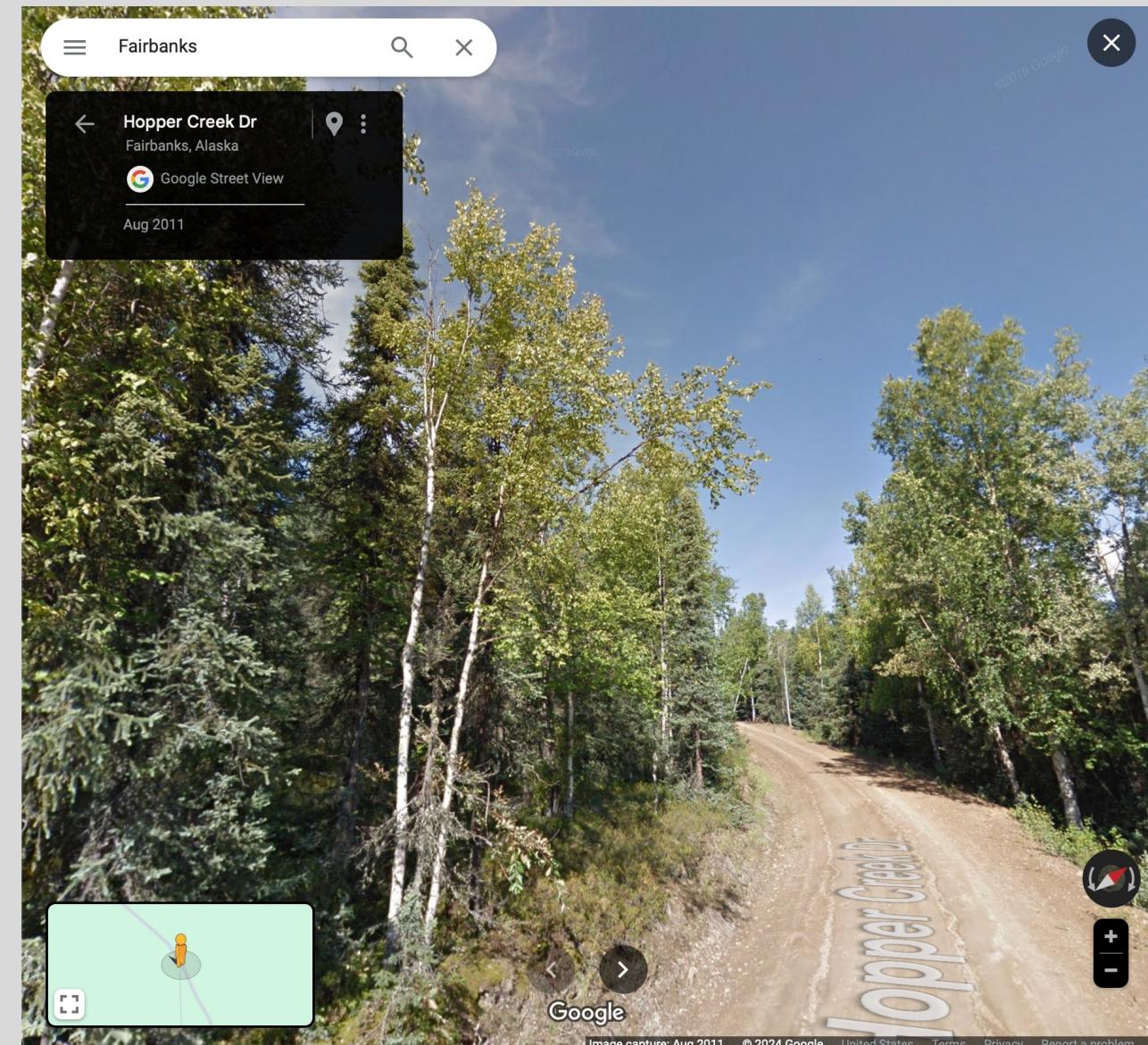


Fairbanks, Alaska



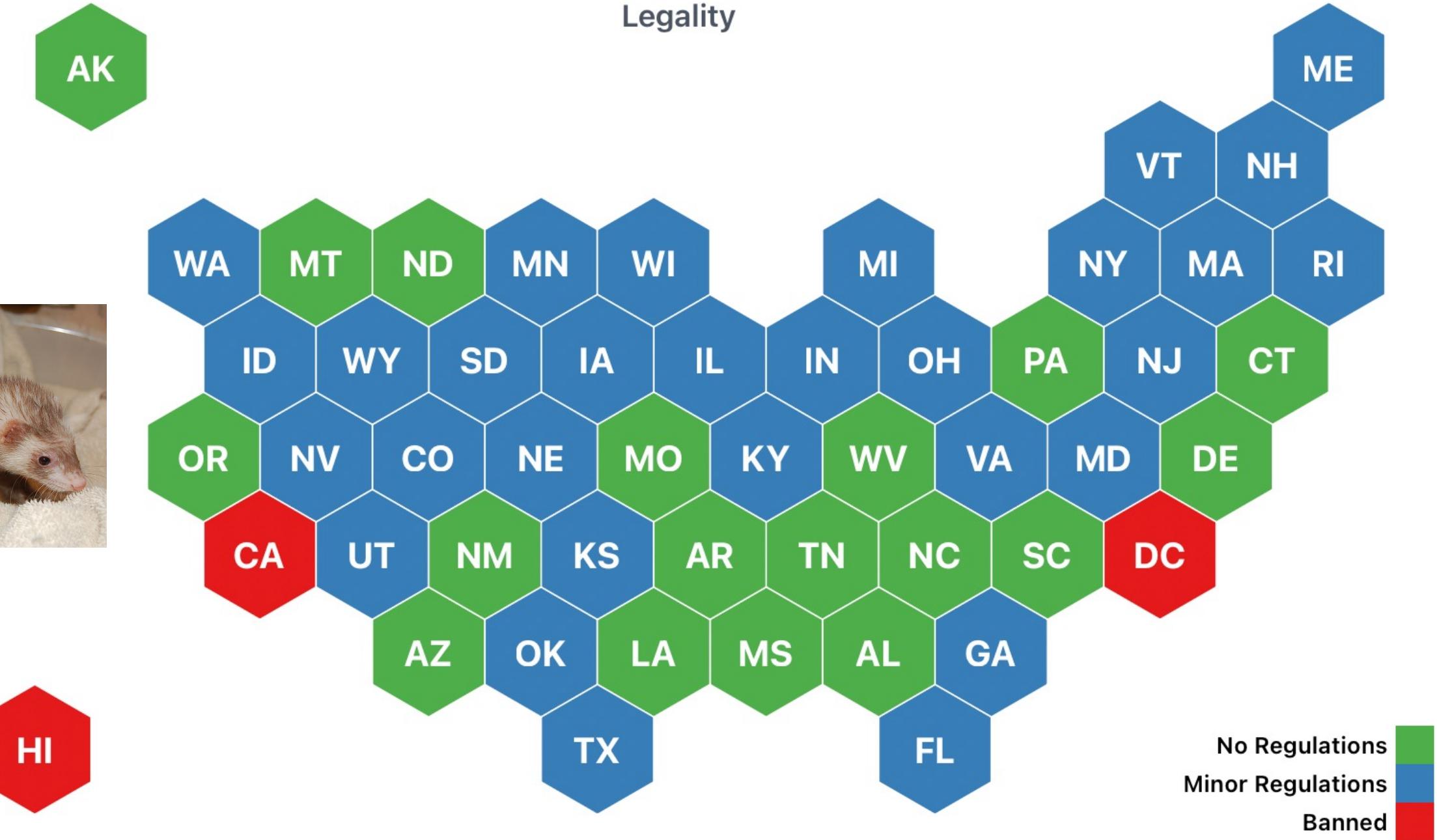


Tucson, Arizona



Fairbanks, Alaska

Legality



US law No regulation on keeping ferrets

State law

NY: Legal
CA: Illegal

City / County law

Albany: Legal
New York City: Illegal

College policy

Pets allowed on campus?

Some of the major axes of variation across regions or institutions

New axes can appear, and old ones go away, due to changes in law, news reports, and more

Gun policy: carry permits, types available, allowed use

Drug policy: legality of marijuana, severity of punishments for others (though note superseding federal regulations)

Abortion access

Gender-affirming care access

Rights / limits on protests

Handling of controversial topics

Whether diversity, equity, and inclusion programs are permitted

Frequency of racism, sexism, ableism, homophobia, and similar

Cost of housing

- How long does it take students in this program to graduate on average?
- What percentage graduate?
- What careers do students pursue: working at nonprofits, government agencies, business, K-12 teaching, research in academia, ...?
- What training and resources does this program offer for your intended career path?
- What resources are there for being safe in the lab and field?
- How do students fund their research?
- How does student funding work (from school, from grants)?
- What do current and past students think of the program?

- **August-November:** Identify and reach out to potential advisors
 - If you reach out and they don't reply, try again a month later
- **October:** Apply to NSF Graduate Research Fellowship Program
 - A 2 page essay on research, 3 page essay on you, possibility of a 3 year fellowship
- **November-December:** Apply to grad school!
 - Check for deadlines
 - There may be fees to apply; there may also be fee waivers
- **January-February:** Visits?
 - Some places may invite you out to a visit weekend (and pay for it); others may invite you to visit but you pay. Visits help you evaluate them and vice versa.
- **January-April** (and sometimes later): Offer, rejection, or waitlist
 - Offer letter should have details of support: funding, how many years guaranteed (does it depend on your advisor getting a grant?), conditions
- **April 15:** Typical deadline for acceptance
 - <https://cgsnet.org/resources/for-current-prospective-graduate-students/april-15-resolution> : but do accept or reject offers as soon as you can – help your waitlisted peers!

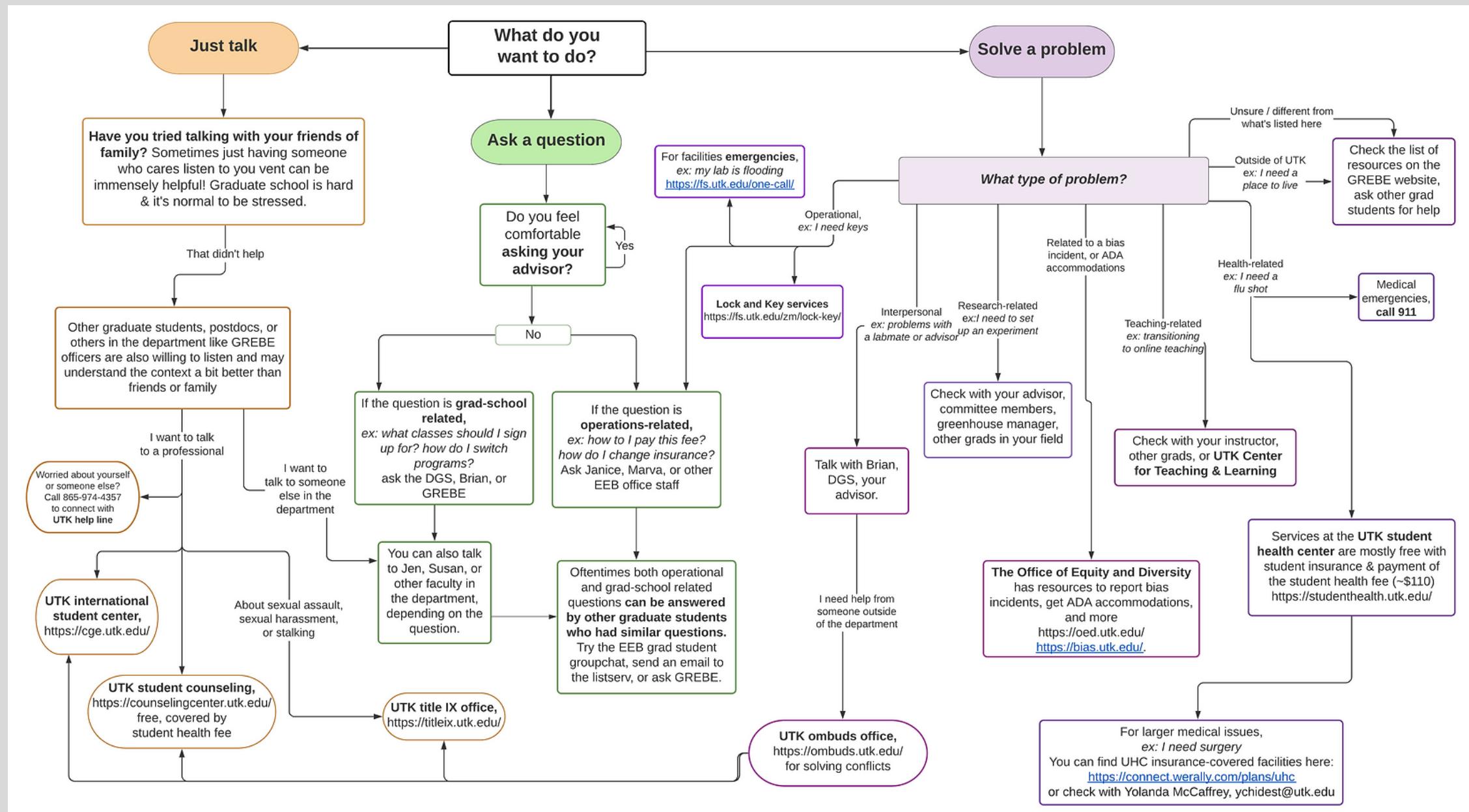
Applications

- Transcripts
- Letters of recommendation
- Research statement
- Personal statement
- Diversity statement (sometimes)

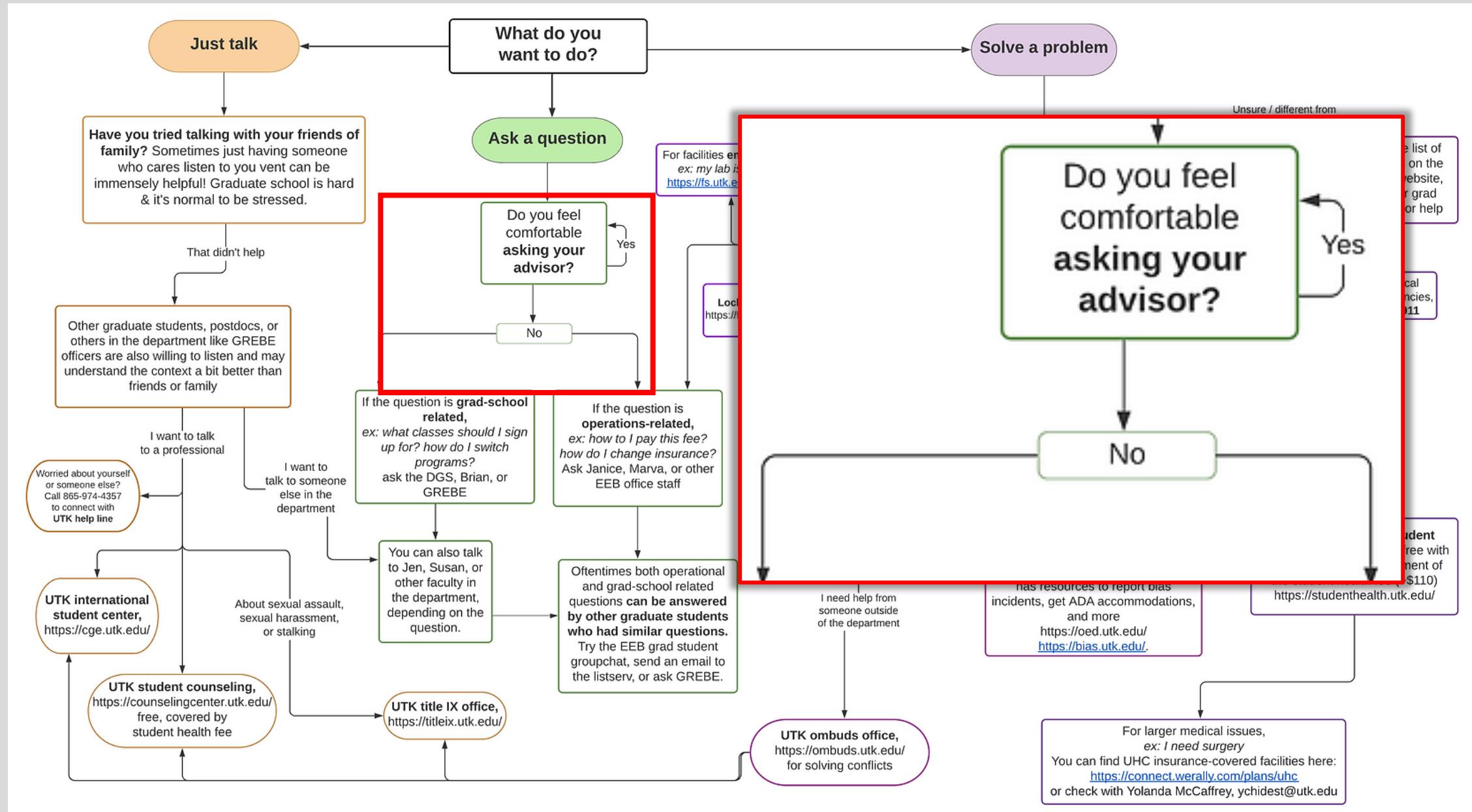
International students

- Visa required (up to US whether to grant)
- Potential limits on funding (no NSF GRFP, for example)
- Limits on outside paid work
- Potential tests for showing English proficiency
- Strikes, arrests, etc. might have different effects

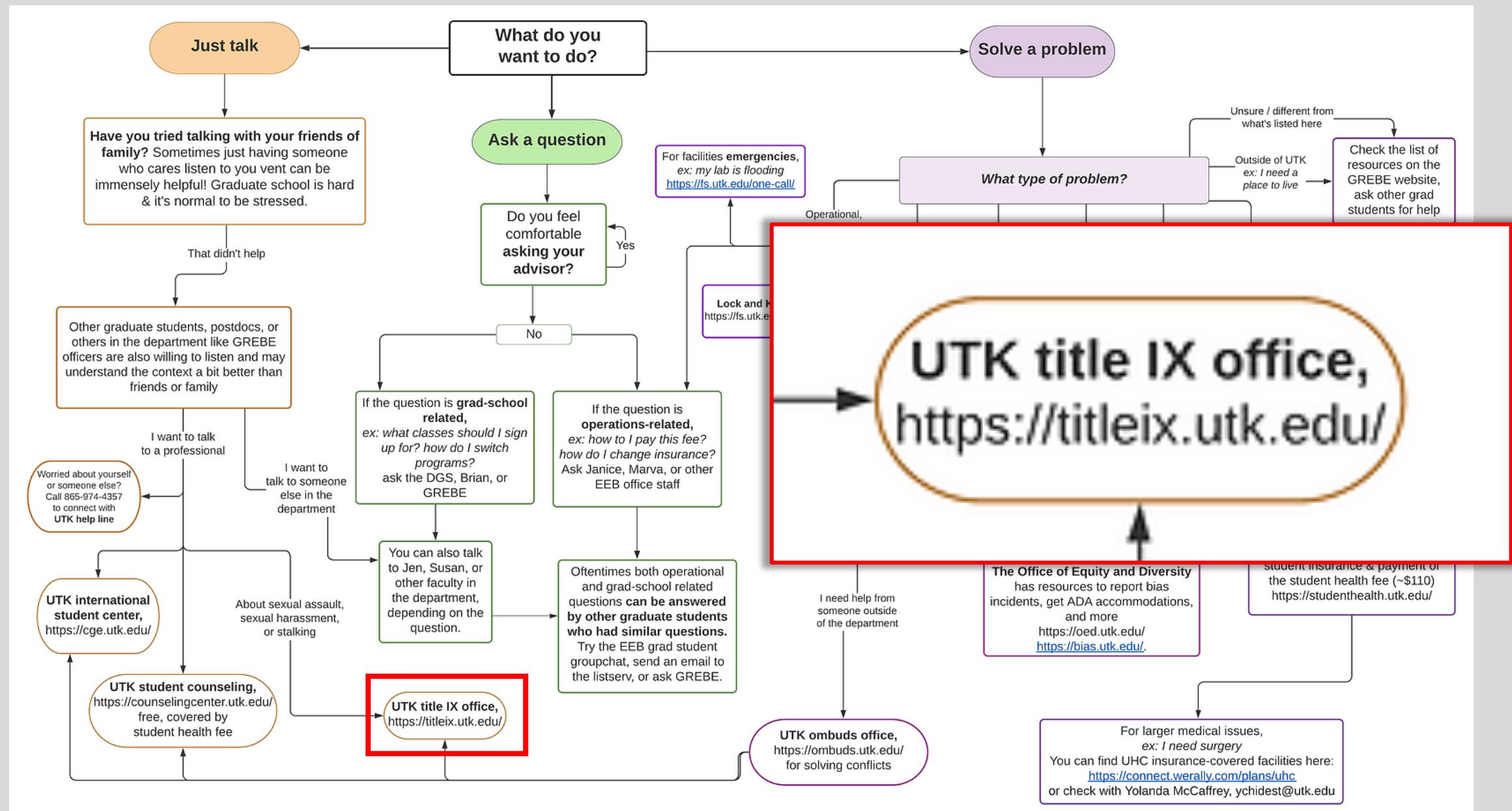
Consider power dynamics and getting help



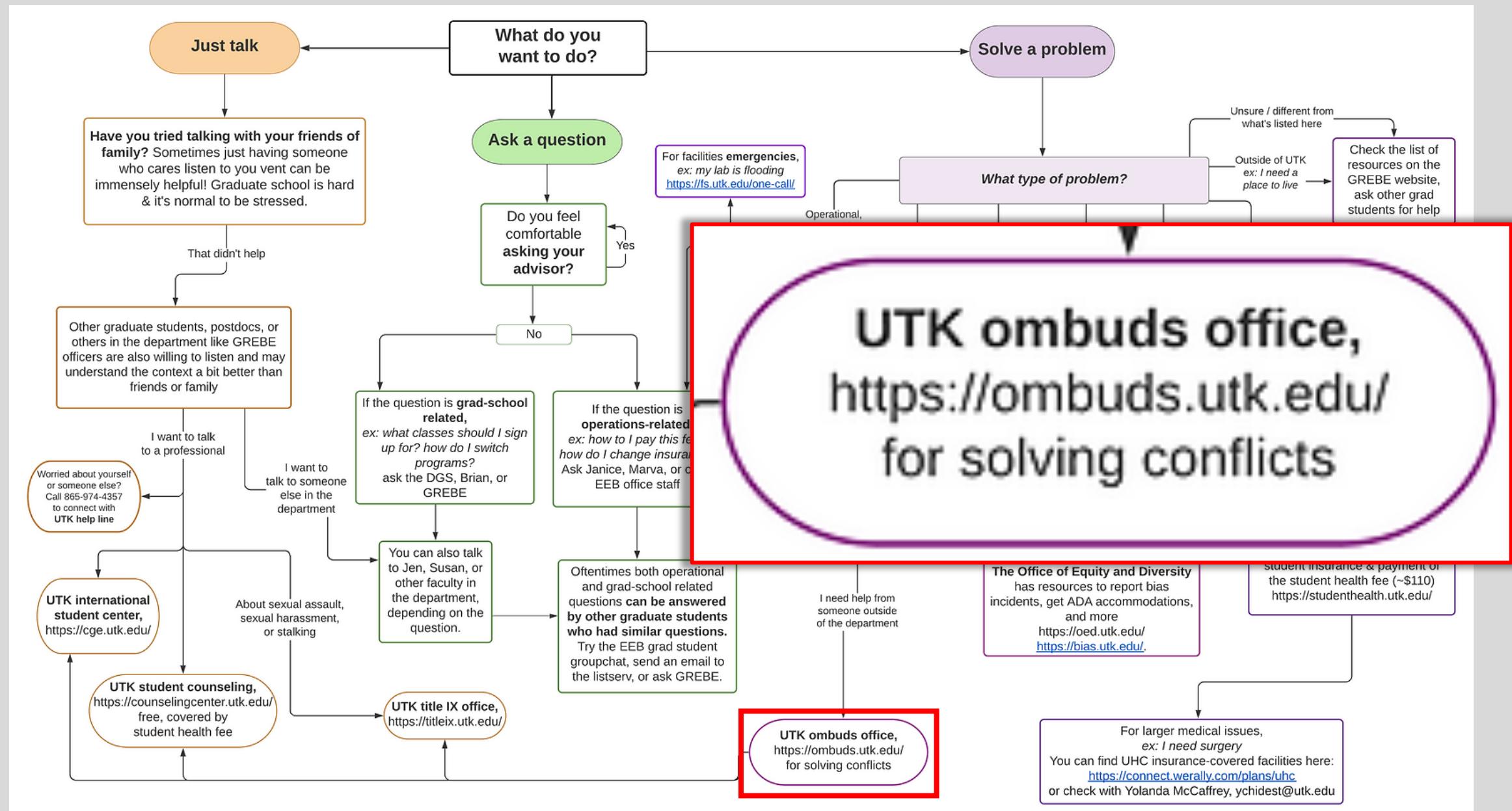
Consider power dynamics and getting help



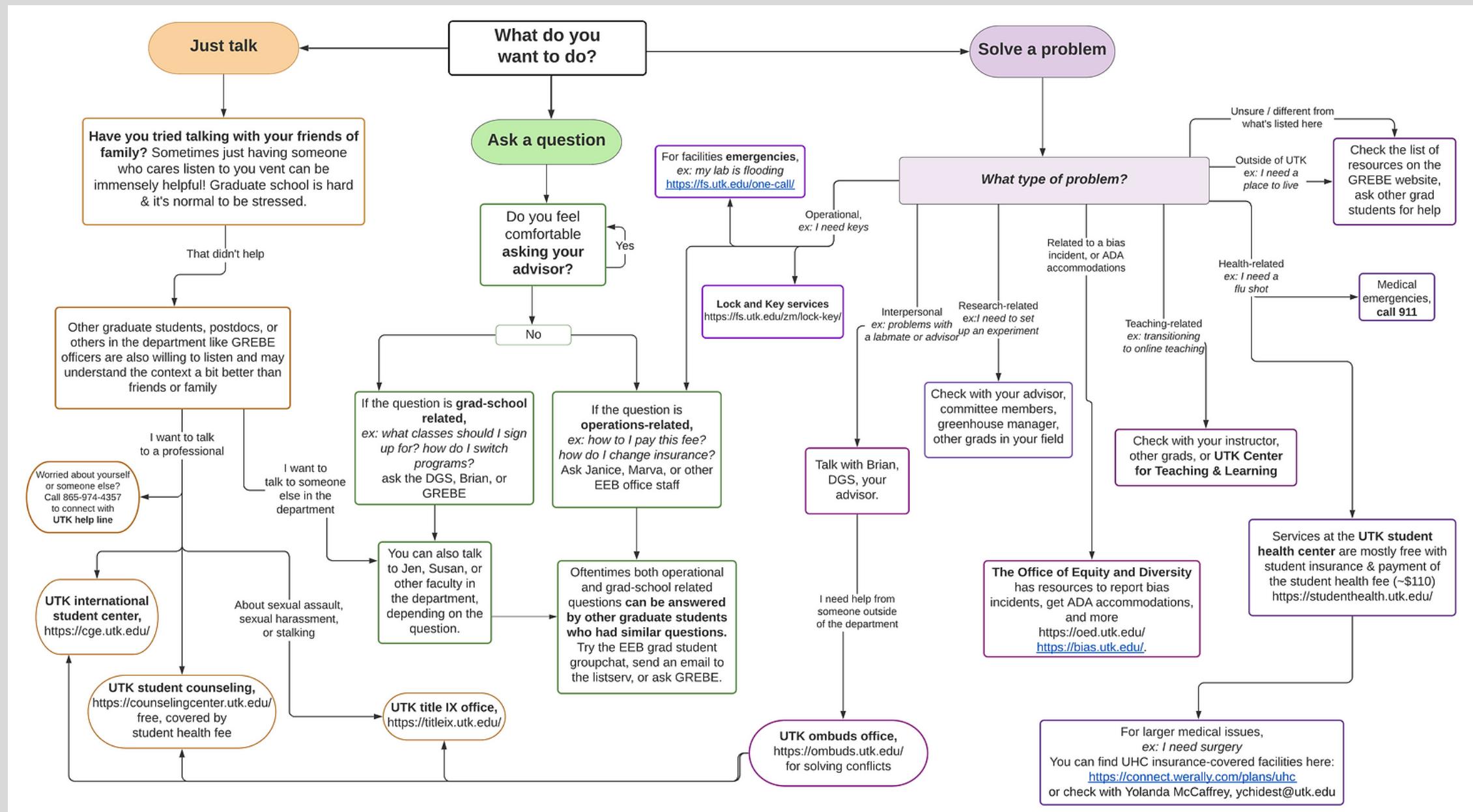
Consider power dynamics and getting help



Consider power dynamics and getting help



Consider power dynamics and getting help





Discussion and Questions

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