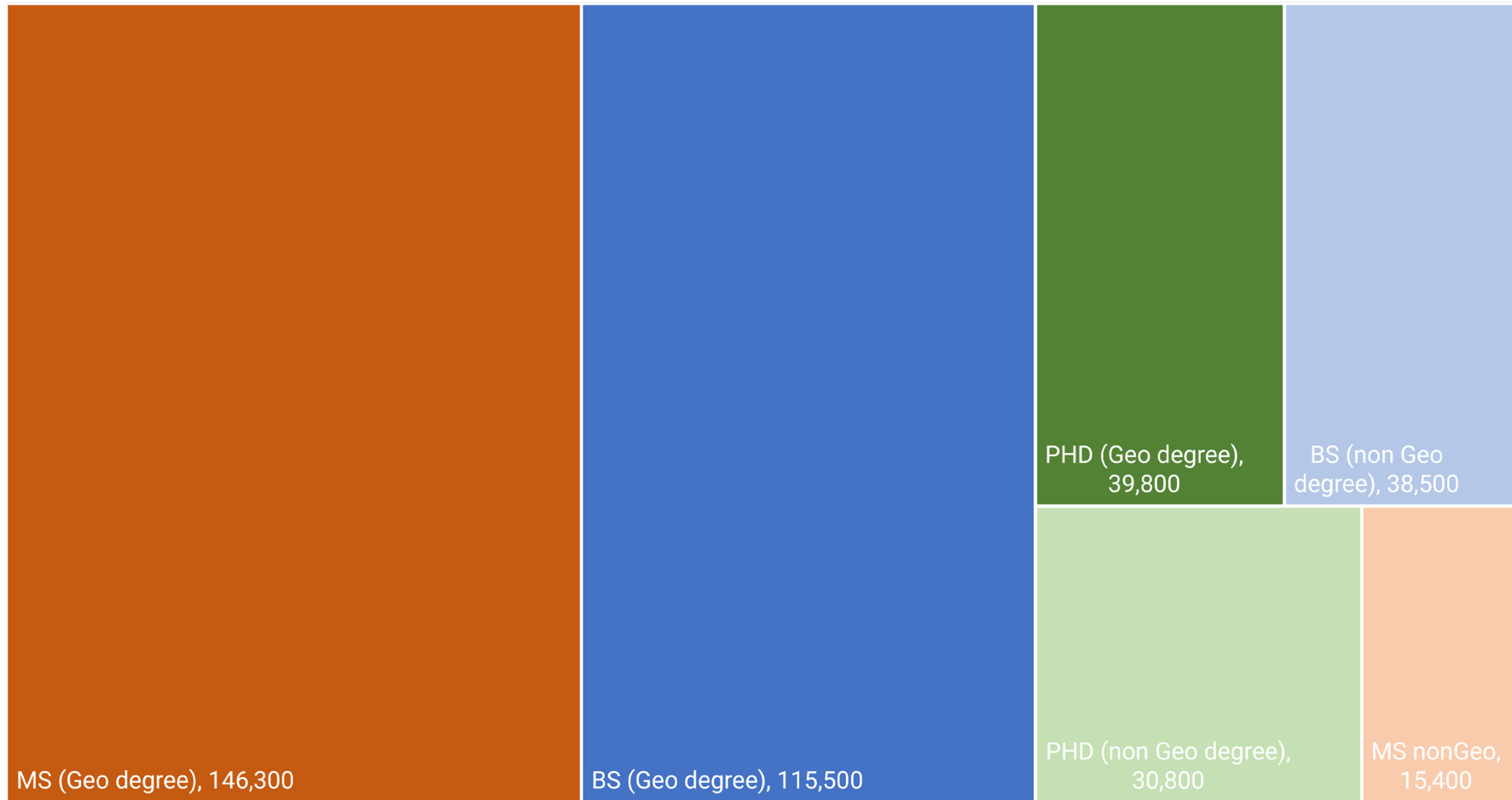


The Enrollment Cliff & Geosciences

Christopher Keane

17 November 2022

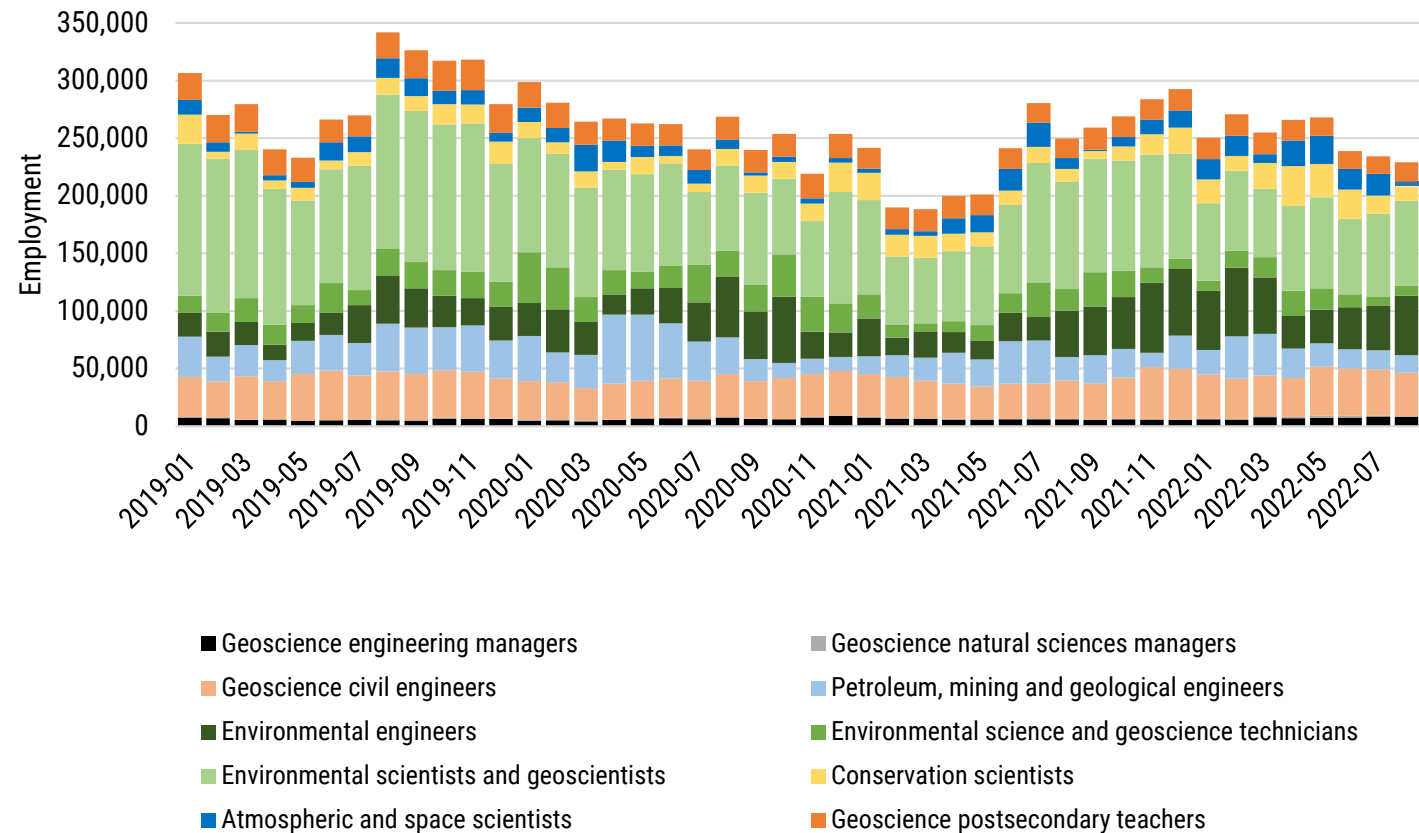
US Geoscience Employment by Highest Degree Level, 2017



Employment in the Pandemic

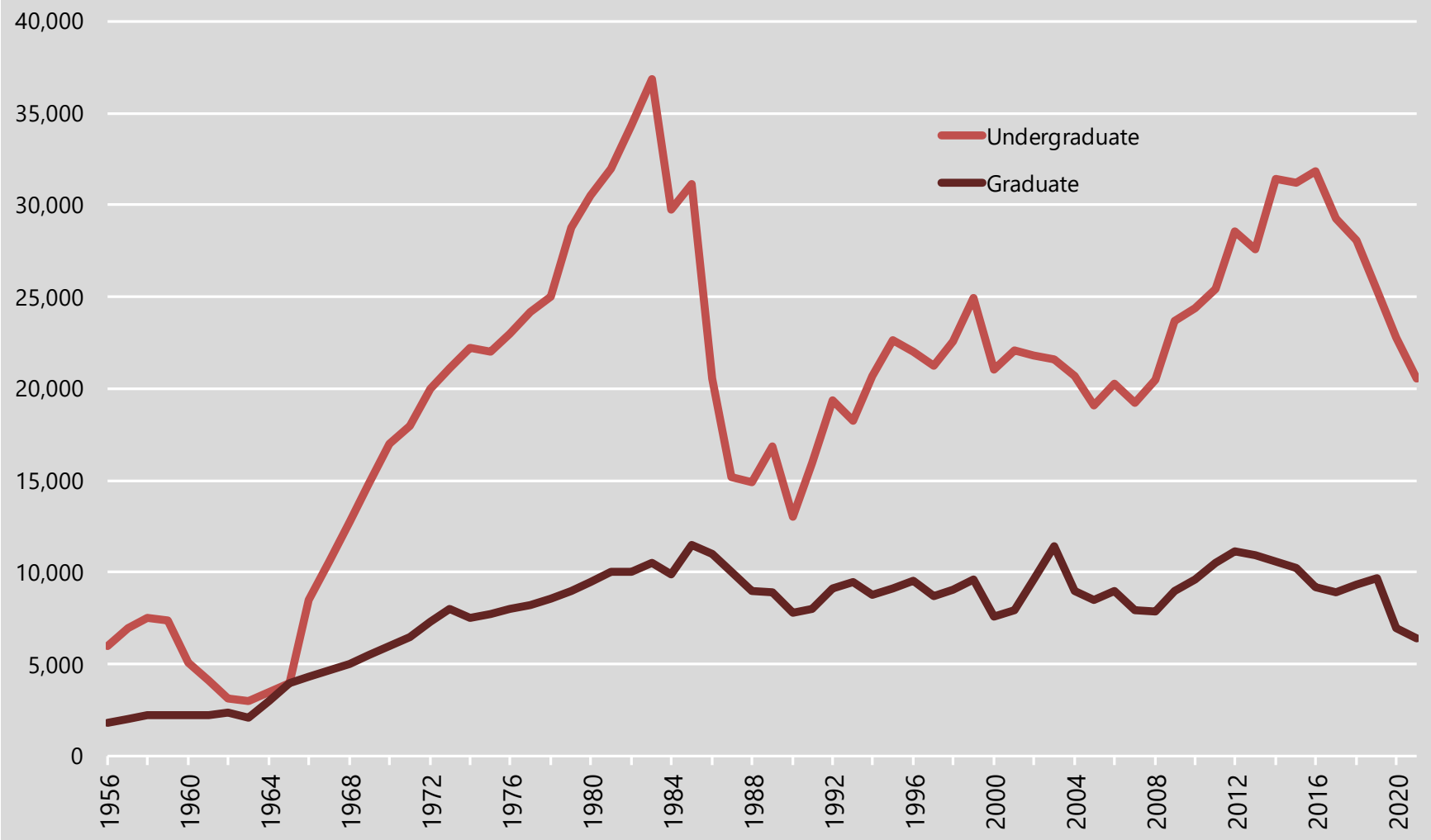
- 88% of geoscience employers received government assistance
- Effective geoscience unemployment rate was 4%.

Monthly geoscience employment



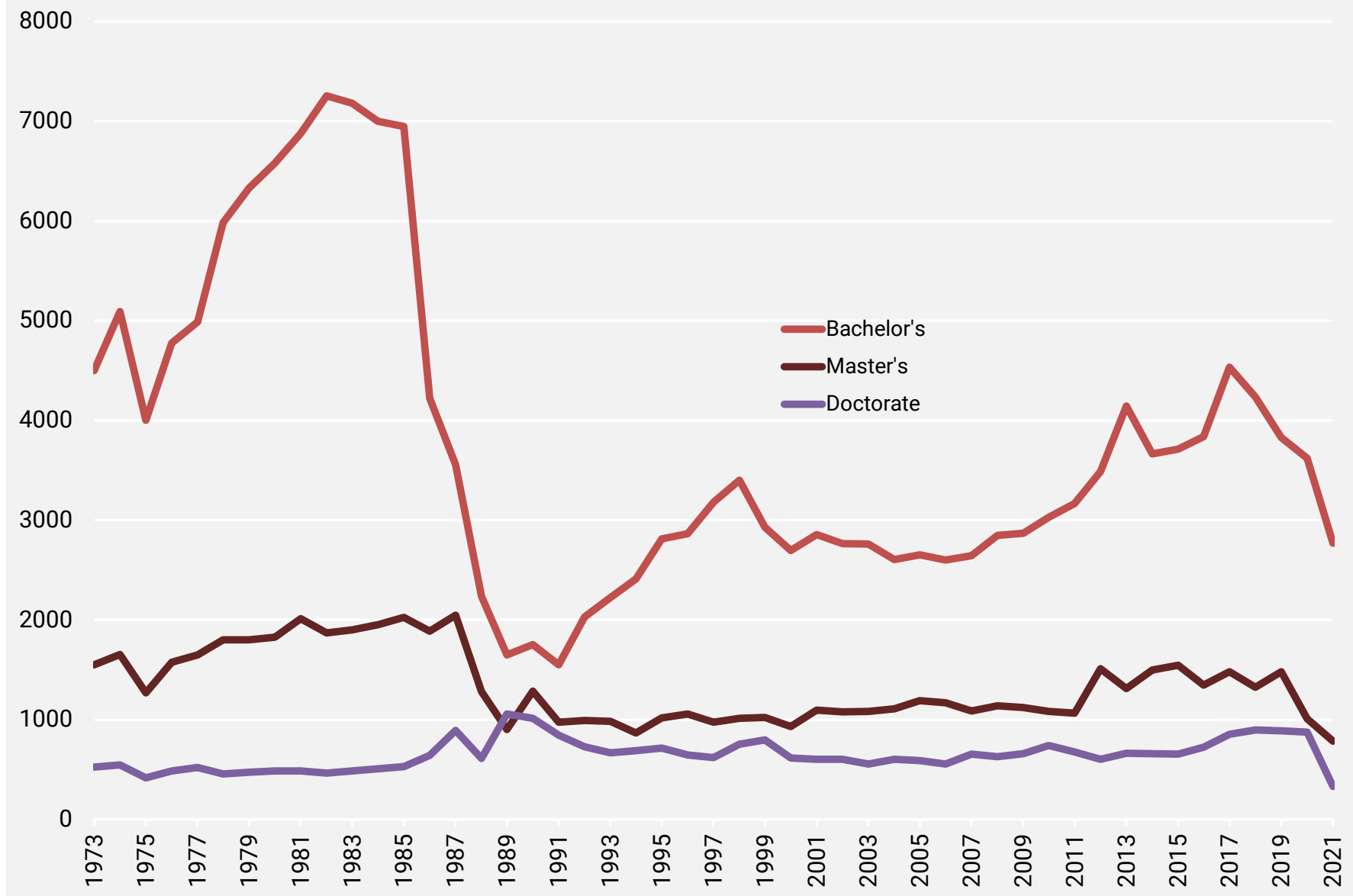
Geoscience Student Enrollment 1956-2021

United States Colleges and Universities



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U.S. Geoscience Degrees Awarded 1973-2021



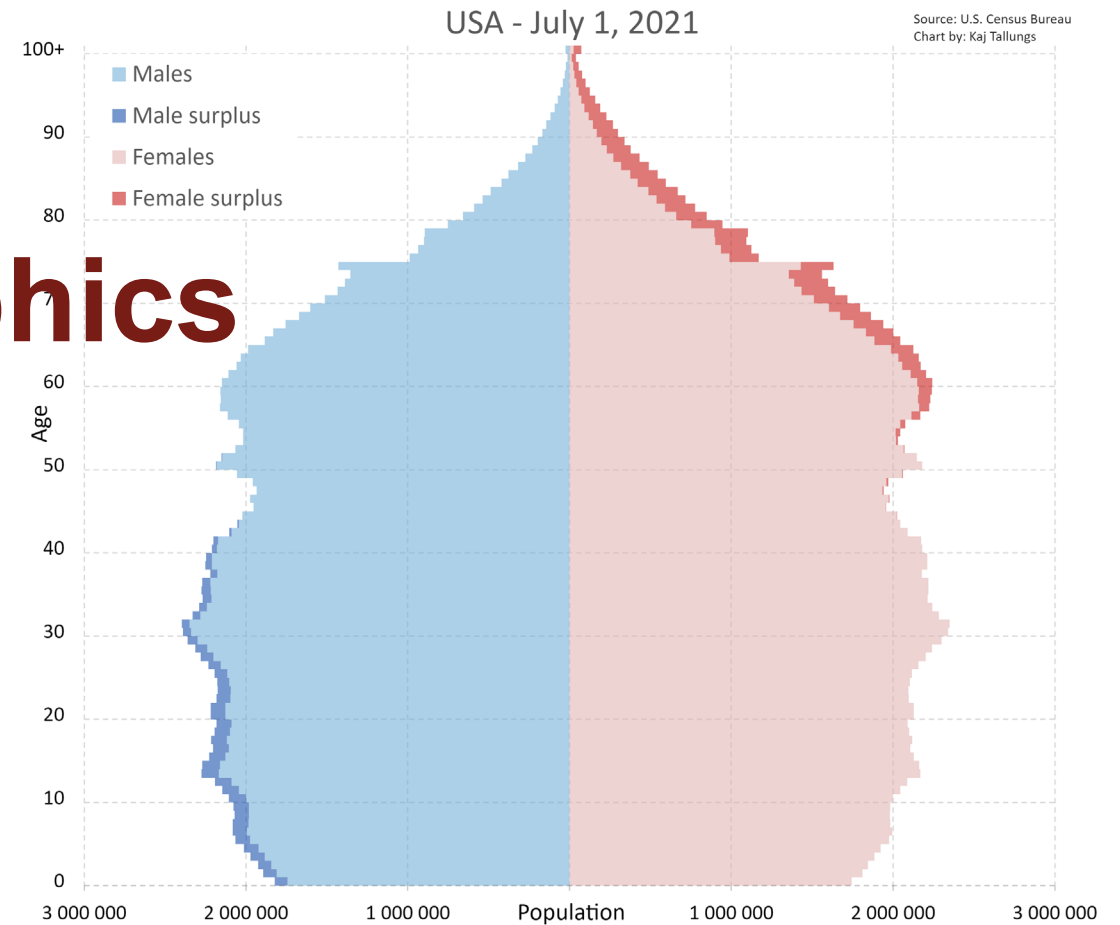
The Enrollment Cliff

External and Internal Factors

- Demographics of College-Age Students
 - Each generation requires a new higher ed business model
 - Its hard to cut back....
- Complications from the Pandemic
- Obvious Pathways to Employment
- The Loan Forgiveness Marketing Debacle

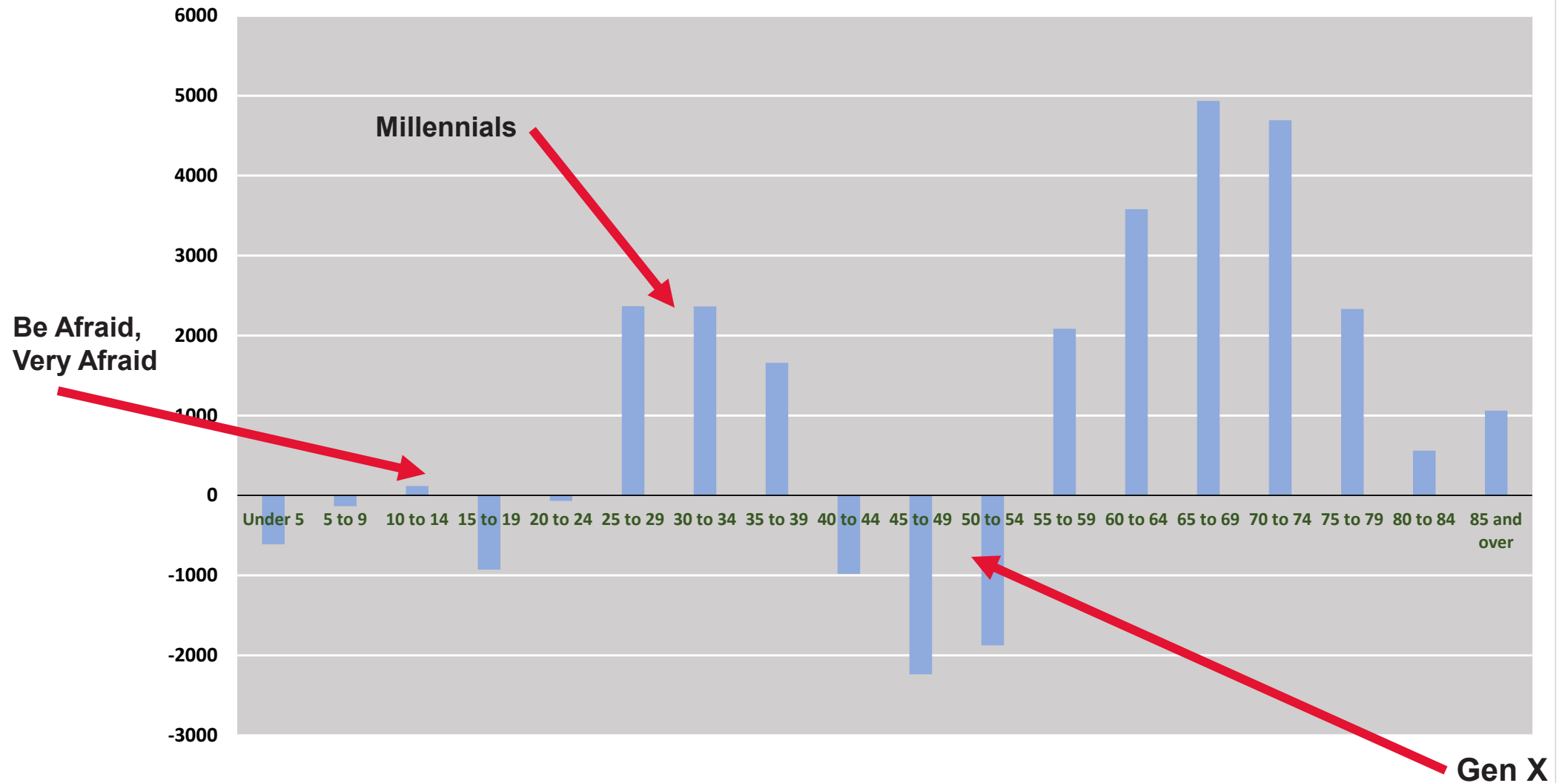
There will be winners and losers

The Curse of Demographics



US Population Change from 2010-2019 by Age

Hundreds of thousands of people

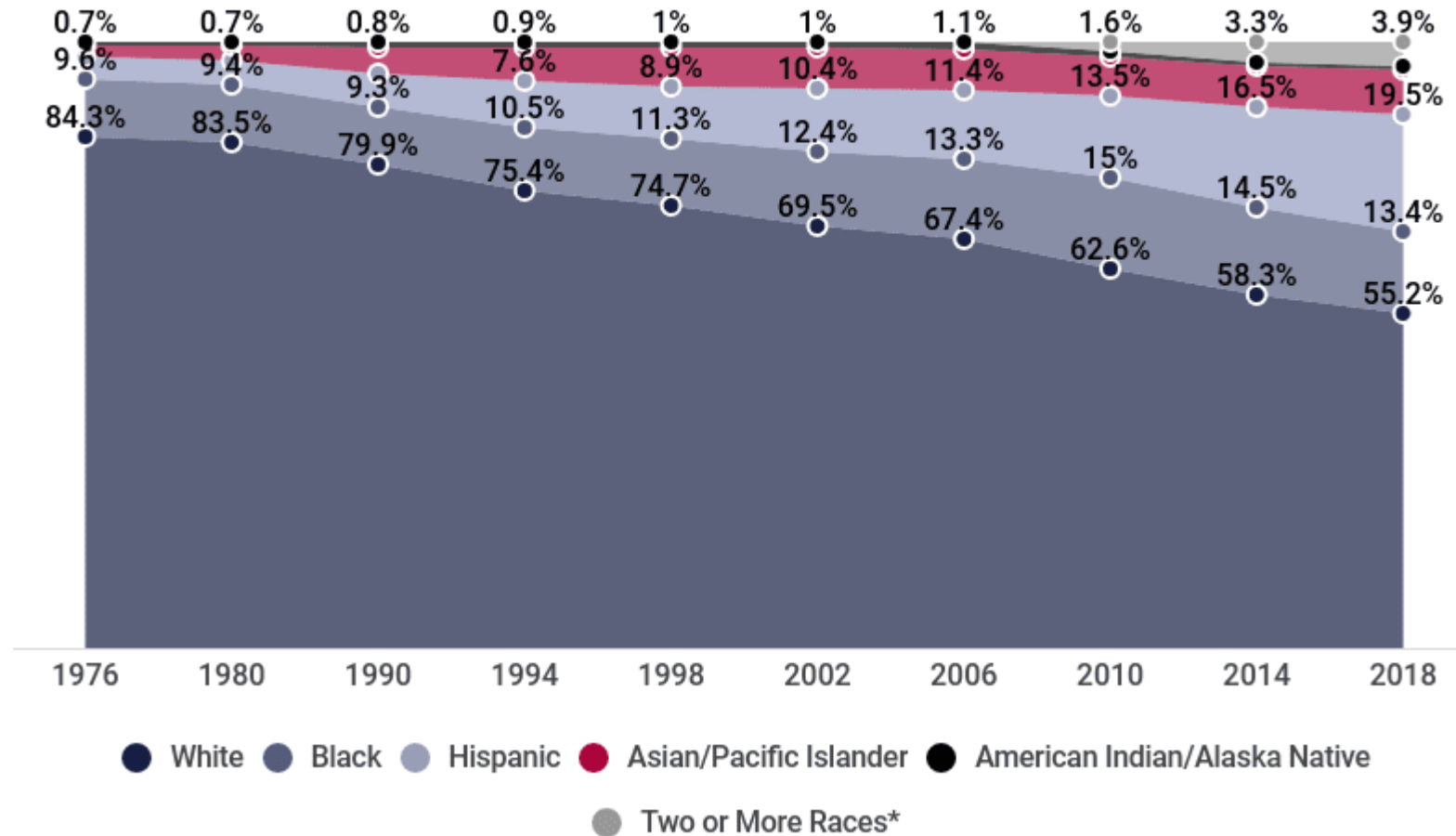


Demographics Drive University Business Models

- Gen X remembers the mass budget cuts and losses in education
- The Millennial years fueled a binge
 - Debt loading
 - Focus on “experience” and broadening of education’s role
 - Big budgets, big overhead, and.... It was a different time
- More than 25 years ahead of at best no-growth

Diversity, We can't “Don't Look Up”

Racial Demographic Trends in College Enrollment



Education Data Initiative source: National Center for Education Data Statistics

*A multiracial category did not appear until 2010

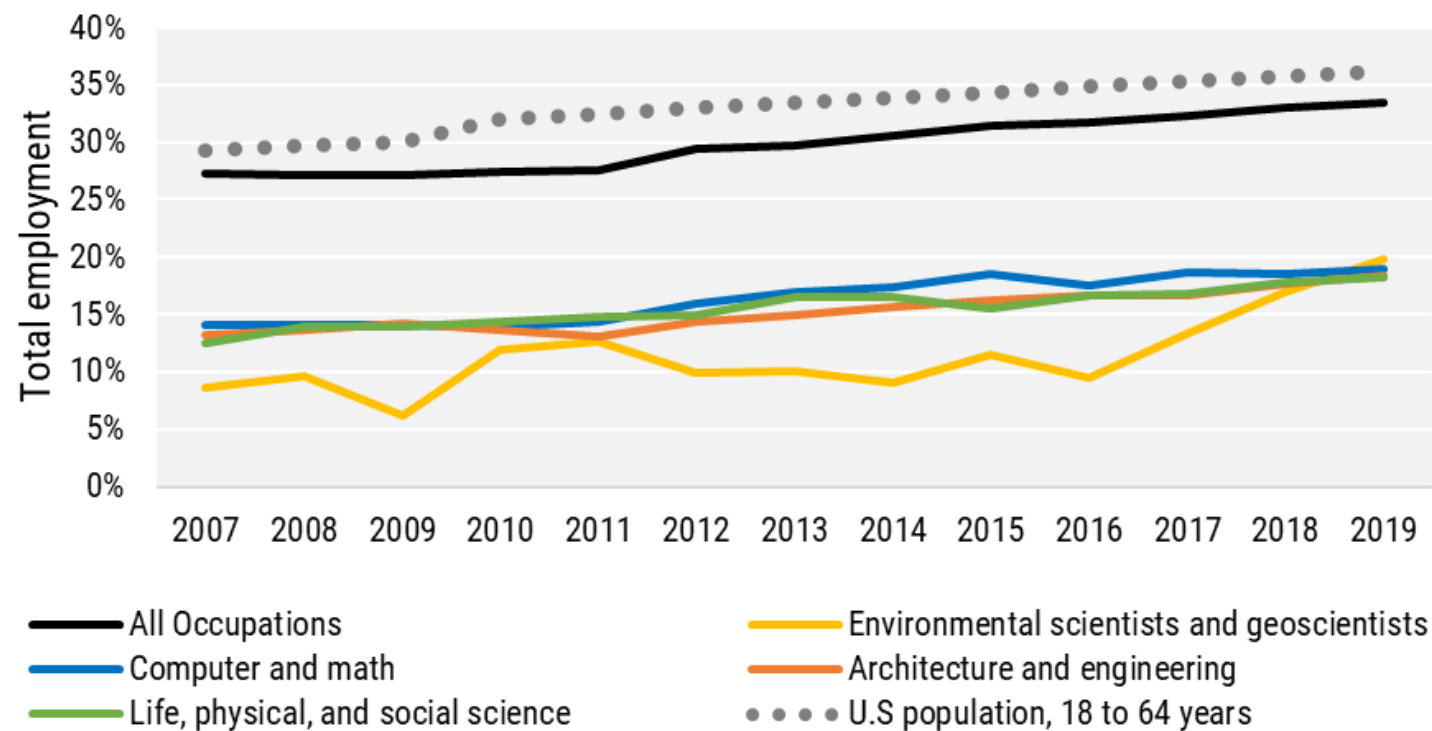
- **Power of Promise**
- The broader activity of geoscience is a **sociotechnical** field – now we need to actually behave like it.



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Workforce Participation by Occupation

All Underrepresented Populations



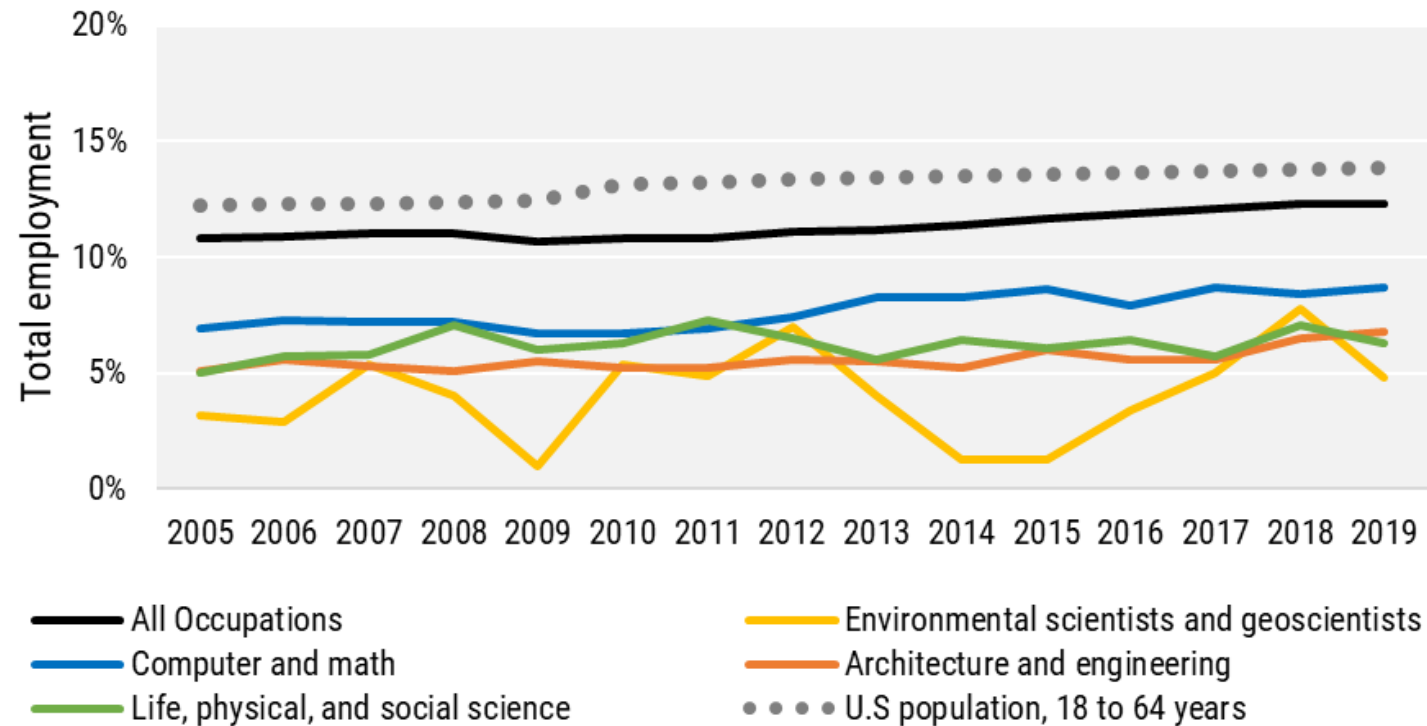
In 1972, underrepresented populations was 2% of the geoscience workforce.

1972-2016, really was negligible progress

Credit: AGI, data derived from the U.S. Census Bureau and U.S. Bureau of Labor Statistics

Workforce Participation by Occupation

Black and African-American

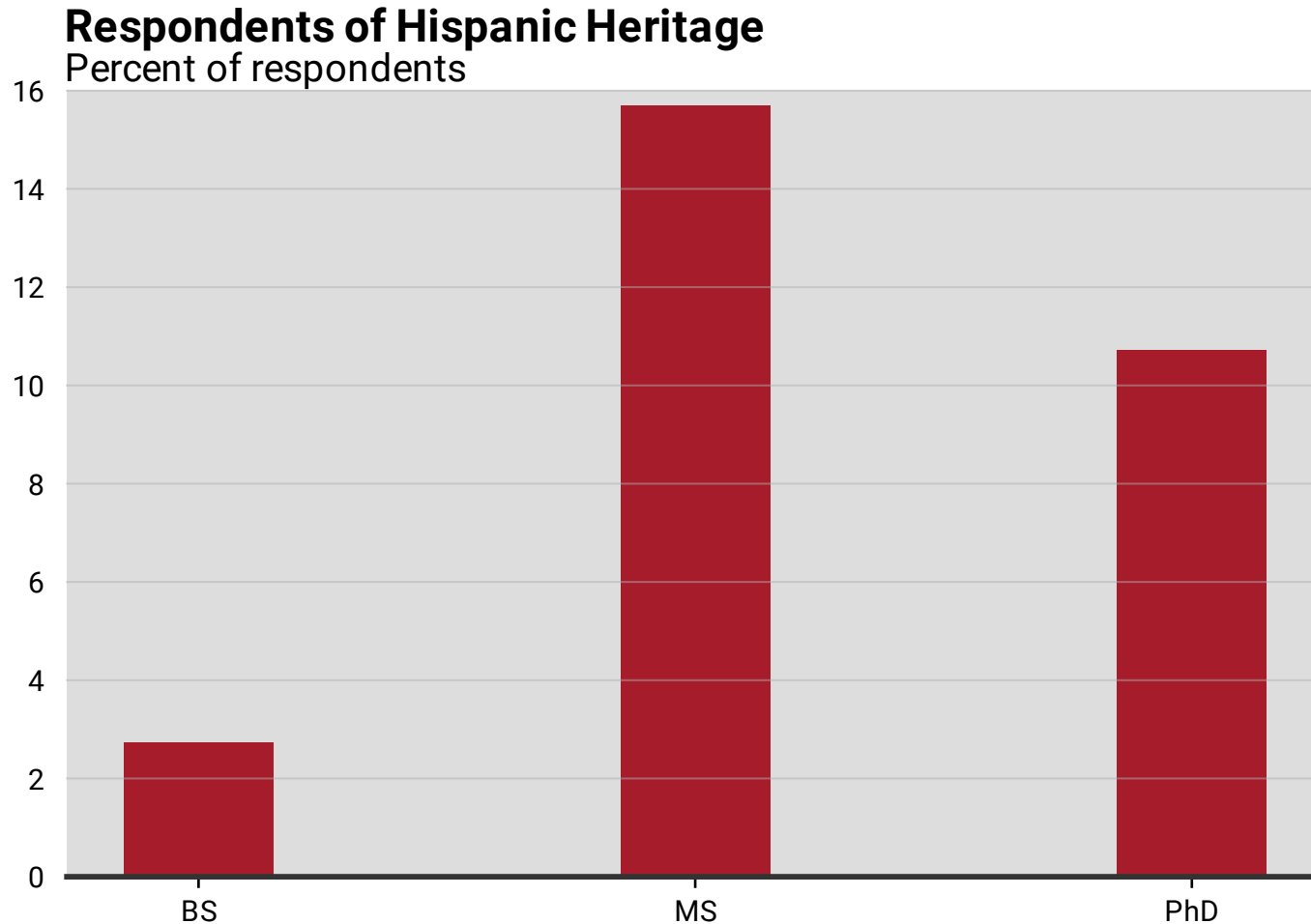


Credit: AGI, data derived from the U.S. Census Bureau and U.S. Bureau of Labor Statistics



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2020 Geoscience Graduates



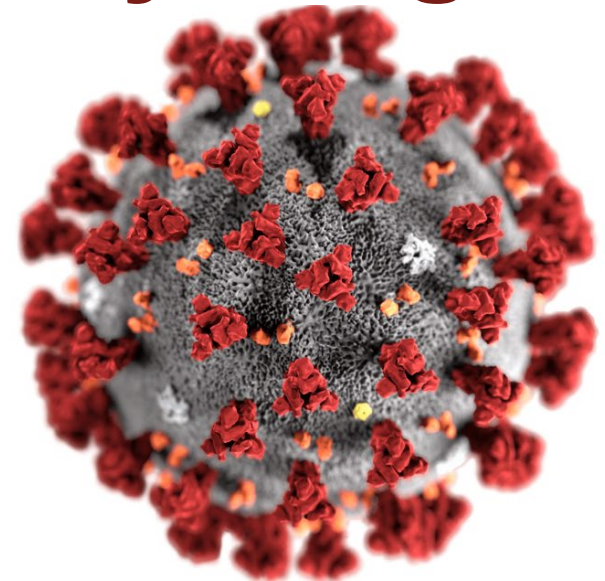
- How do we go from 18% to 2% in 1 year?
- Pandemic had an outsized impact, but we failed to support our in-progress undergraduates.



How do we create real change?

*We need to change the culture of the geosciences.
Change will not come from simply “intervening” with
underrepresented populations.*

Did the Pandemic Change Everything?



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Student Culture has Abruptly Changed

Comments for COVID-19 Study and the News

“The reading, writing, arithmetic, all the discipline skills, the book skills were all there, but putting those to good use and the things that they don't teach you in college that you need to know when you get in the real world, we're missing.” –
department head

“They have extraordinarily poor social skills right now. And I think that can be seen at all levels of the institution. And I'm not just talking about students. I'm talking about staff and coworkers. It's everybody, right? We need to learn how to talk again to others ... especially in large groups, because when you're in large groups, you're working off of other people's facial cues of when to stop and went to go. And when cameras are off, you don't have those social cues to work with.” –
geoscience faculty

The New York Times

At N.Y.U., Students Were Failing Organic Chemistry. Who Was to Blame?

Maitland Jones Jr., a respected professor, defended his standards. But students started a petition, and the university dismissed him.

Early 2023 – webinar on the sociology of today's students



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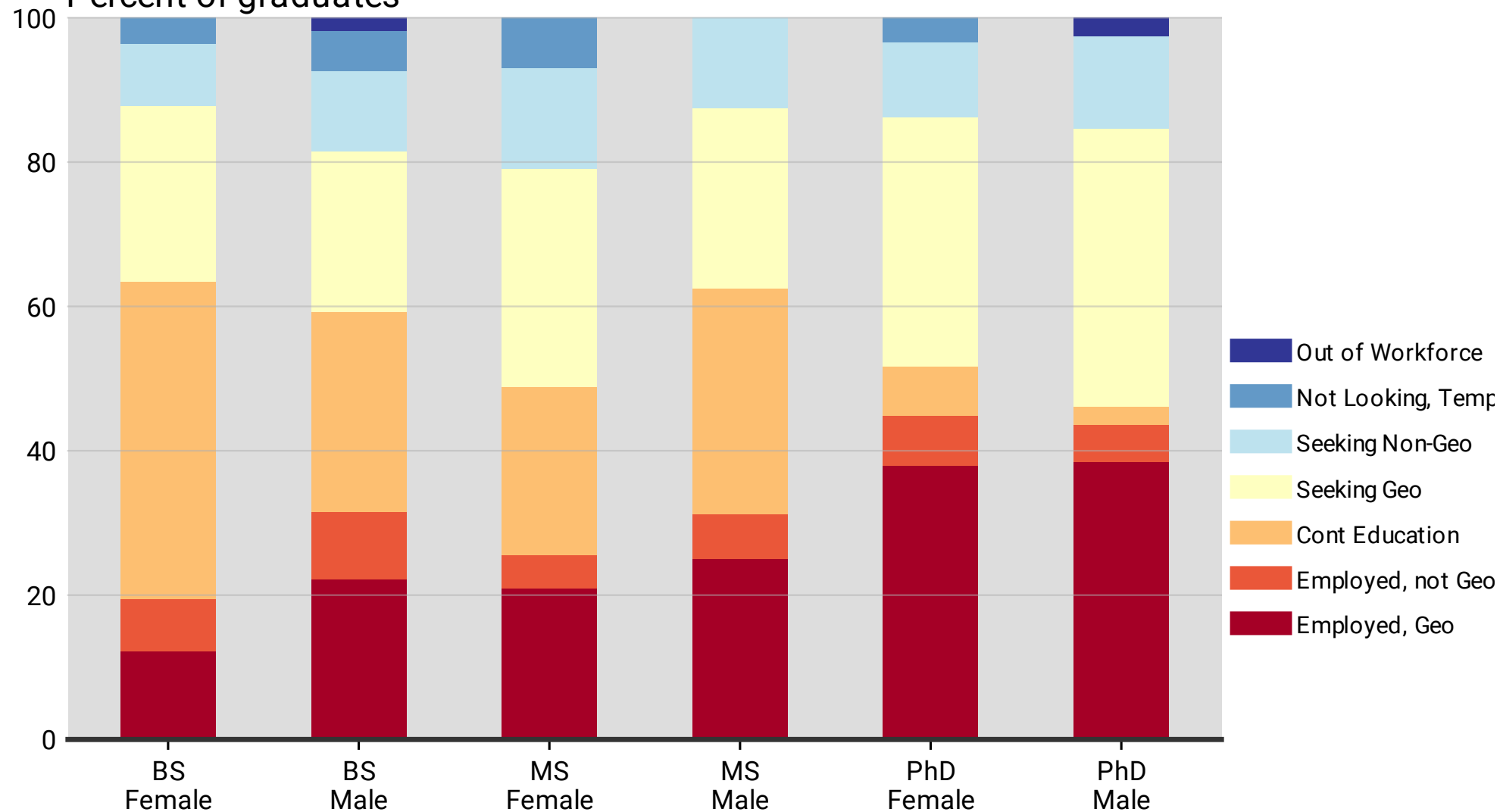
Motivations for Higher Ed Reflect Economics

Students today want a job at the end



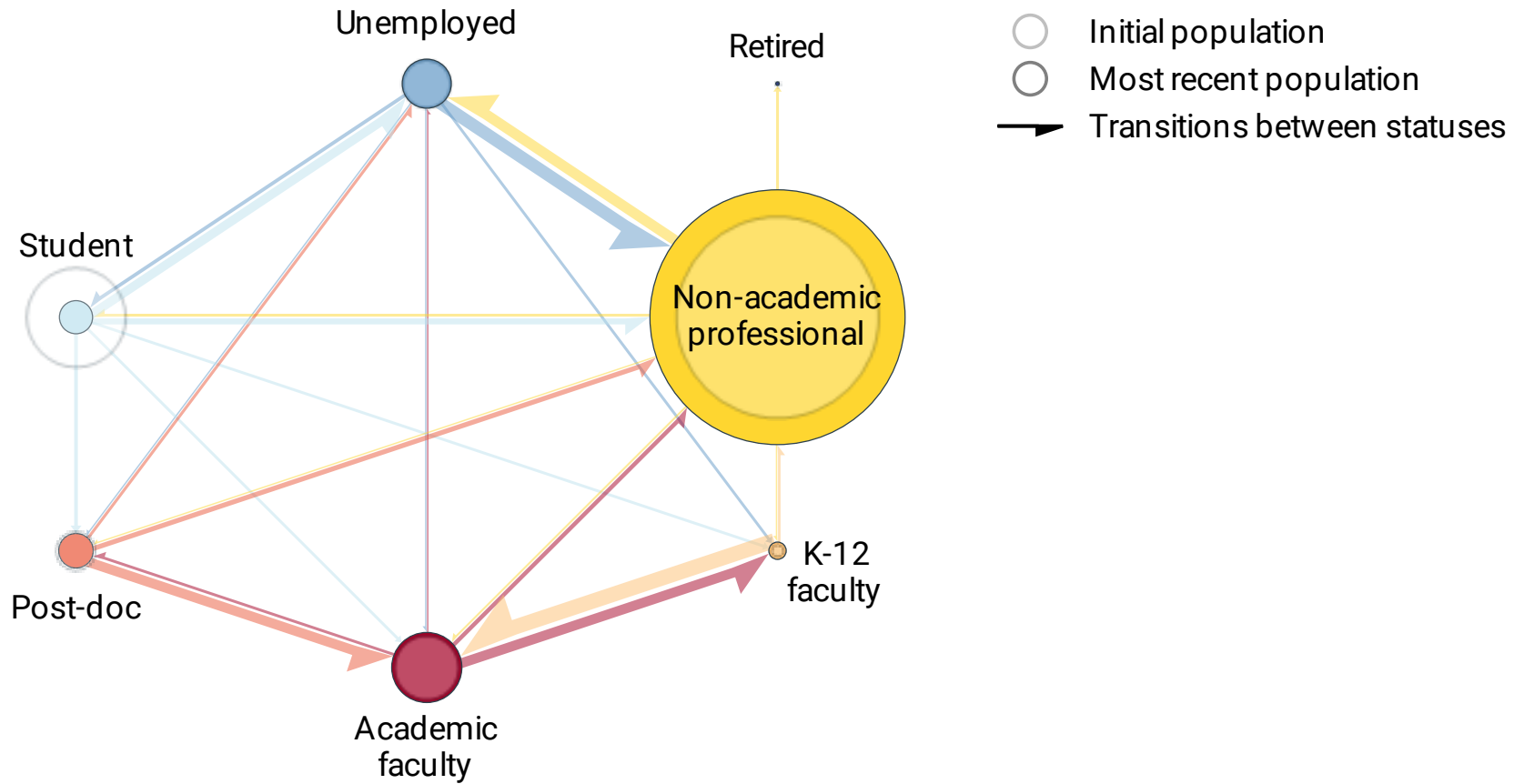
Employment Status at Graduation by Degree Level and Gender, 2020-21

Percent of graduates



Changes in occupational status, Feb 2020 - Mar 2022

Recent geoscience graduates, Classes of 2014-2021

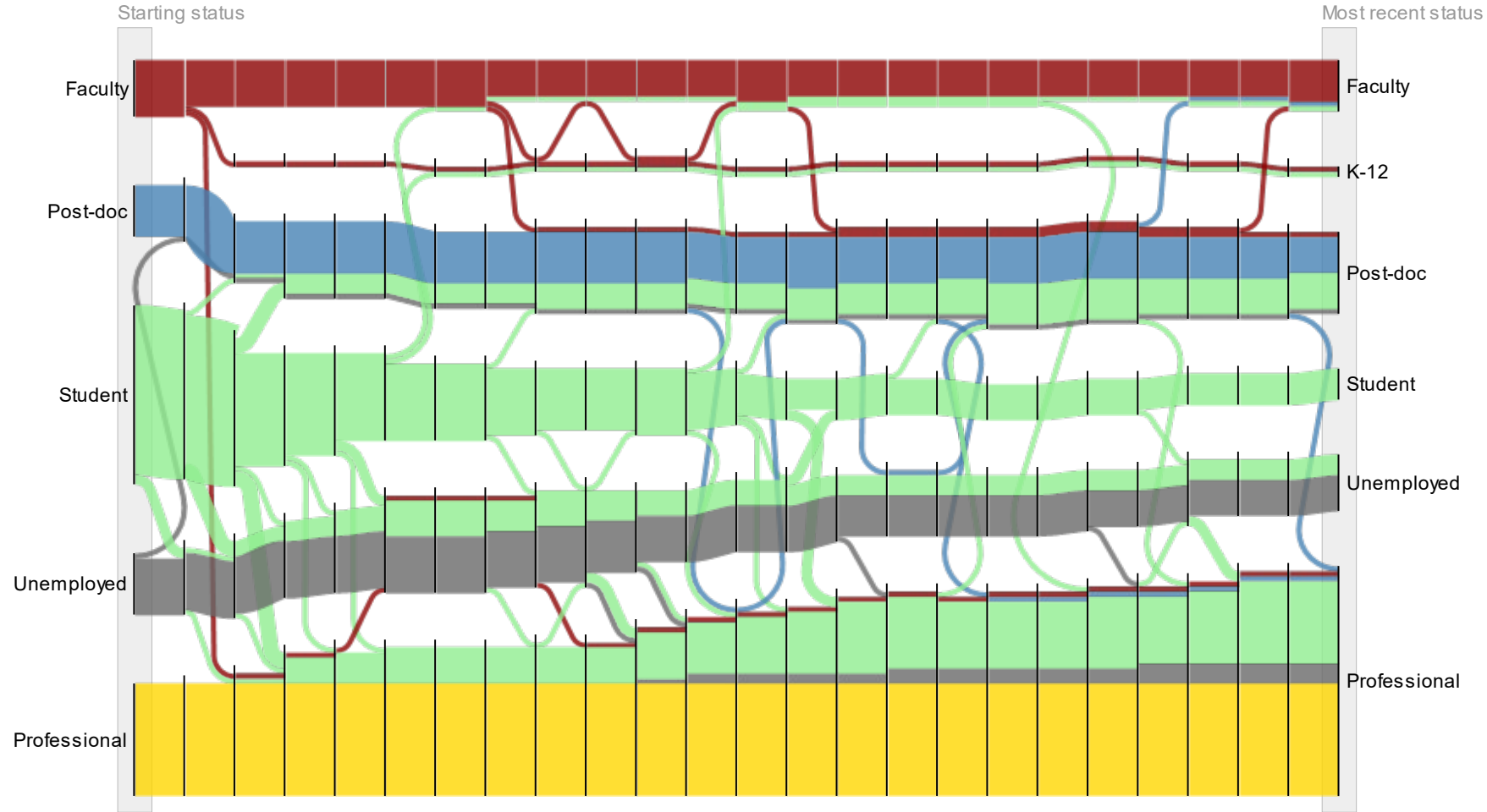


Career trajectories

Growth in post-doc and non-academic professions.

Some increase in unemployed graduates.

Occupational status of graduate degree recipients, classes 2019-2022



An Unforced Fumble in Valuing College



Bad Marketing with Loan Forgiveness

- Loan forgiveness signals higher education is not worthwhile – requiring a federal bailout to “customers”
 - Terrible way to attract first-gen students
- Did nothing to address the cost of attending college
- Coupled with high inflation and interest rates
 - Less cash for tuition
 - Potentially more difficult loan terms in the future
 - Easy loans fueled higher ed inflation

Your department needs to announce clearly the value proposition of your degree

For more information

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www.americangeosciences.org/workforce