

# AGU/AGI Heads and Chairs webinars

# Introductions

## **Pranoti Asher**

Assistant Director, Grants & Education Programs, AGU  
and AGI's Scholar in Residence

## **Christopher Keane**

Director of Geoscience Profession and Higher Education, AGI

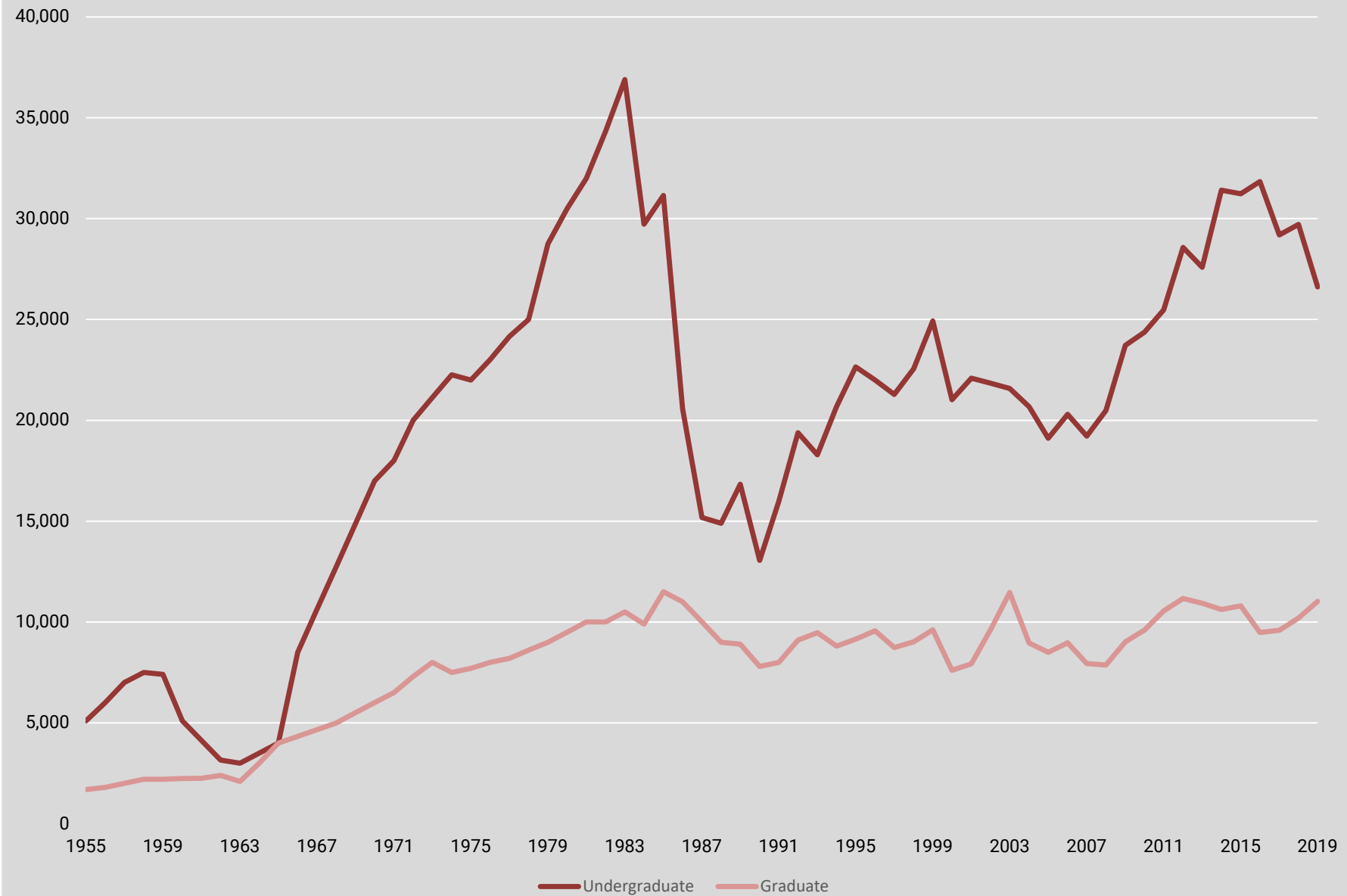
# Today's Webinar

## The Geoscience Workforce: Current Trends and Impacts from COVID -19

Leila Gonzales, Christopher Keane, and Lukas Poteracke

# Geoscience Enrollments in the United States, 1955-2019

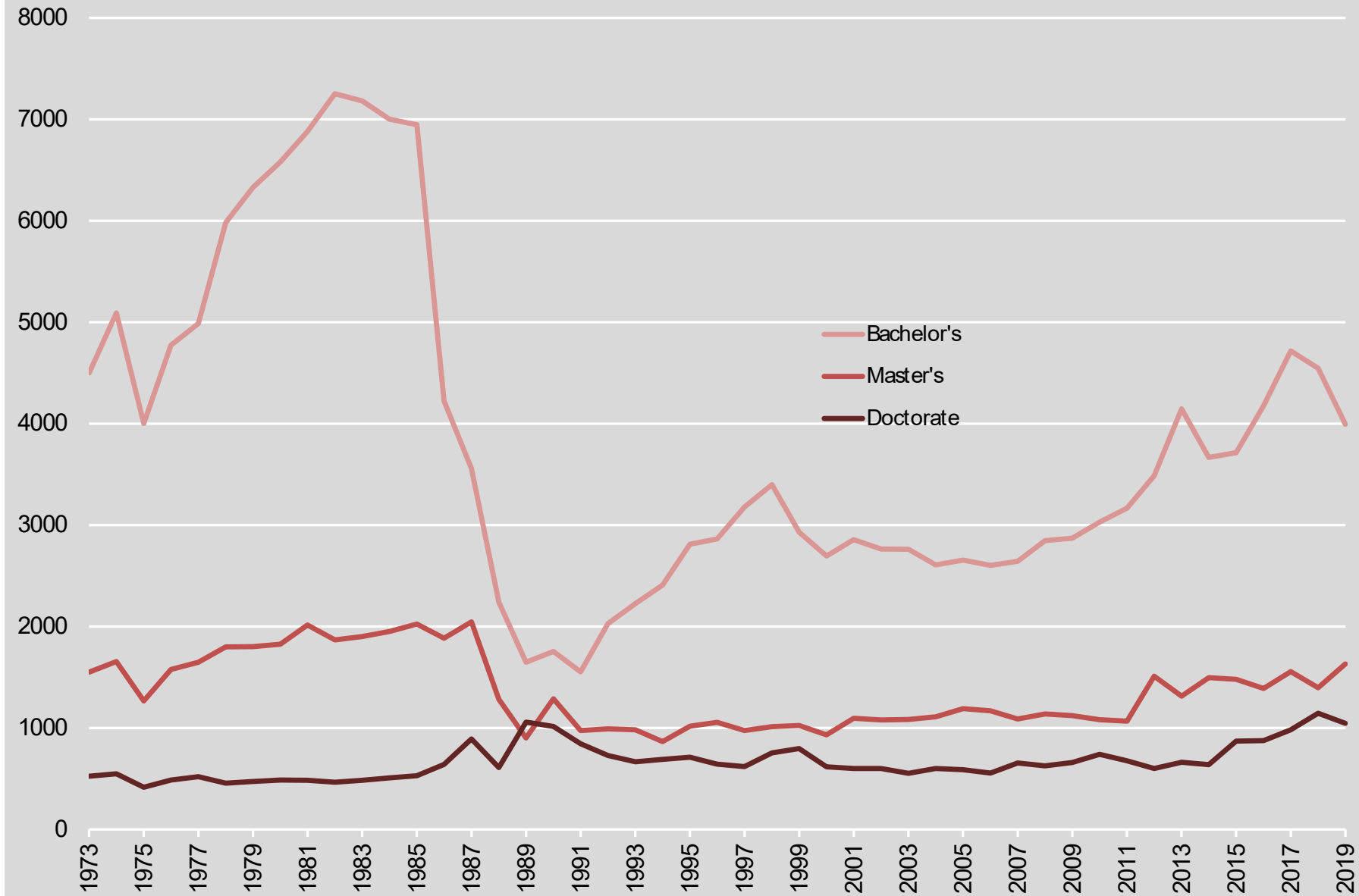
- Decrease in on-campus majors
- Graduate Enrollment is slowly breaking long-term trend



— Undergraduate — Graduate

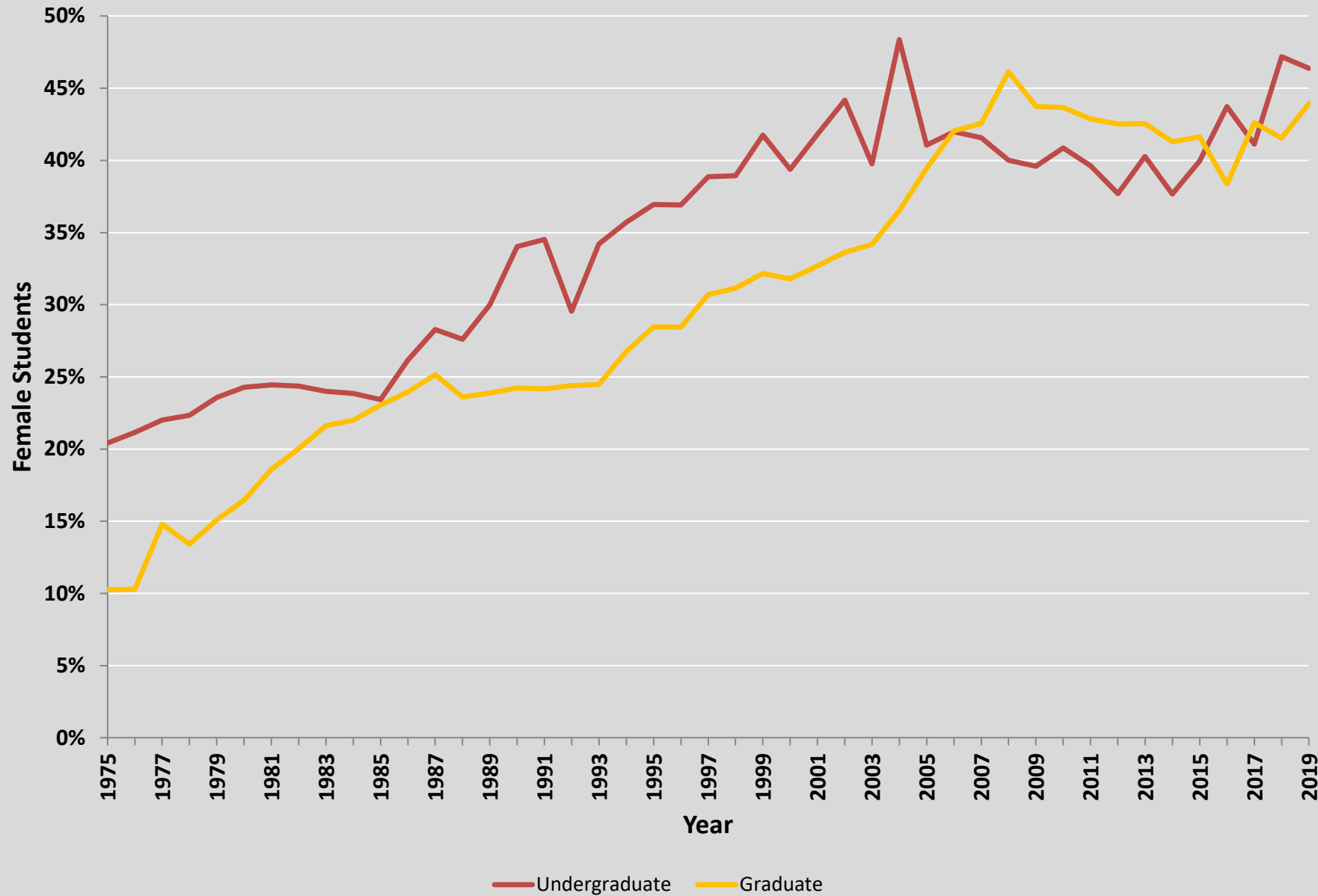
# U.S. Geoscience Degrees Awarded 1973-2019

- Concern about the lack of a lag in BS degree drop
- Graduate degrees rising as oil and gas hiring contracted
- Note how far we are from any true crisis!



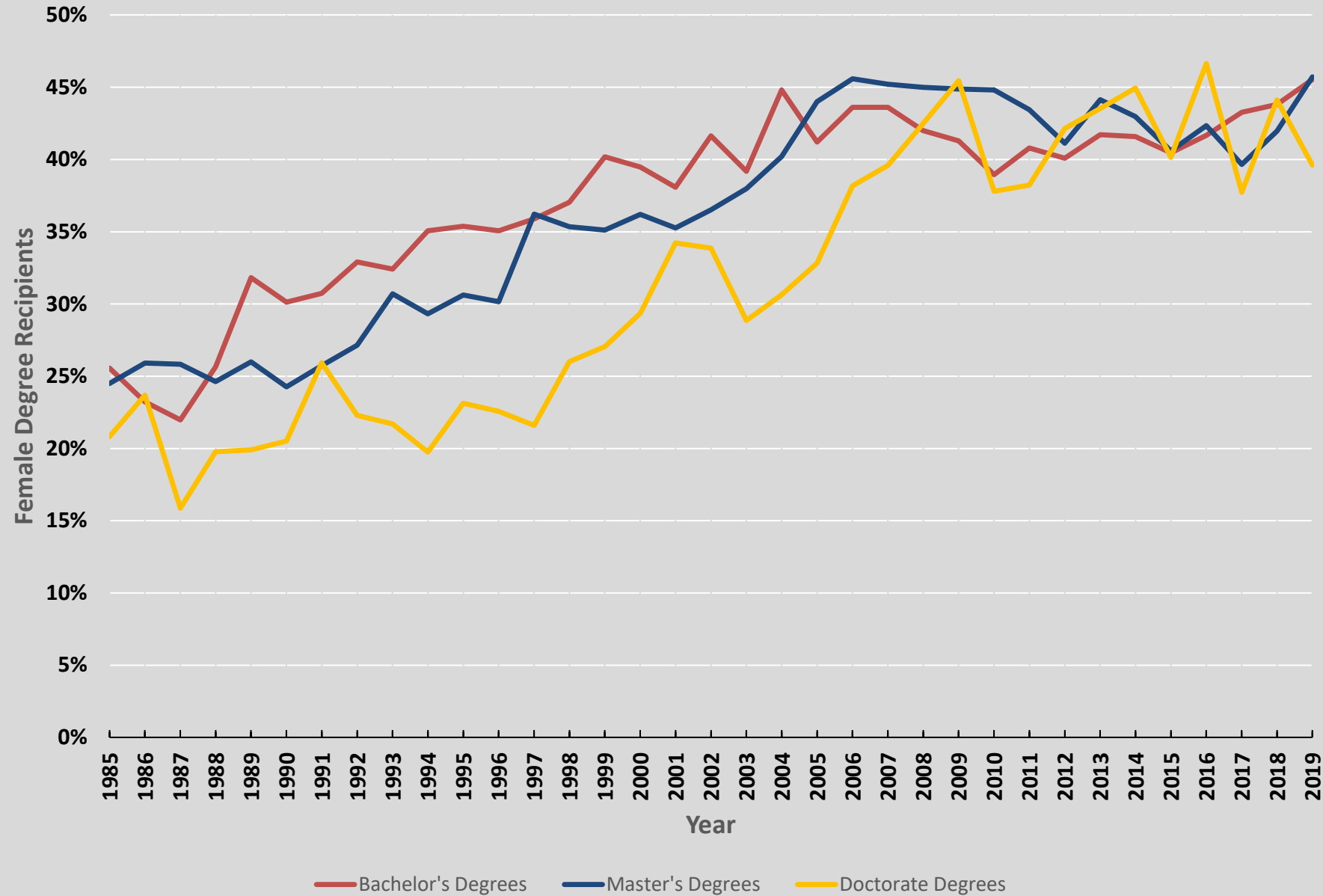
- Geoscience has the second highest level of female participation of any STEM field
- We are now nearly 20 years of stability
- That 50% of geoscience graduate students come from outside of geoscience leads to deviations by degree level

U.S. Geoscience Enrollment by Percent Female, 1975-2019

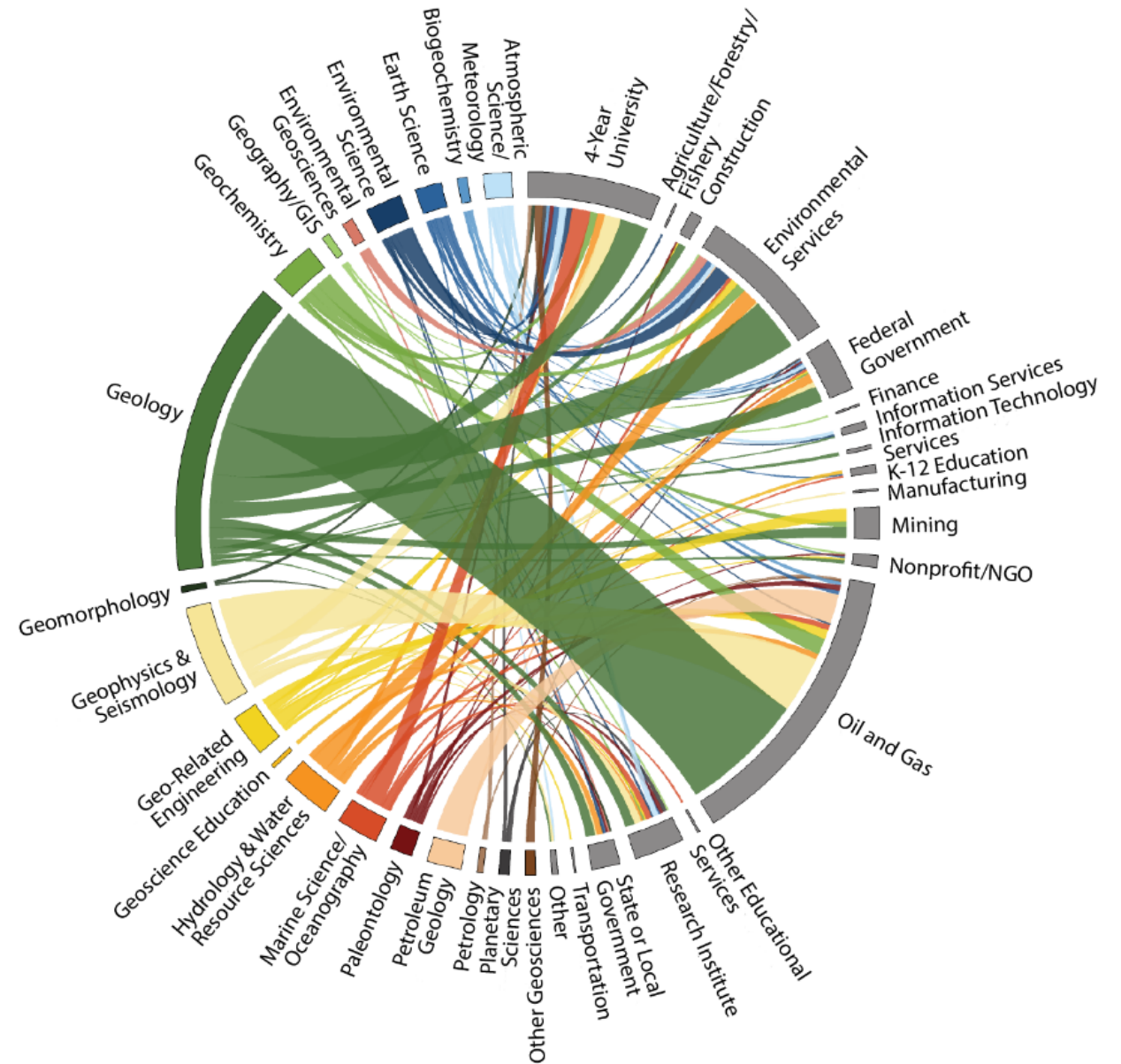


- Similar trends to enrollment as expected
- Note that women complete their degree at a higher rate than men at all degree levels
- Industry sees similar trends on initial hiring – so much that many major companies no longer have gender hiring preferences.

U.S. Geoscience Degrees Awarded by Percent Female, 1985-2019



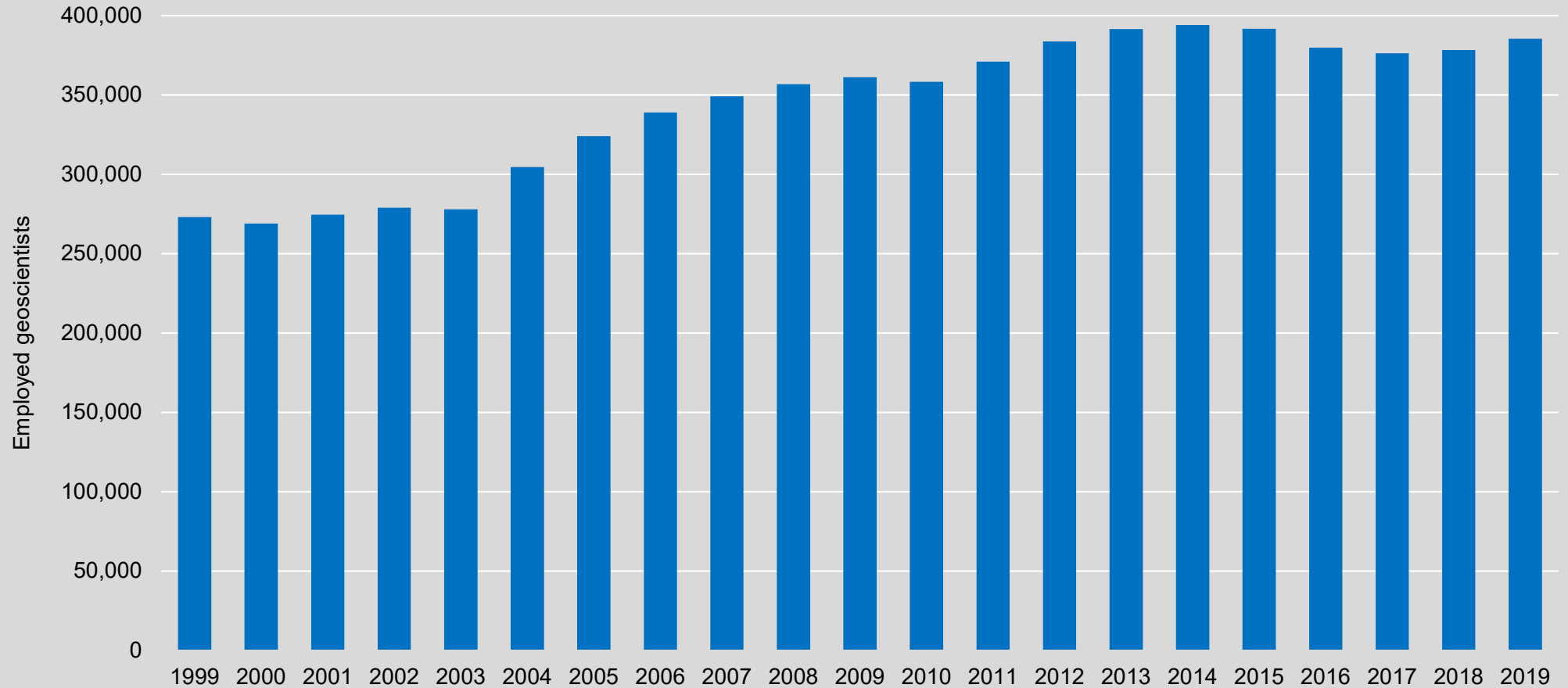
# Topic of geoscience degree graduates mapped to their sector of first employment, 2013-2018





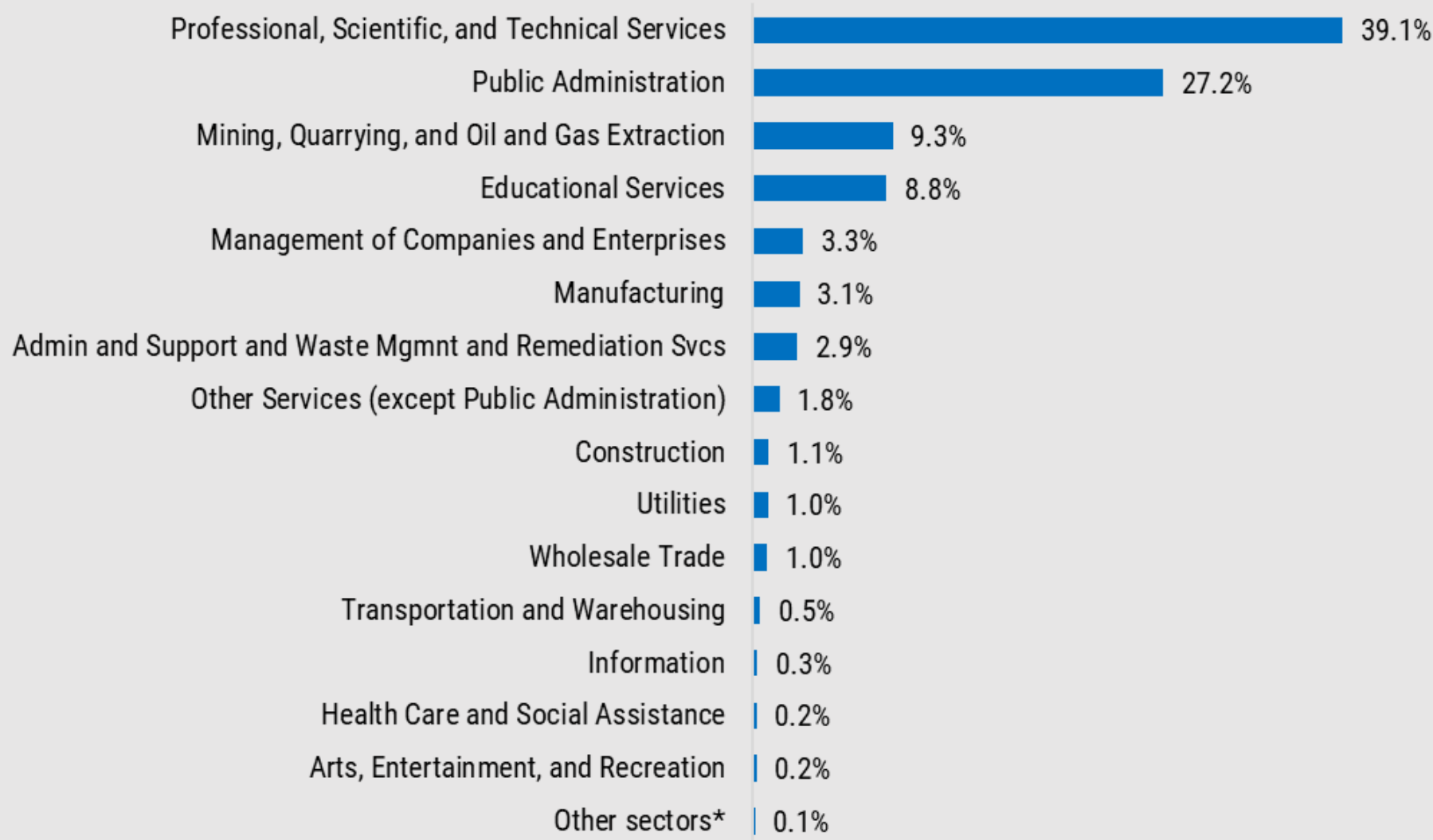
- The total geoscience field is doing fine!
- The industry components continue to shift

## U.S. Total Geoscience Employment, 1999-2019



Source: AGI; data derived from U.S. Bureau of Labor Statistics, Occupational Employment Statistics

## Percentage of employed geoscientists by industry sector, May 2019



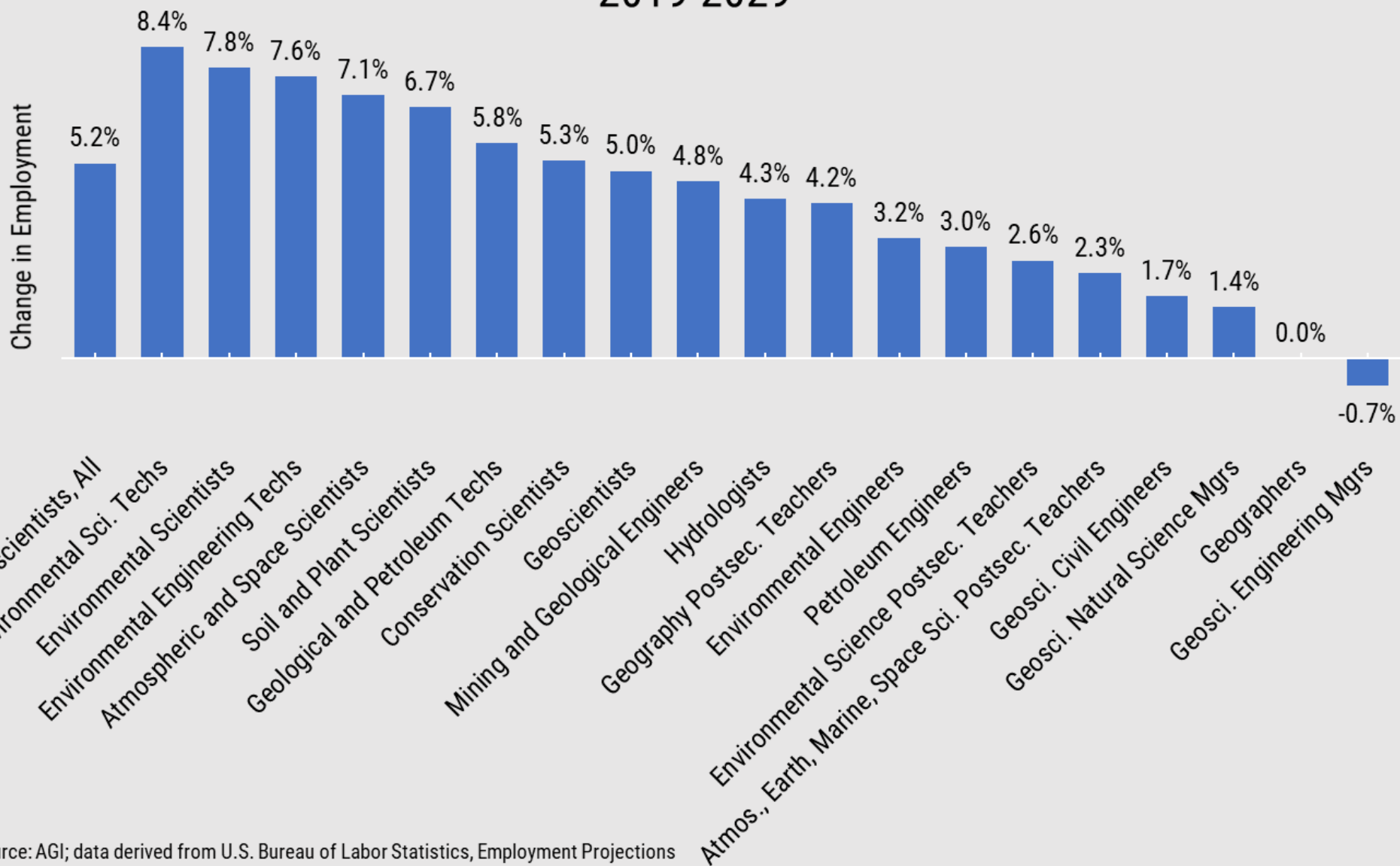
Credit: AGI; data derived from the U.S. Bureau of Labor Statistics, Occupational Employment Statistics

Consulting / environmental services and government are the primary industries where geoscientists work.

### Other sectors\*

- Agriculture, Forestry, Fishing and Hunting: 0.05%
- Retail Trade: 0.01%
- Finance and Insurance: 0.07%
- Accommodation and Food Services: 0.002%.

# Projected Geoscience Workforce Changes by Occupation 2019-2029



Source: AGI; data derived from U.S. Bureau of Labor Statistics, Employment Projections

All Occupations: 3.7%

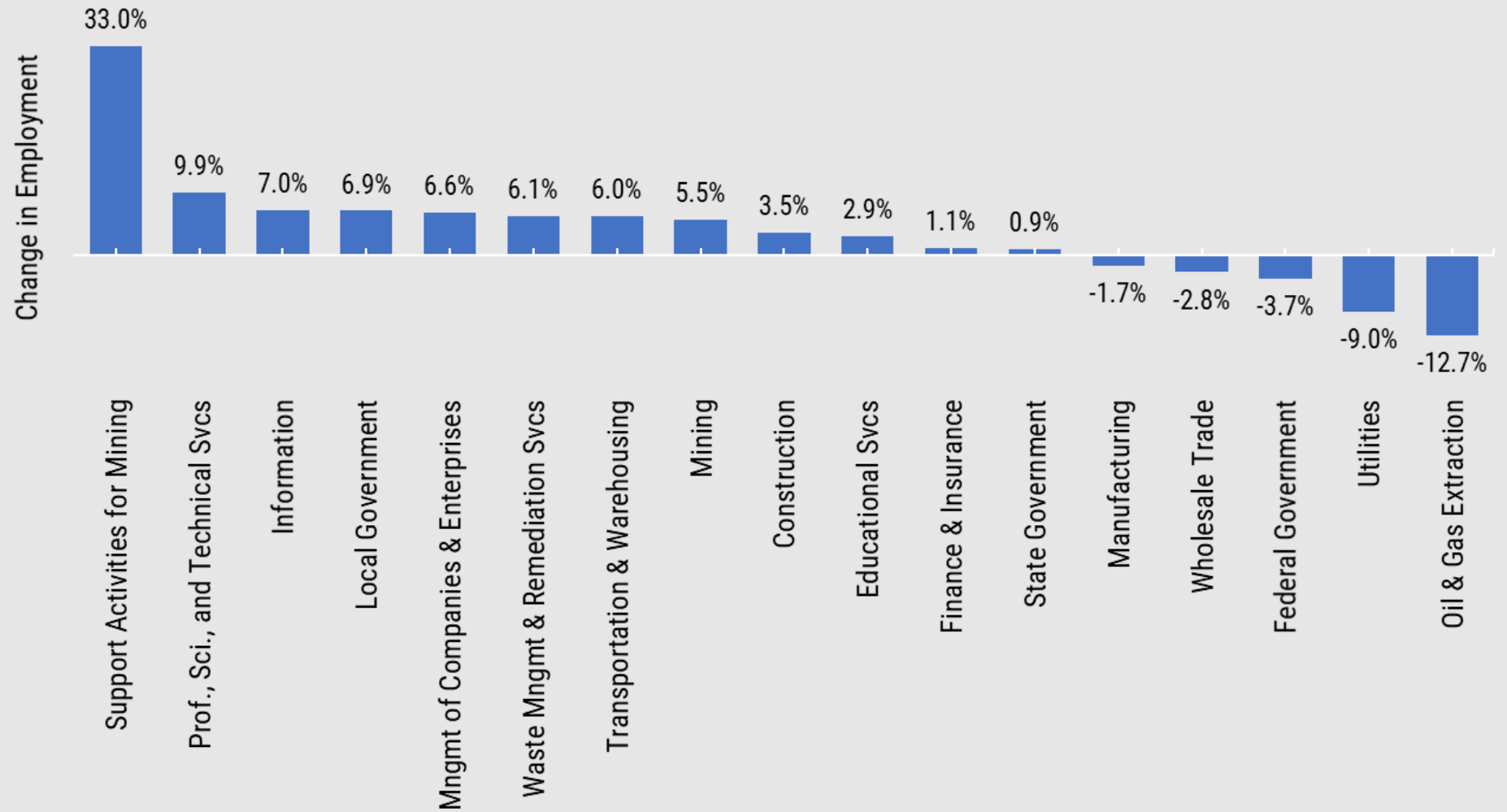
## Other STEM fields

Computer and math: 12.1%

Life, physical, social sci.: 4.7%

Engineers: 3.8%

# Projected Geoscience Workforce Changes by Industry 2019-2029

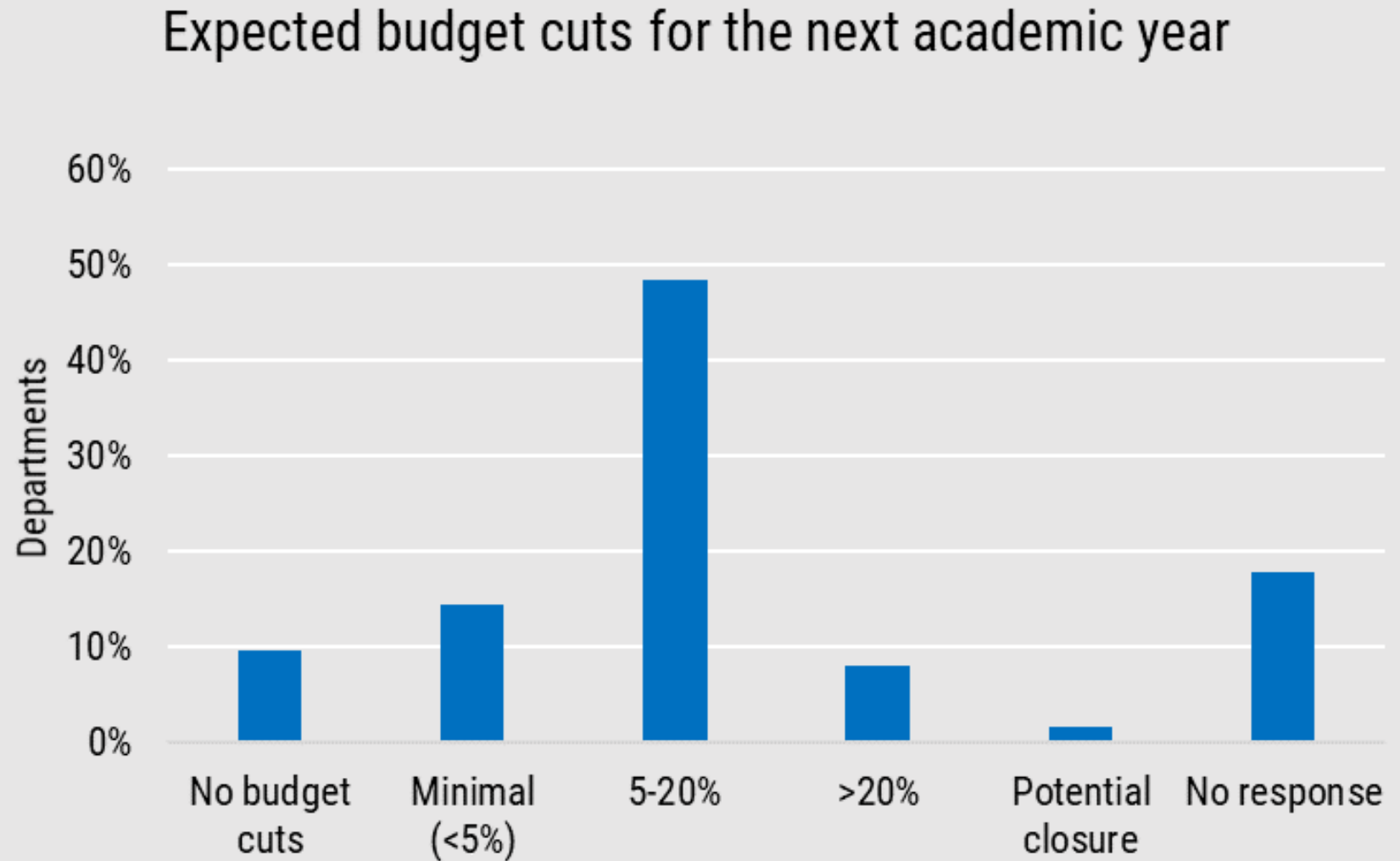


Source: AGI; data derived from U.S. Bureau of Labor Statistics, Employment Projections

# Departments

Most departments expecting cuts of 5-20% as of February 2020.

Will do follow up surveying to assess actual budget cuts for AY 2020-2021.

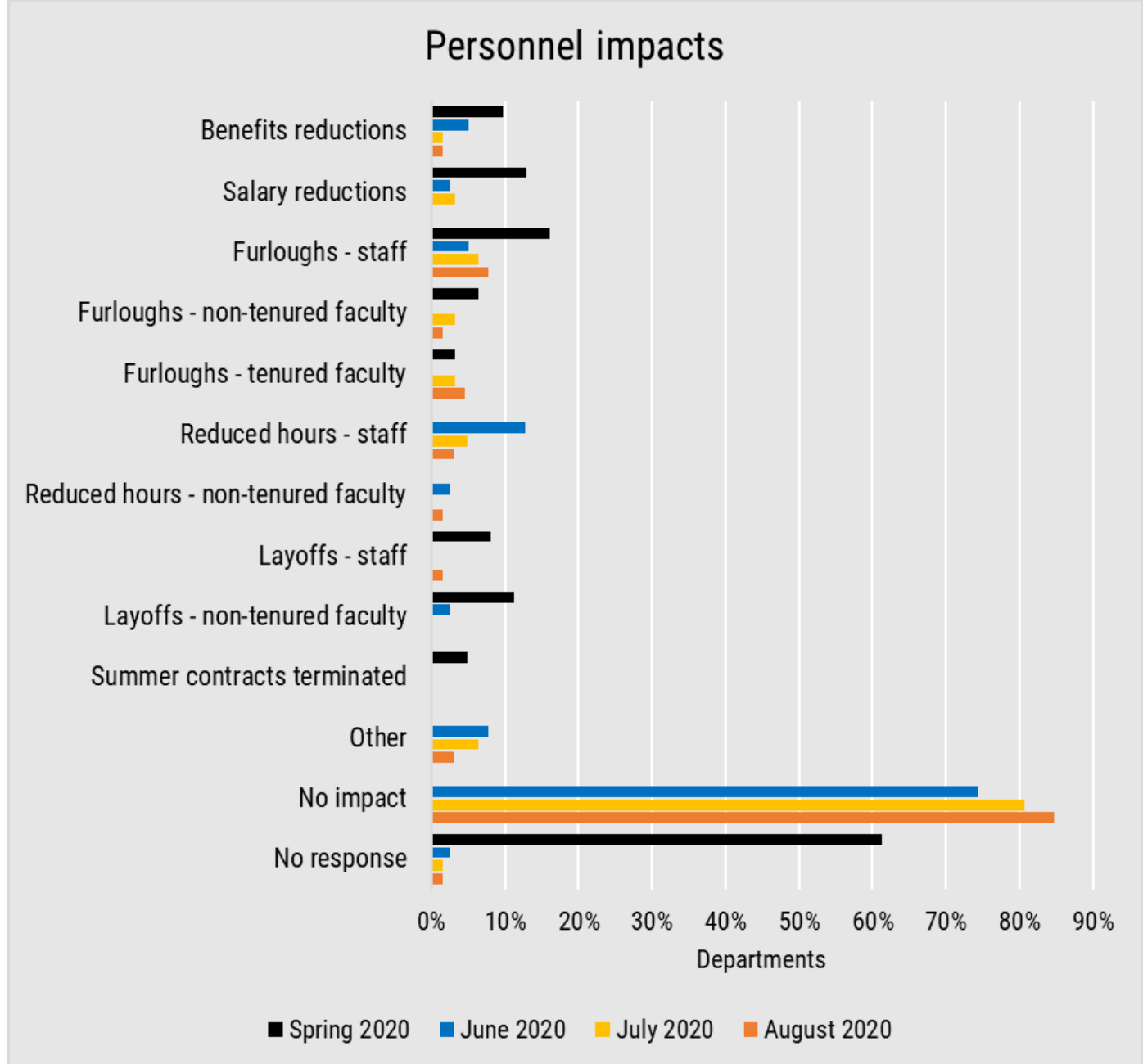


# Departments

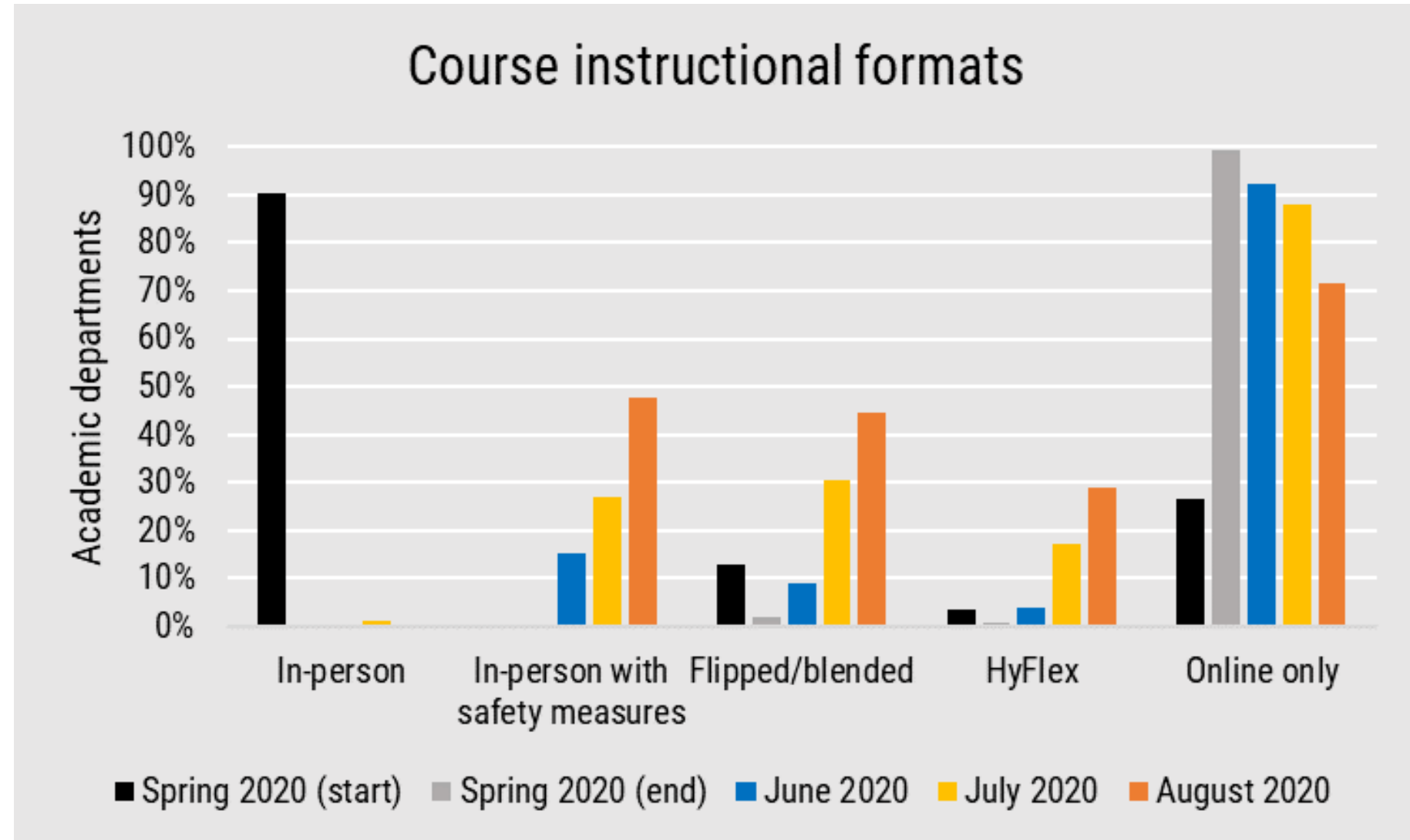
Majority of departments are reporting no impacts.

Most impacts occurred during Spring 2020.

Staff furloughs continue thru August for some departments, reduced hours for staff more common in June.



# Departments



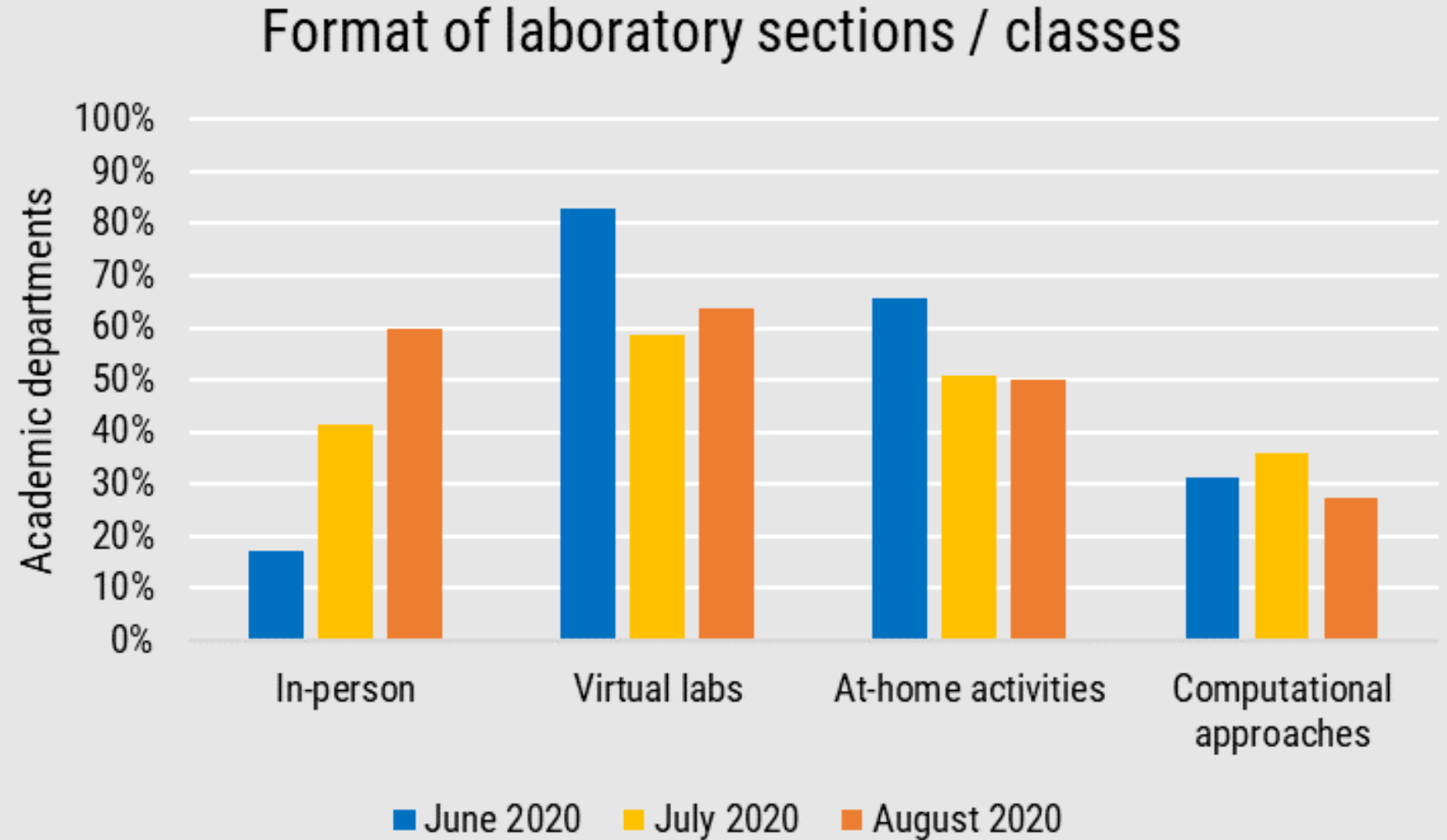
# Departments

Spring 2020

93% changed to virtual/at-home

4% terminated lab sections

5% no change





# Departments

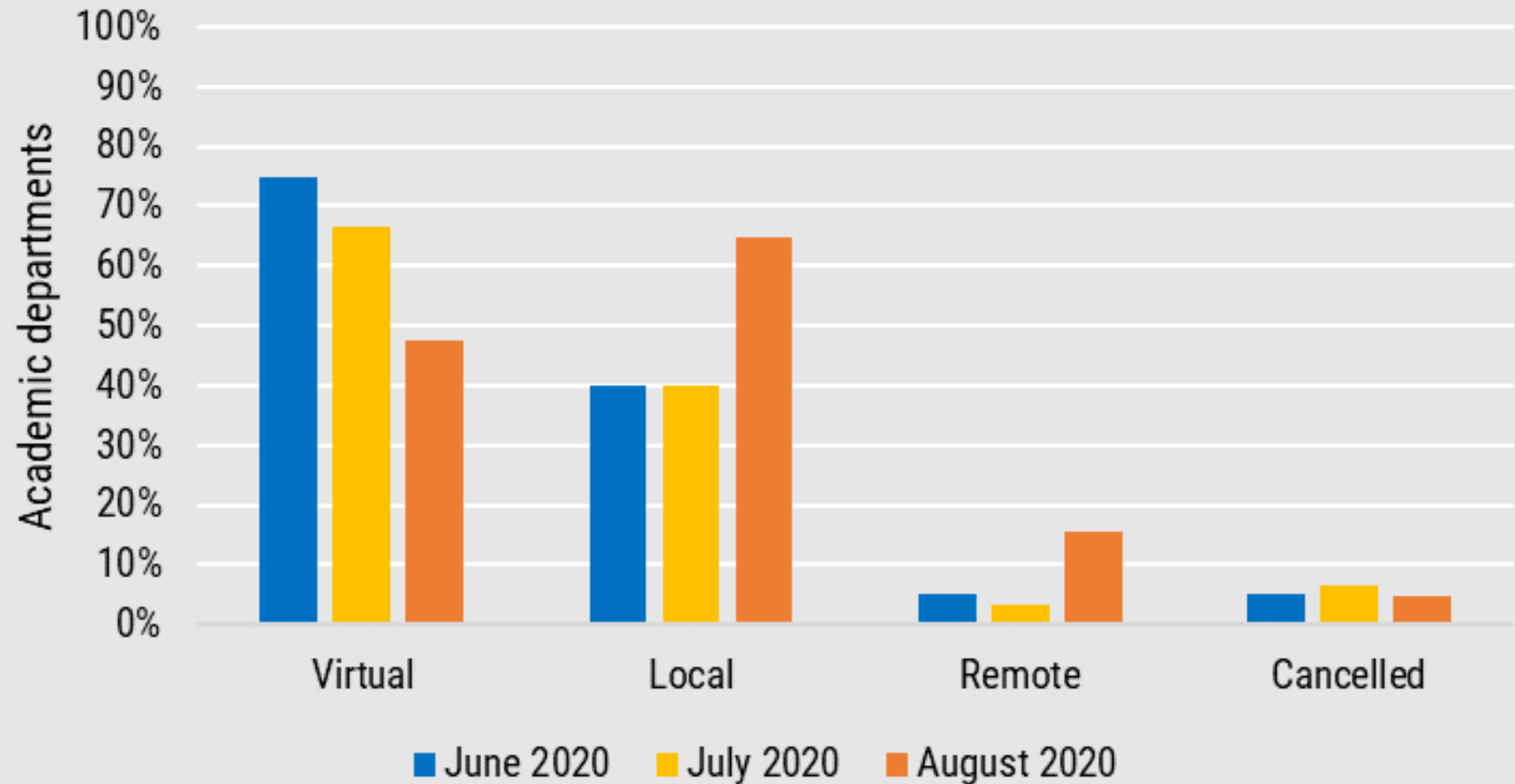
## Spring 2020

Conversion to virtual: 63%

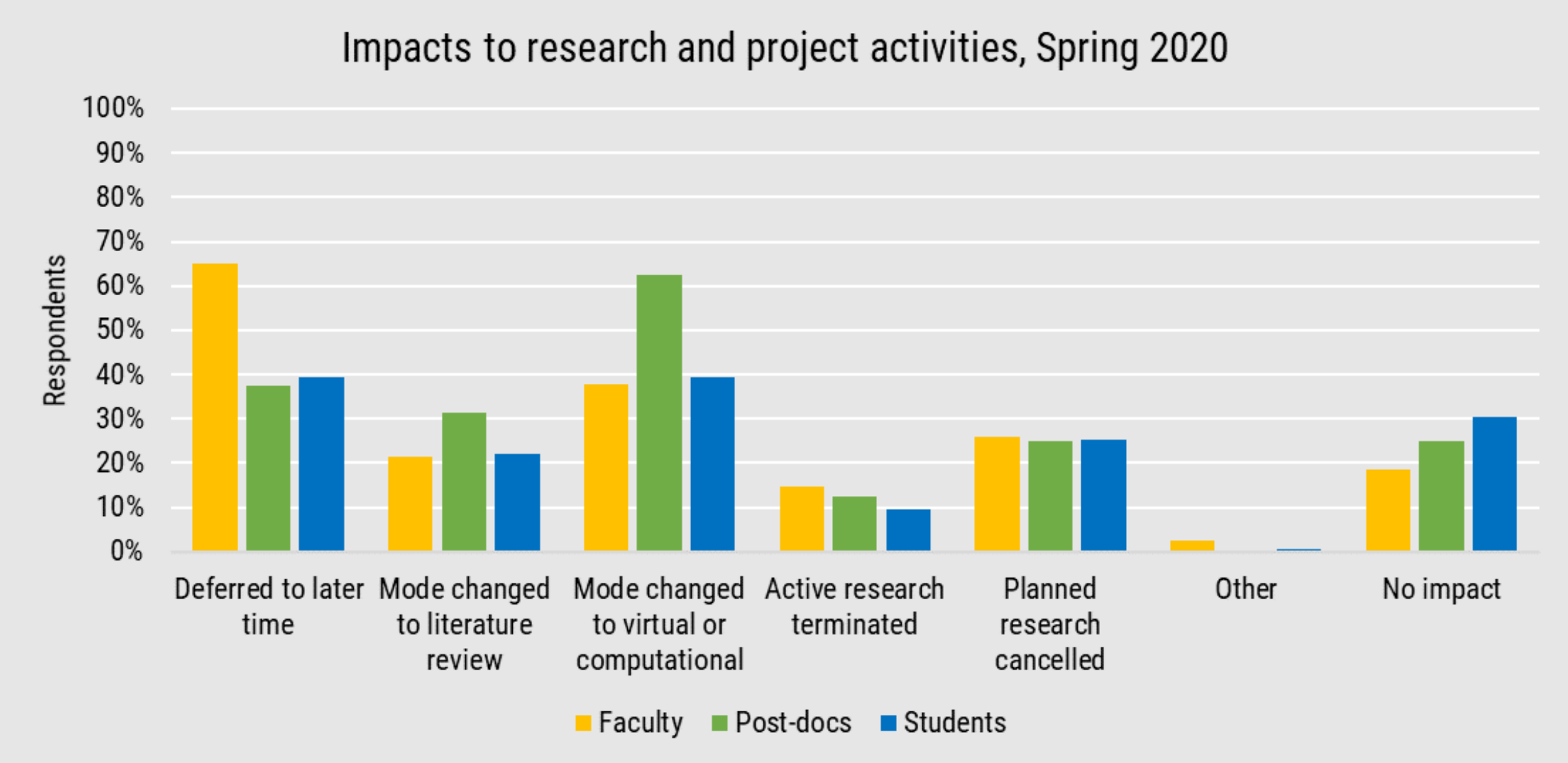
Cancelled field course: 34%

Local field activities included self-guided investigations and in-person instruction with a small number of students.

## Format of field instruction and activities

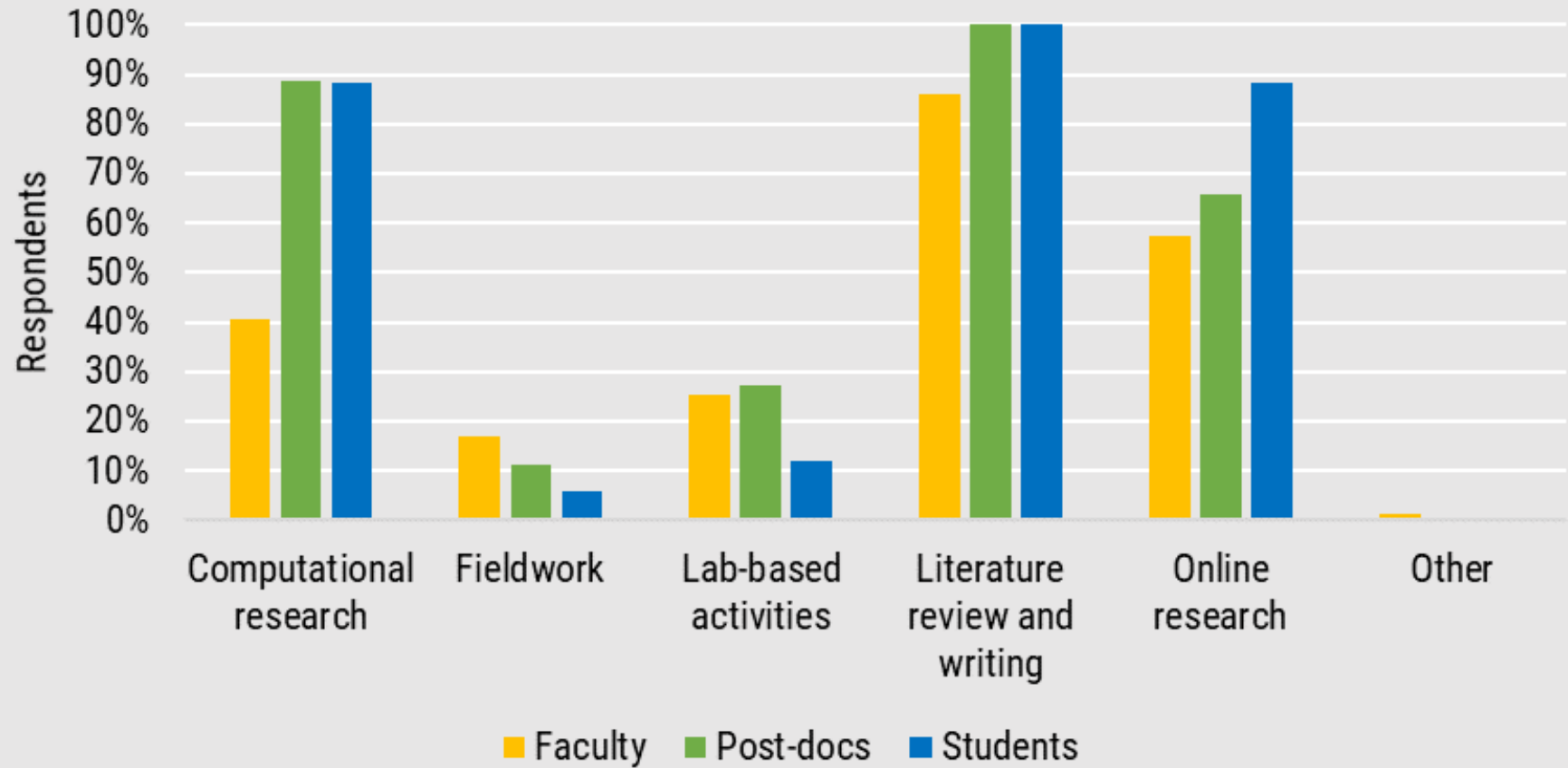


# Academics

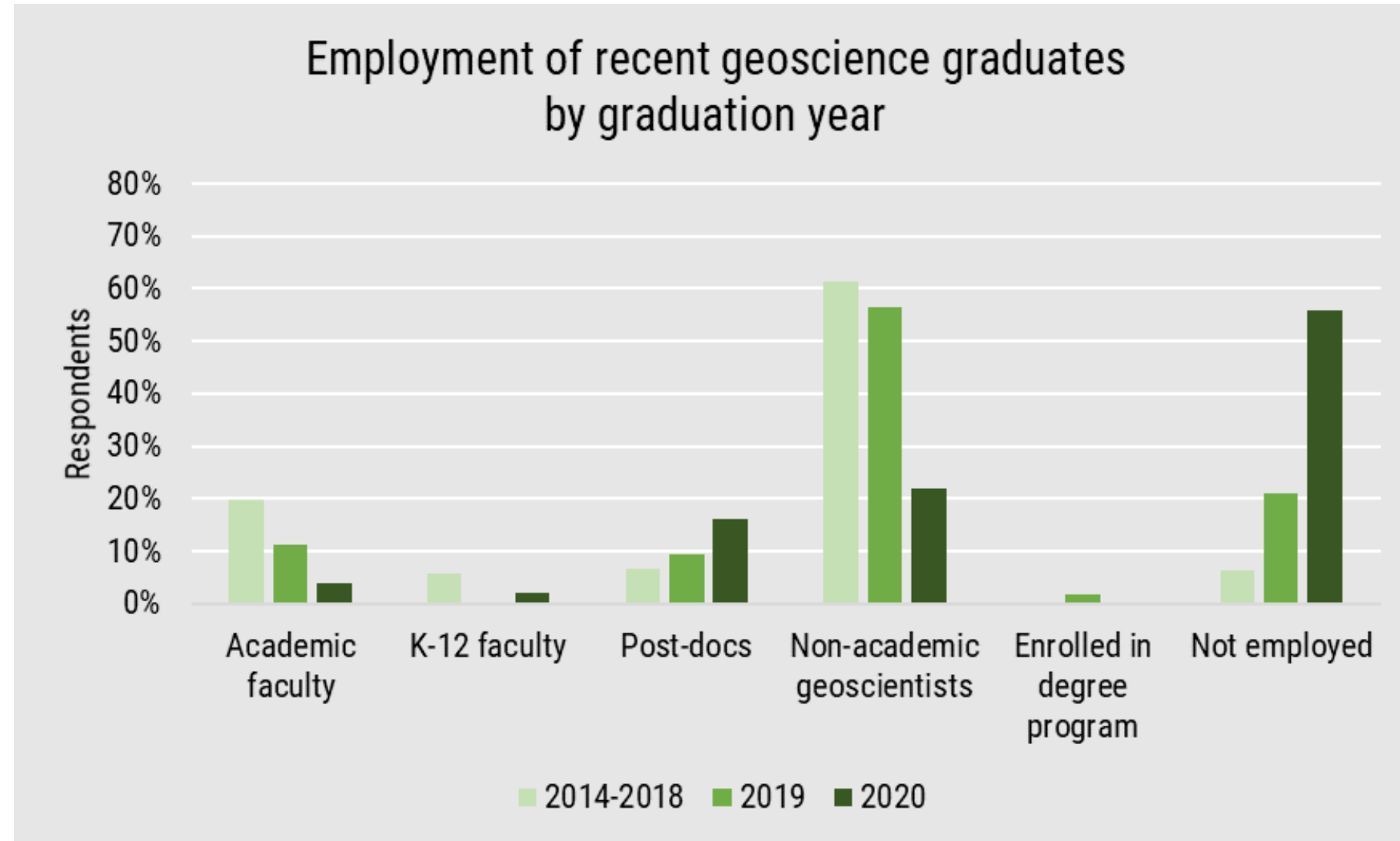


# Academics

Methods currently being used for work and research,  
June-August 2020



# Recent Geoscience Graduates



# Recent Geoscience Graduates

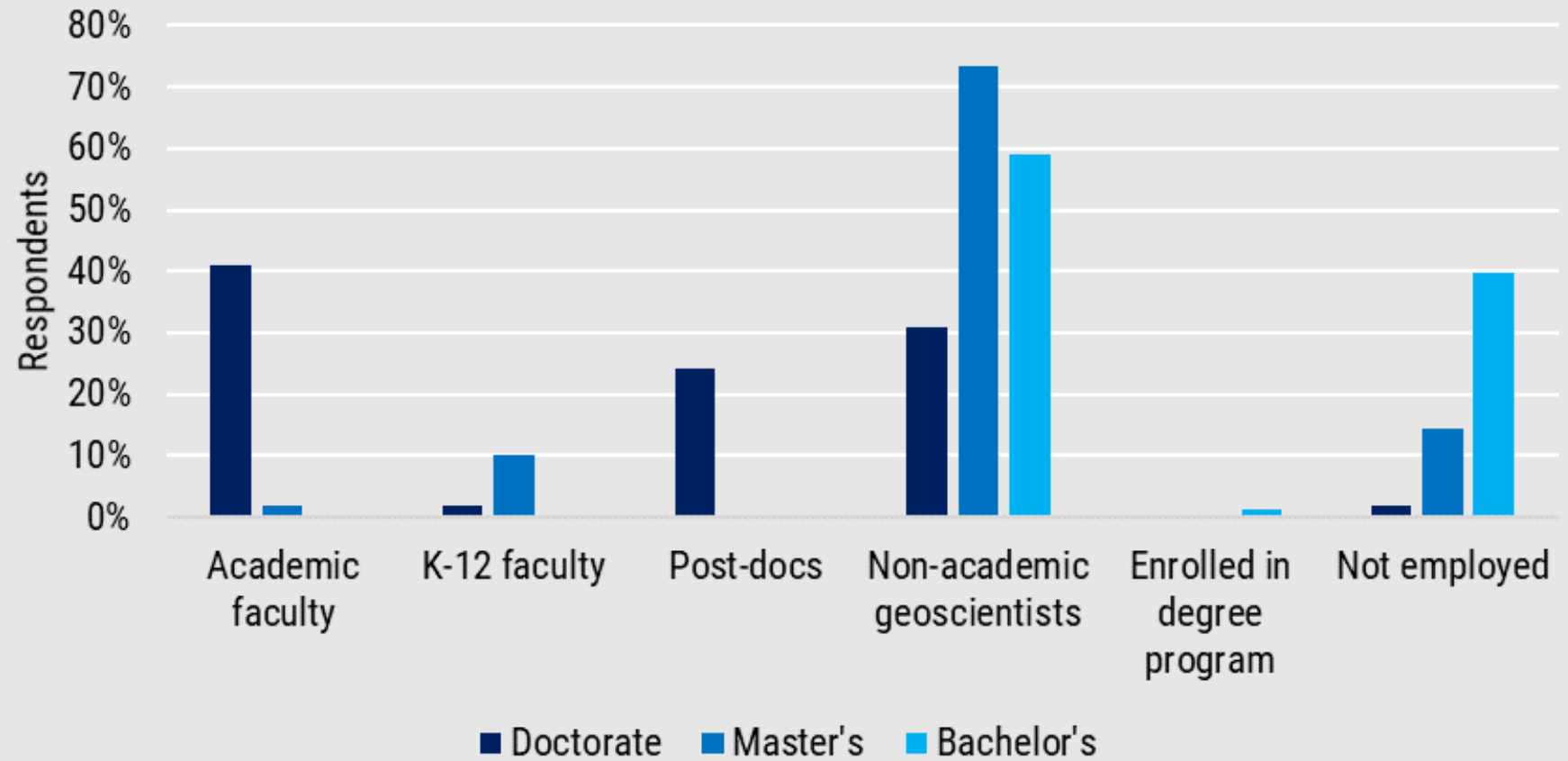
No deviation from long-term employment trends of recent graduates.

77% of unemployed recent graduates are seeking employment in the geosciences, and just over half are seeking employment outside the geosciences.

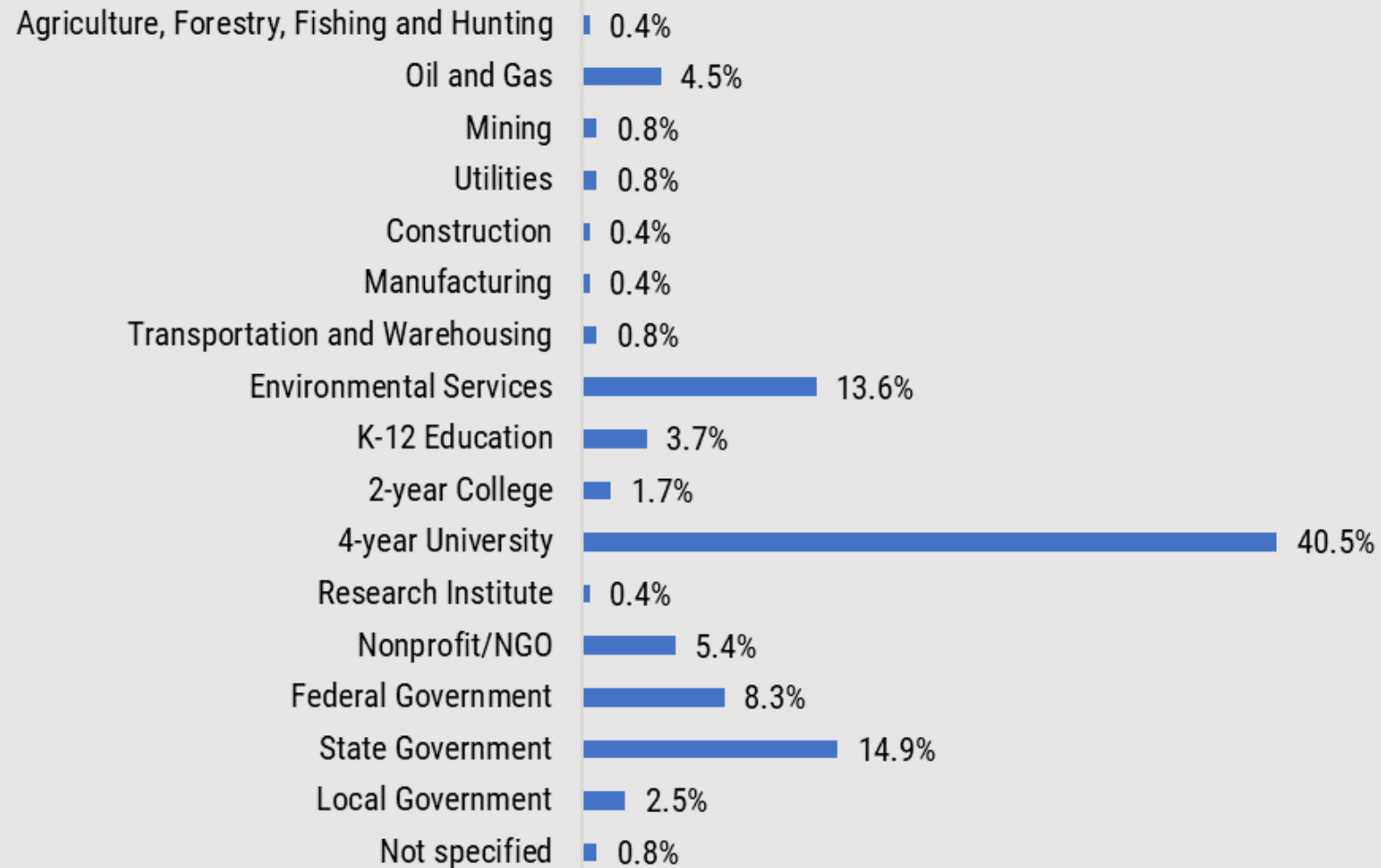
Most common reasons for seeking employment outside of the geosciences:

- Lack of job in geosciences
- Lack of skills or training

## Employment of recent geoscience graduates by degree level



## Industry sectors of employed recent geoscience graduates, August 2020



Percentage of employed recent geoscience graduates

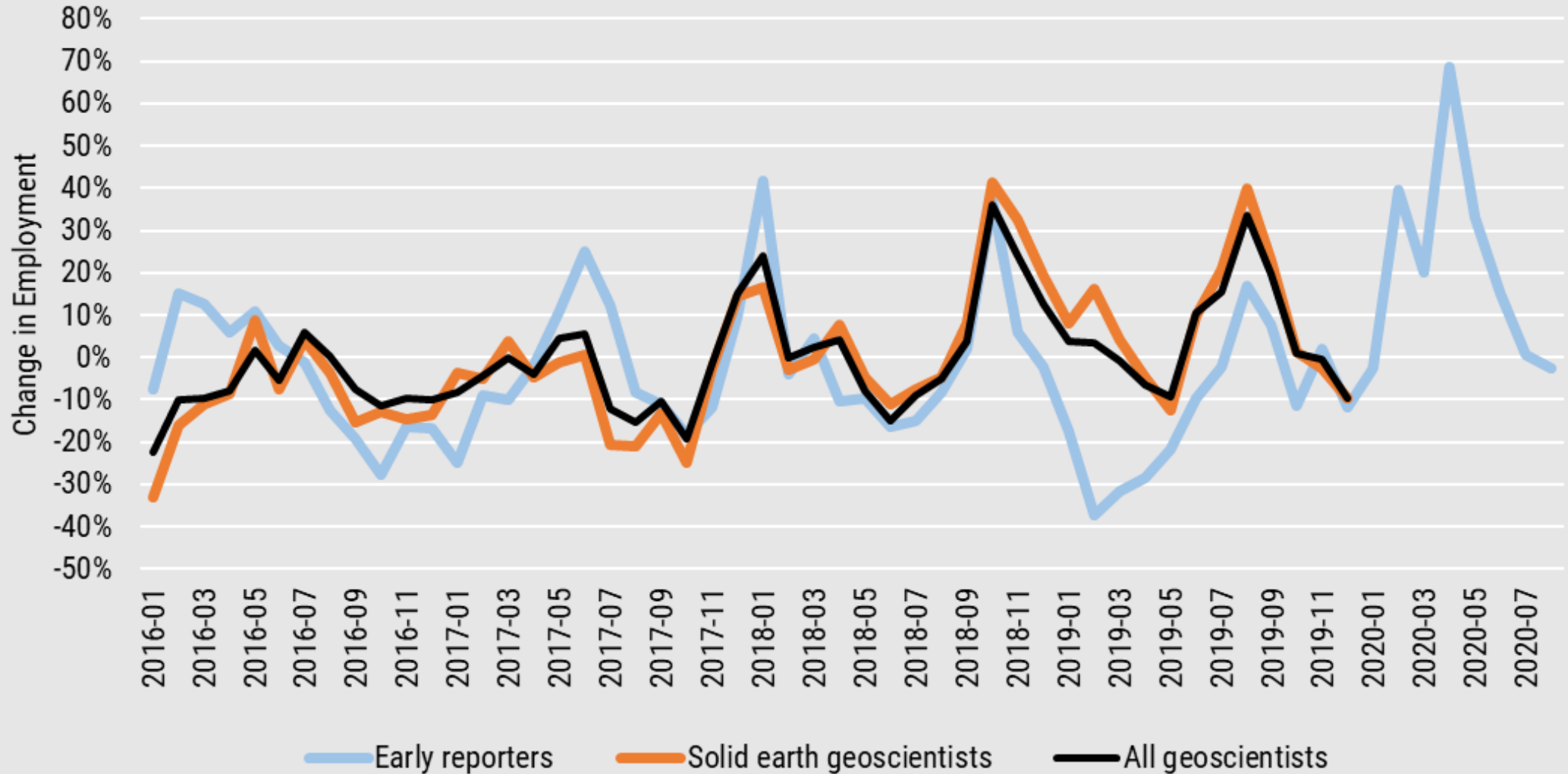
# Year-Over-Year Change in Geoscience Employment

Solid earth and all geoscience categories generally follow trend of early reporters

**August 2020**  
Early reporters

Y-o-Y: -2.4%

M-o-M: +20%



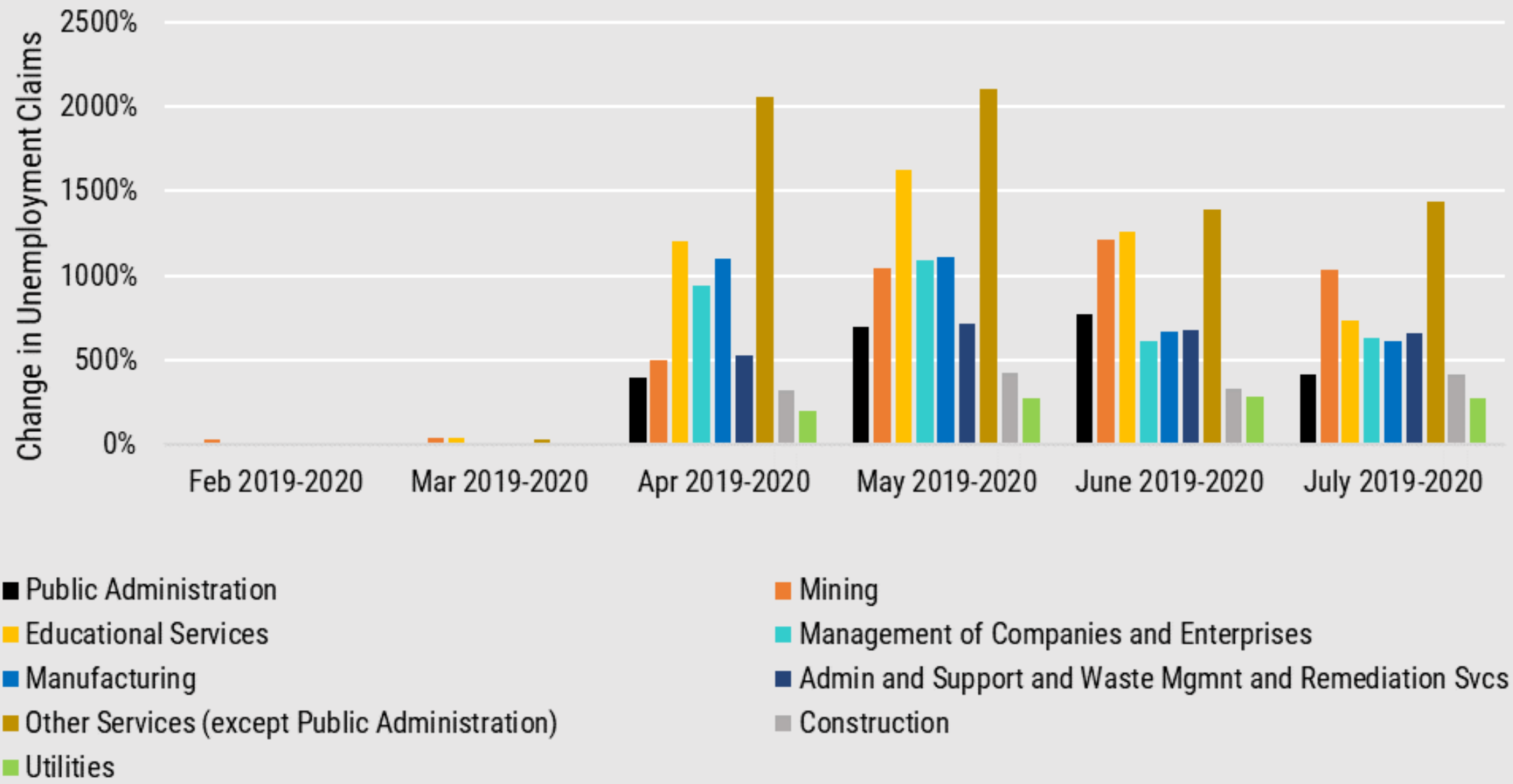
Credit: AGI; data derived from the U.S. Census Bureau, Current Population Survey

Percentage of all unemployment insurance claims

*Geoscience*  
Usually: 9-12%  
Apr-May: 6-7%  
Jun – Jul: 9-8%

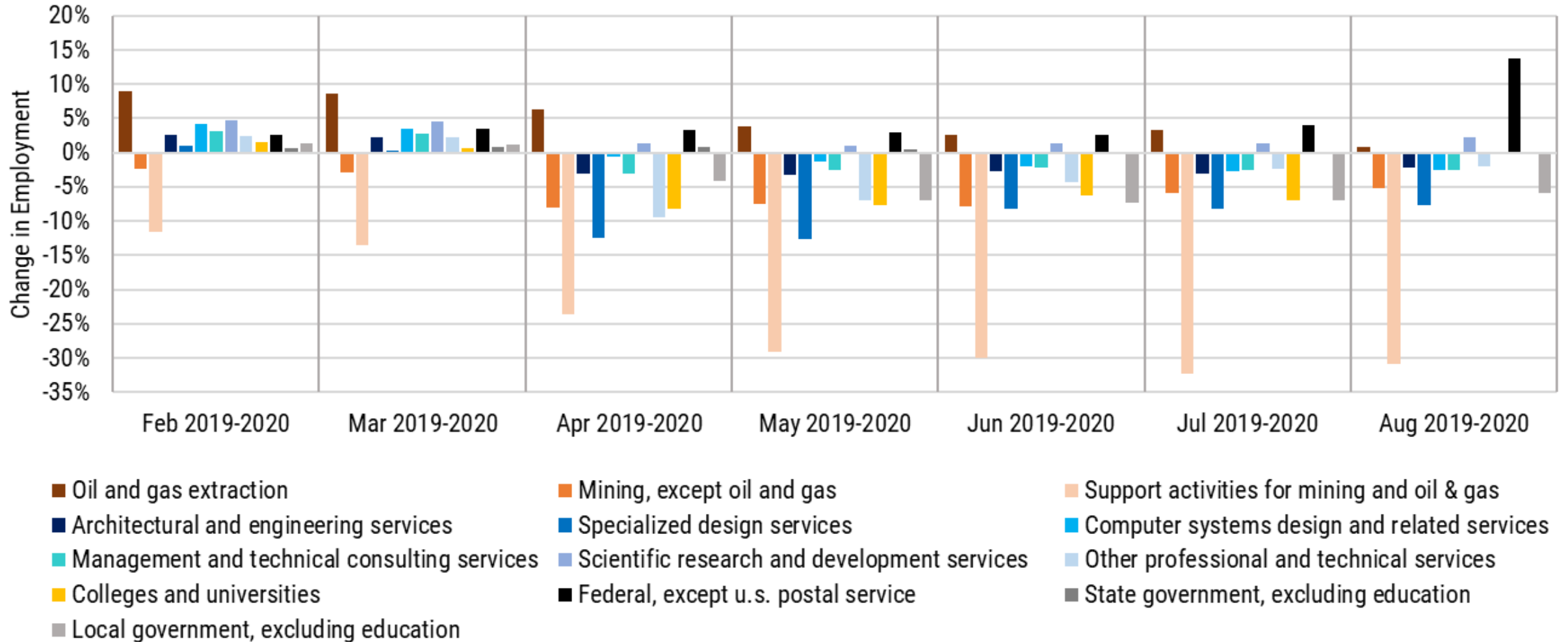
July 2020, 52% of claims from hospitality, retail, and healthcare (37%) and industry not specified (15%).

# Year-Over-Year Change in Unemployment Claims by Industry





## Year-over-Year Change in Employment by Industry Sector

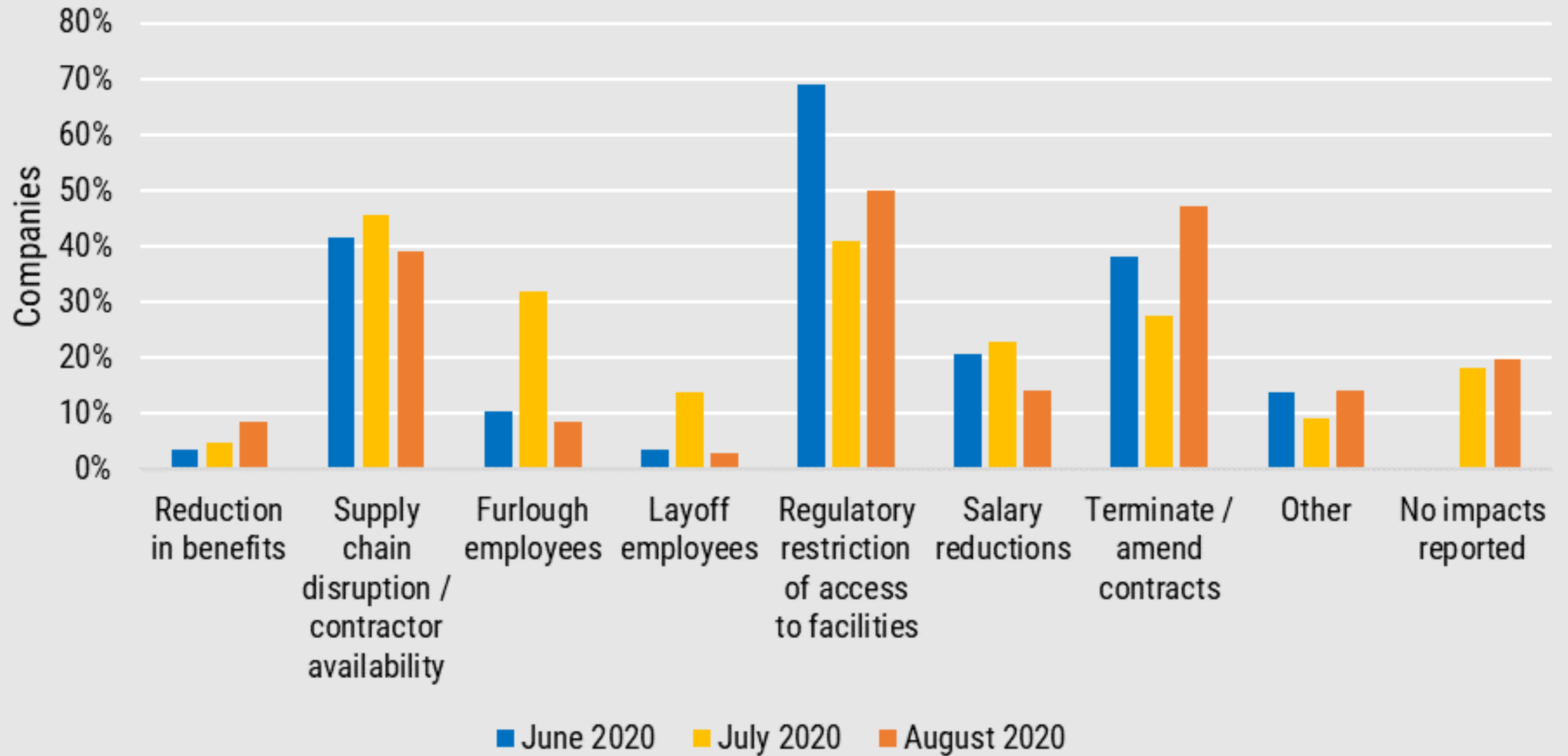


Source: AGI; data derived from U.S. Bureau of Labor Statistics, Current Employment Statistics

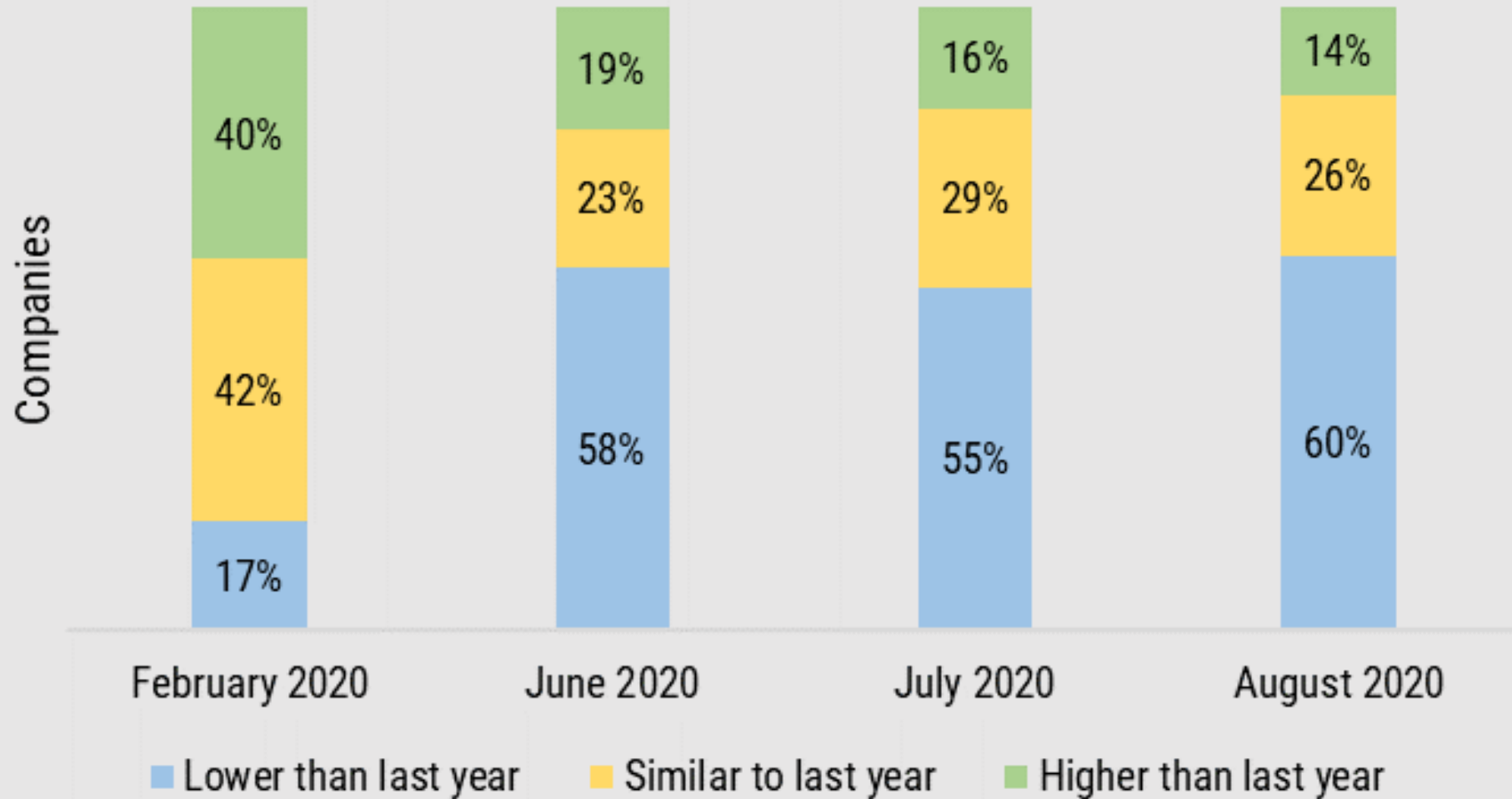
# Small businesses

- Impacts larger in mining & oil and gas, particularly in the support services subsector, than in environmental service/consulting sector
- Paycheck protection program loan support important
- Operating revenues down, but cash on hand ok and still able to meet financial obligations
- Business operations – minimal impact in terms of closures, staffing and supply chain disruptions.
- Signs of improvement by end of June, continuing thru August.

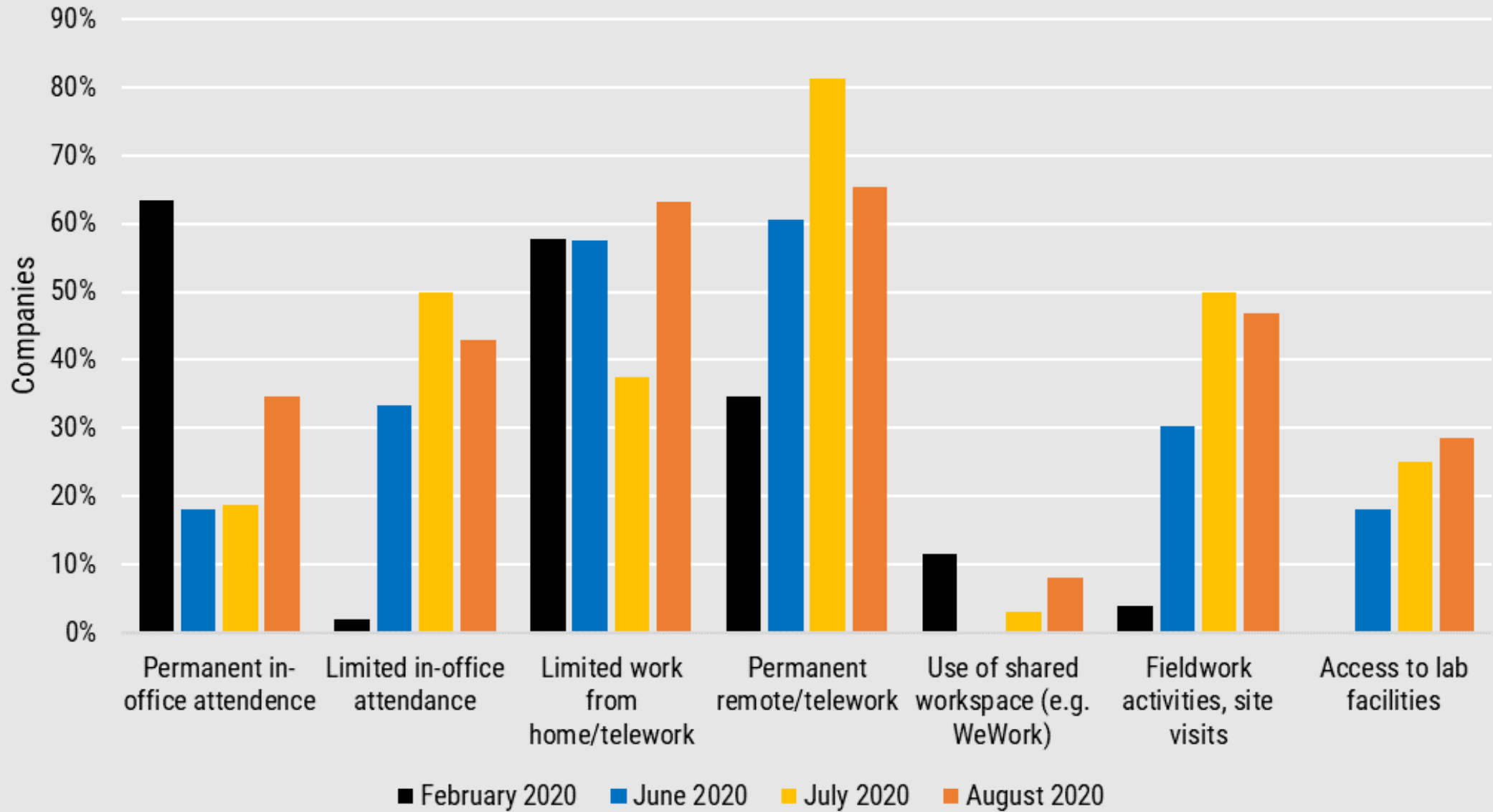
# Business operations impacts



# Expectations for financial performance: current calendar year relative to last year



# Workplace policies available to employees



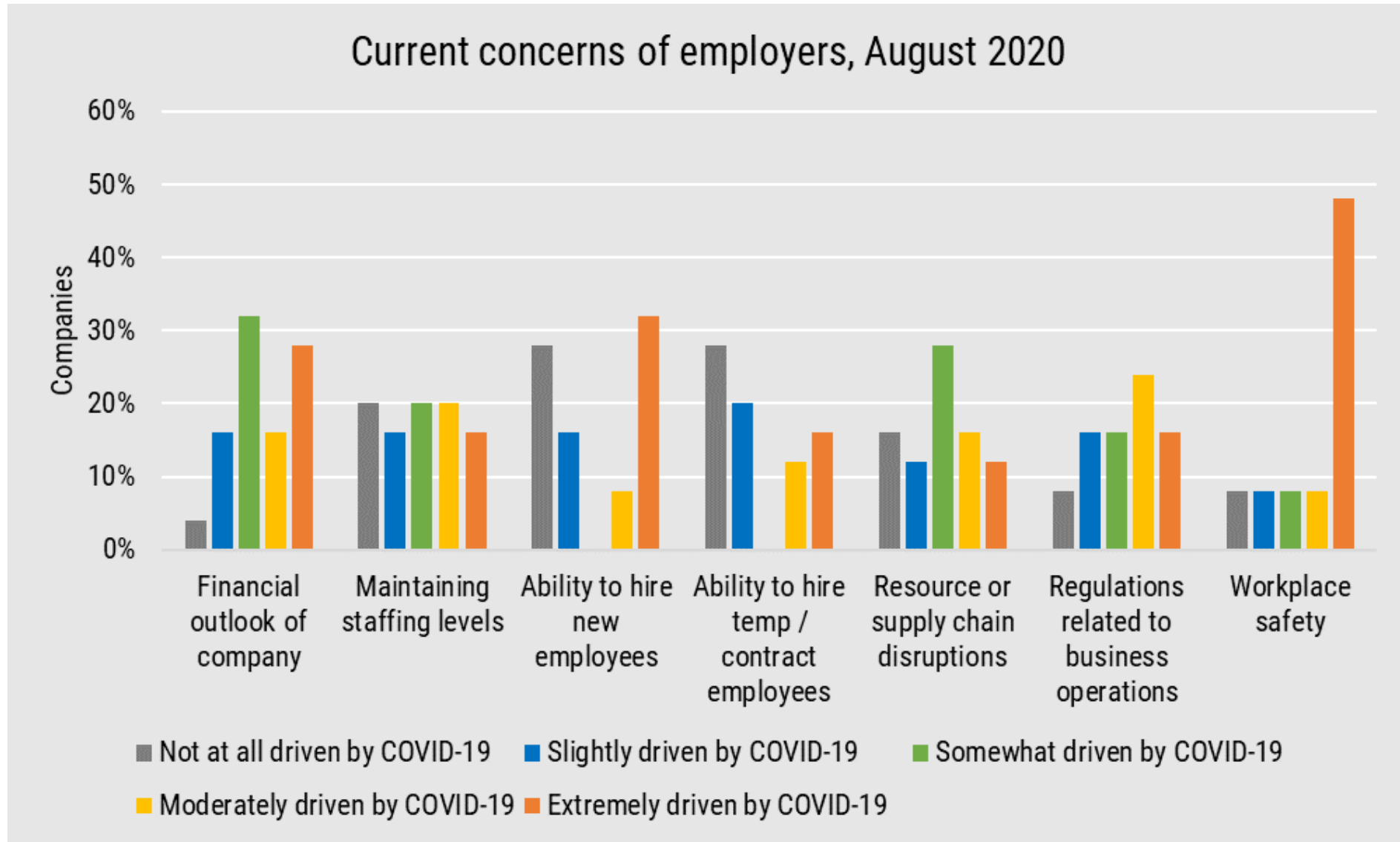
**Moderately to extremely driven by COVID-19**

Workplace safety: 56%

Financial outlook: 44%

Hiring new employees: 40%

Regulations: 40%

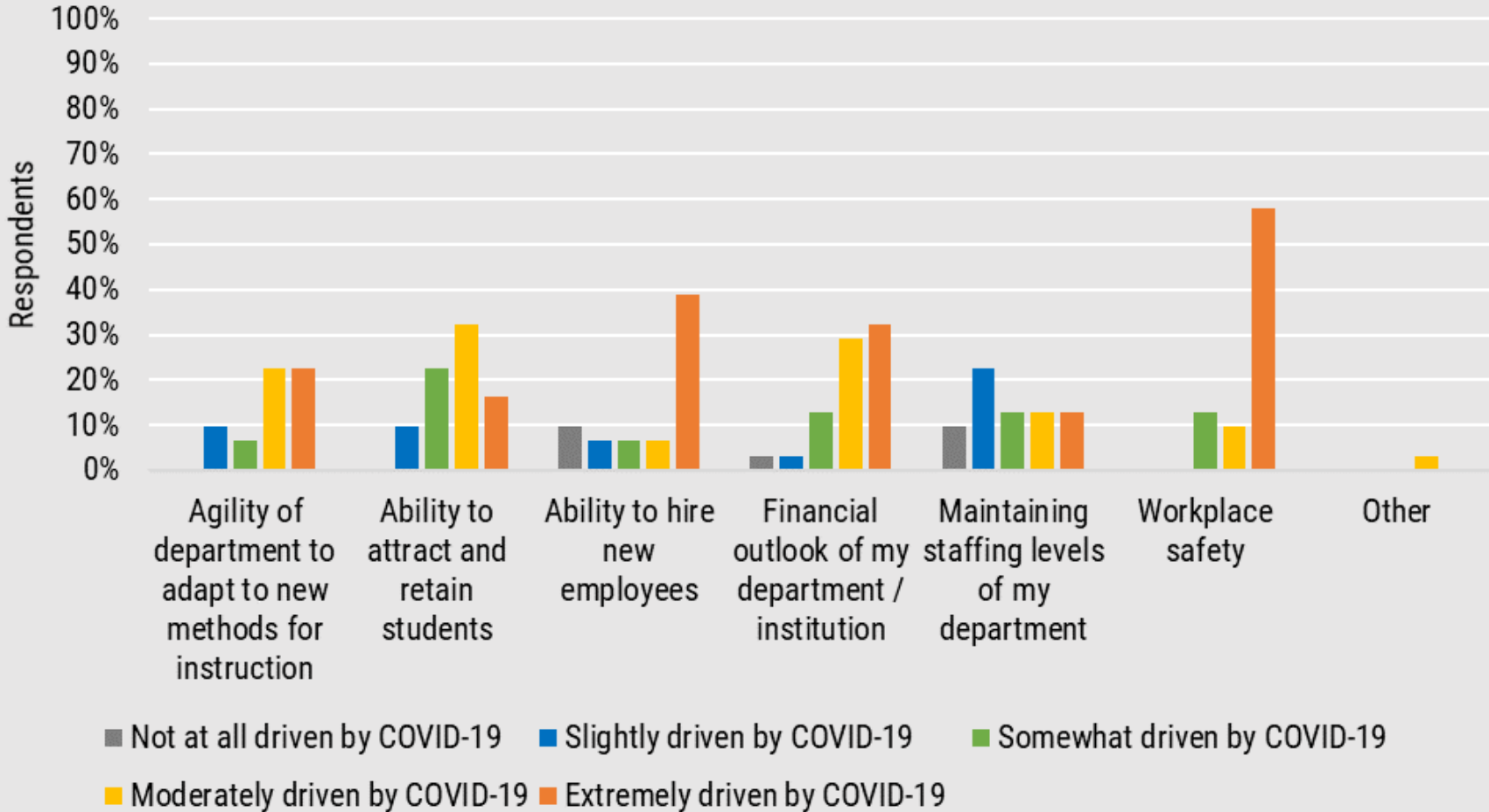


Workplace safety is top concern for departments, faculty, and students.

Concerns over hiring new faculty, yet only 10% of departments report active faculty searches.

Concern over teaching (also shared by faculty) and retaining/attracting students, yet students more concerned with employability, and those who are not graduating are planning on returning full-time.

### Current concerns of geoscience departments, August 2020

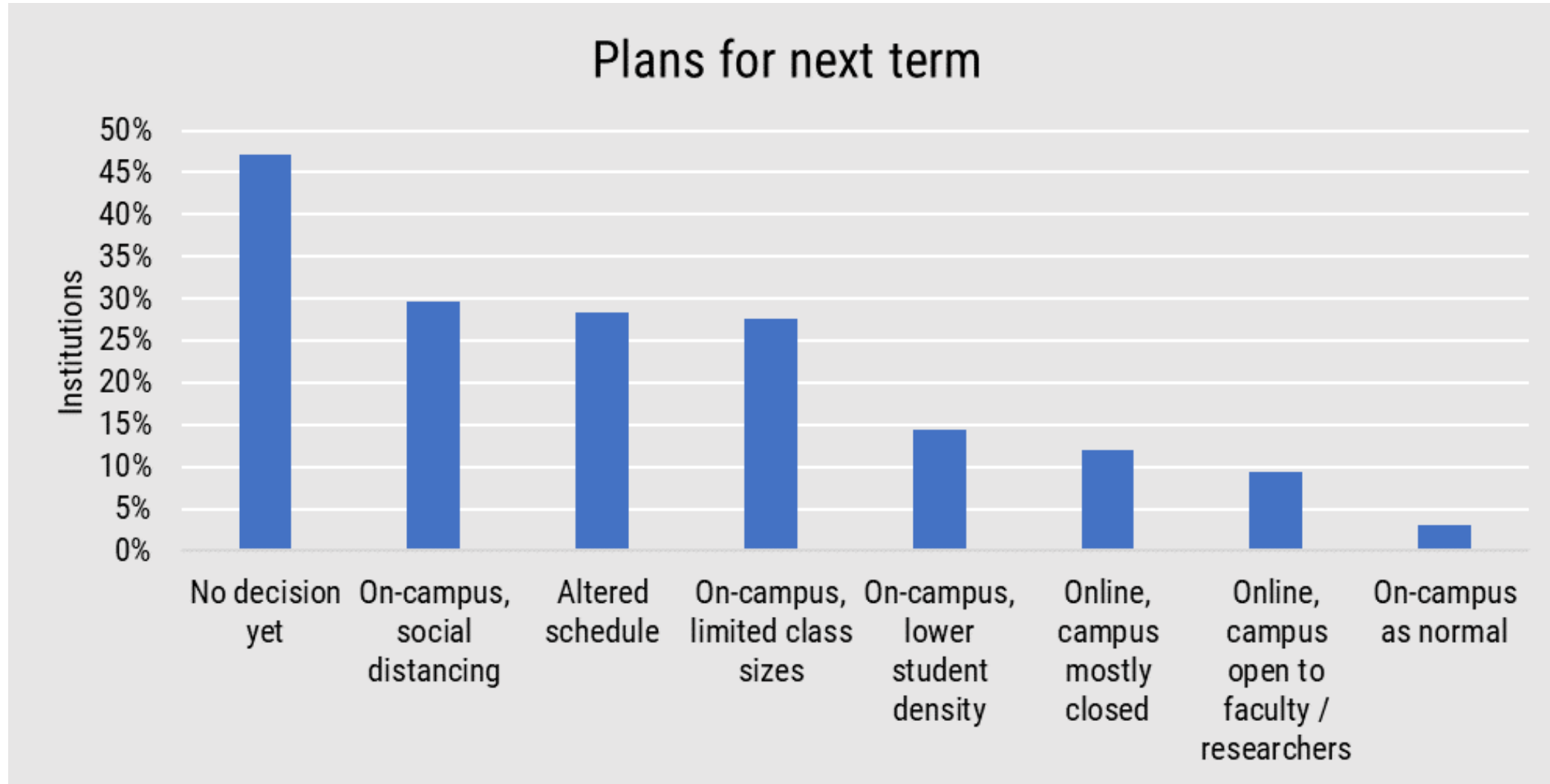


47% report no decision

37% plan to go online-only instruction

44% plan to have in-person instruction with safety measures, including hybrid formats.

Most reporting multiple options for next term.





# Looking ahead

- Virtual labs and field experiences
  - Develop materials into introductory courses / modules that can be used to complement in-person instruction
  - Use materials in existing non-lab / non-field courses as enrichment activities
  - Use for when in-person instruction cannot take place (inclement weather, health, no faculty, etc.)

# Looking ahead

- Employers
  - Possible shift to more telework in the long-term
  - Positive impacts seen with increased virtual collaboration.
  - Less travel = more contact with clients via phone/email
- Telework
  - Challenges with working from home when children are also doing remote schooling.

# Wrap -up

An audiovisual recording of today's webinar will be available in the coming weeks.

Contact Pranoti Asher at [pasher@agu.org](mailto:pasher@agu.org) if:

- you have any additional questions or comments
- you would like to join the AGU Heads & Chairs community
- you would like to participate in the AGU Heads & Chairs workshop at the AGU Fall Meeting

# Upcoming Webinars

## Heads & Chairs Webinars

**Oct 9:** Tools and Strategies for Finding Programmatic Strengths and Weaknesses

## Other Upcoming Webinars

**Sep 30:** Discussion on COVID -19 Impacts to the Geoscience Enterprise:  
Geoscience Employers and Non -academic Professionals

**Nov 17 & 19:** Responding to Societal Needs with 3D Geology (2 -part series)

To view previous and register  
for upcoming AGU Heads & Chairs webinars:  
<http://www.americangeosciences.org/webinars>