

***FRESHMAN YEAR TO GEOSCIENCE CAREER:***  
**IUSE-GEOPATHS STRATEGIES TO NURTURE URBAN**  
**UNDERGRADUATES FOR GEOSCIENCE CAREERS AND**  
**GRADUATE SCHOOLS**

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# LEAKS IN THE GEOSCIENCE CAREER UNDERGRADUATE PIPELINE

Multiple problems require multiple solutions, so we chose a holistic approach, focusing on four critical points in an undergraduate career

Community College

Choose Geoscience major

Transfer from Community College

Complete Geoscience degree

Geoscience Employment or graduate school

BA/BS College

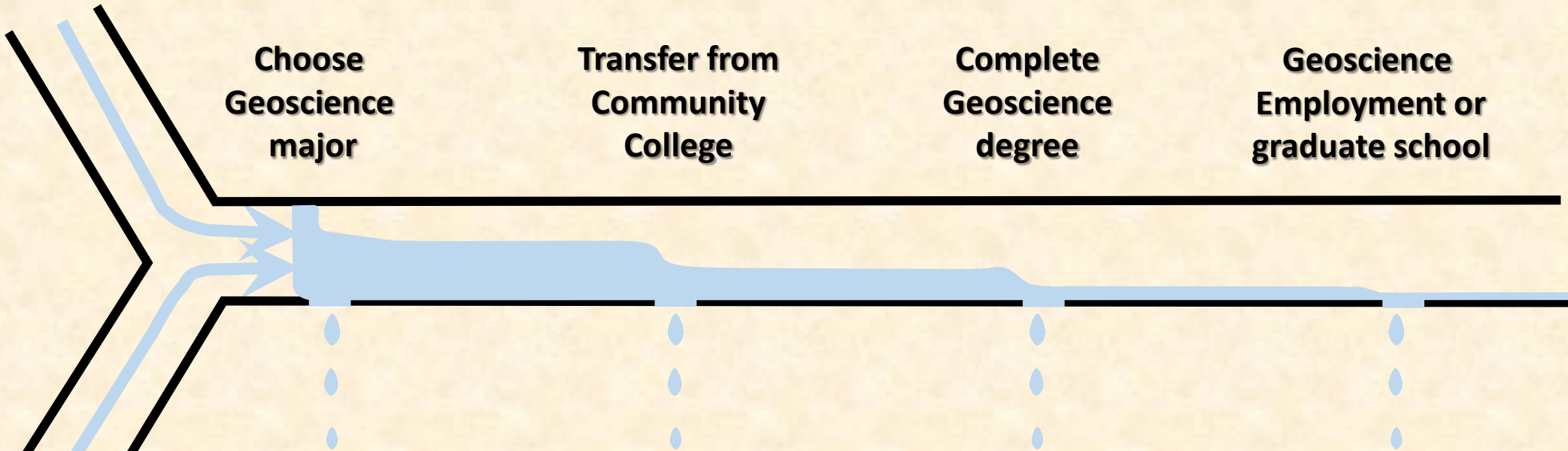
1. RECRUIT

2. ADVISE

3. ENGAGE  
Tutor

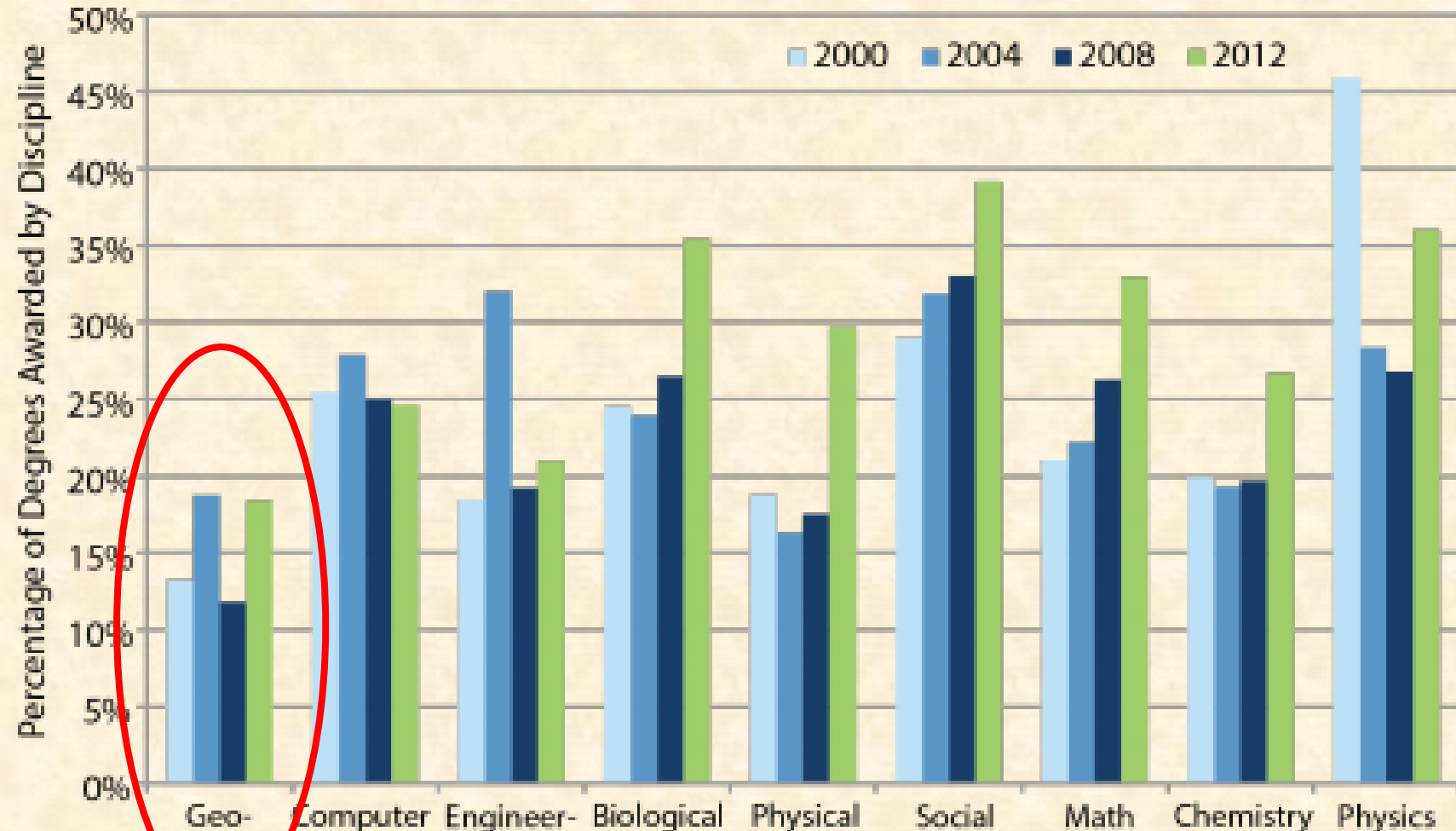
4. CAREER  
COUNSELING

PLUGGING THE LEAKS



**Geosciences have been among the least successful STEM disciplines in attracting students from underrepresented minorities—a large untapped pool from which we hope to recruit**

**Percentage of Associate's Degrees Awarded to Underrepresented Minorities by Discipline**



**AGI 2014 (Currents # 87)**



## OUR CONSORTIUM DOES HAVE SOME ADVANTAGES

- All CUNY students have the same general education requirements
- We already have Geology and Environmental Science articulation agreements
- We have experience with transfer students as LAG and QCC are major feeder schools for QC
- Faculty at our three campuses share common research interests
- Serving students from the most ethnically diverse county in the nation, we are accustomed to diverse backgrounds and needs.

	Male	Female	Hispanic	Black	Asian/Pacific Islander	White	Total
LaGuardia <sup>1</sup>	42%	58%	44%	21%	23%	19%	19,752
Queensborough <sup>2</sup>	47%	53%	28%	25%	25%	22%	16,231
Queens <sup>3</sup>	42%	58%	25%	7%	23%	35%	18,494
Queens County <sup>4</sup>			28%	21%	25%	27%	2,296,175
NYCDOE K-12 <sup>5</sup>			40%	28%	15%	14%	1,104,479

**6. We are located in the borough of Queens, with good connections by public transportation**

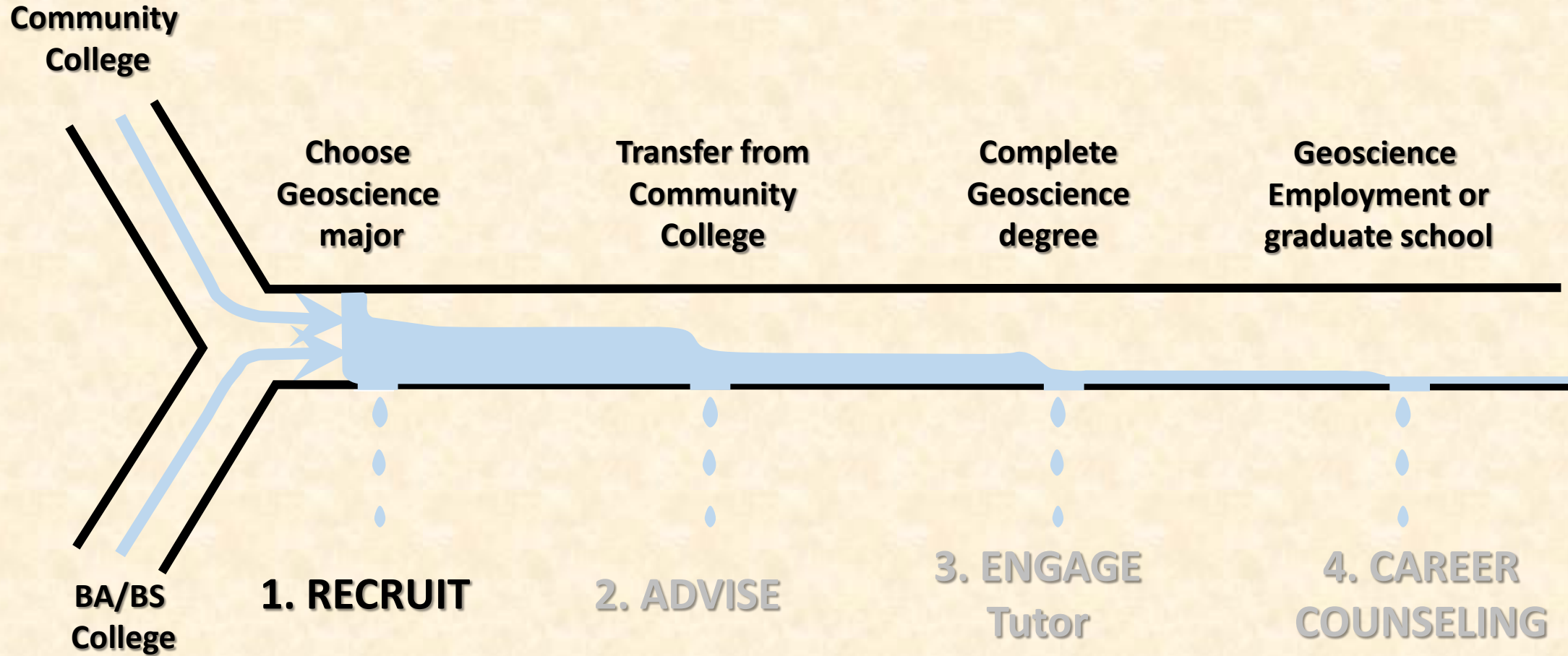


# MOST COMMON OBSTACLES TO COMPLETING A GEOSCIENCE DEGREE

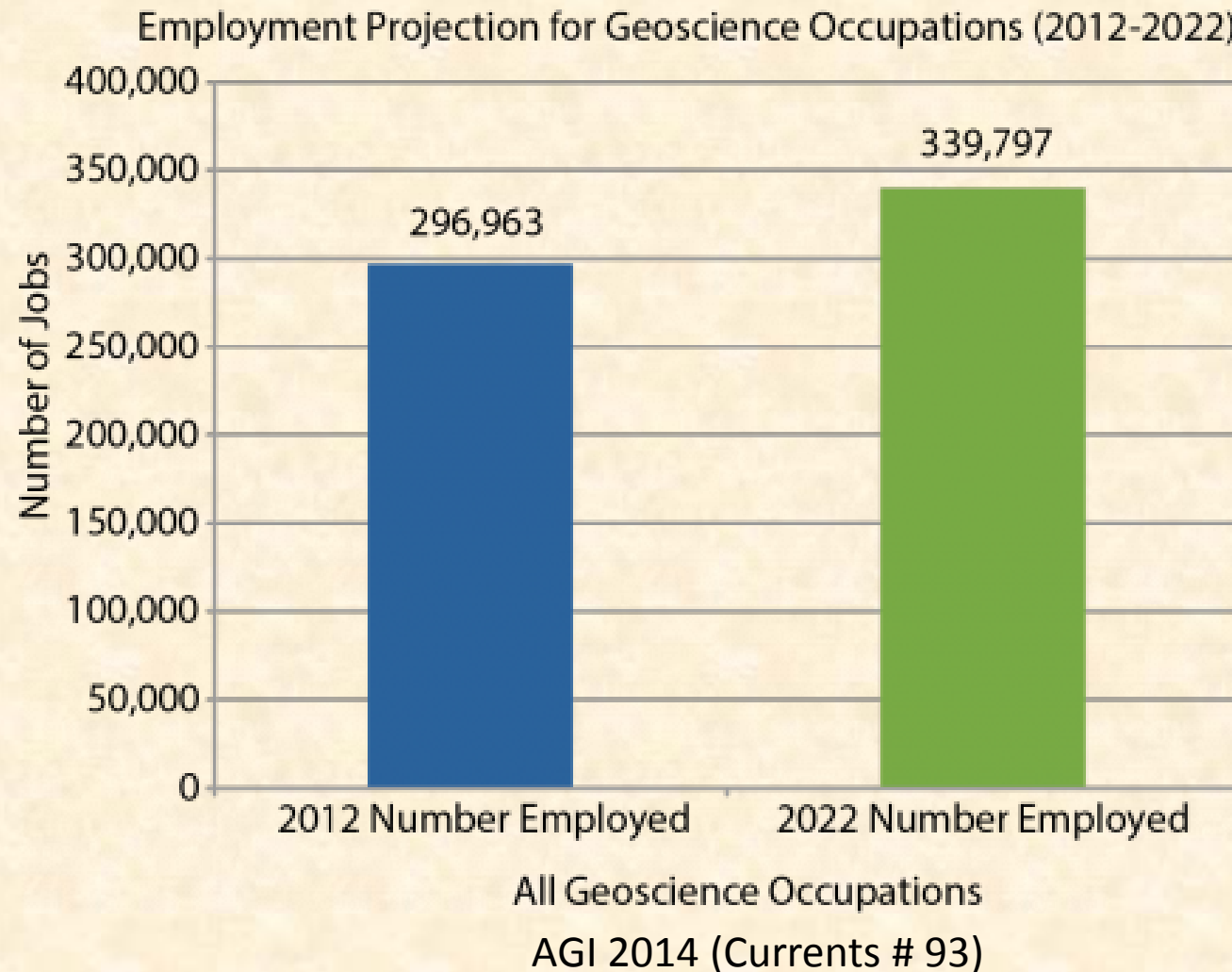
%	Obstacle	Comment
27	Financial issues & time management	Balancing work and school
25	Difficulties with individual course(s)	Typically calculus, chemistry, physics
15	Personal issues	Family responsibilities
7	Course availability	Partly course rotation; partly individual out-of-class responsibilities
		Modified after AGI 2014 (Currents # 94)



# PLUGGING LEAKS IN THE GEOSCIENCE CAREER PIPELINE

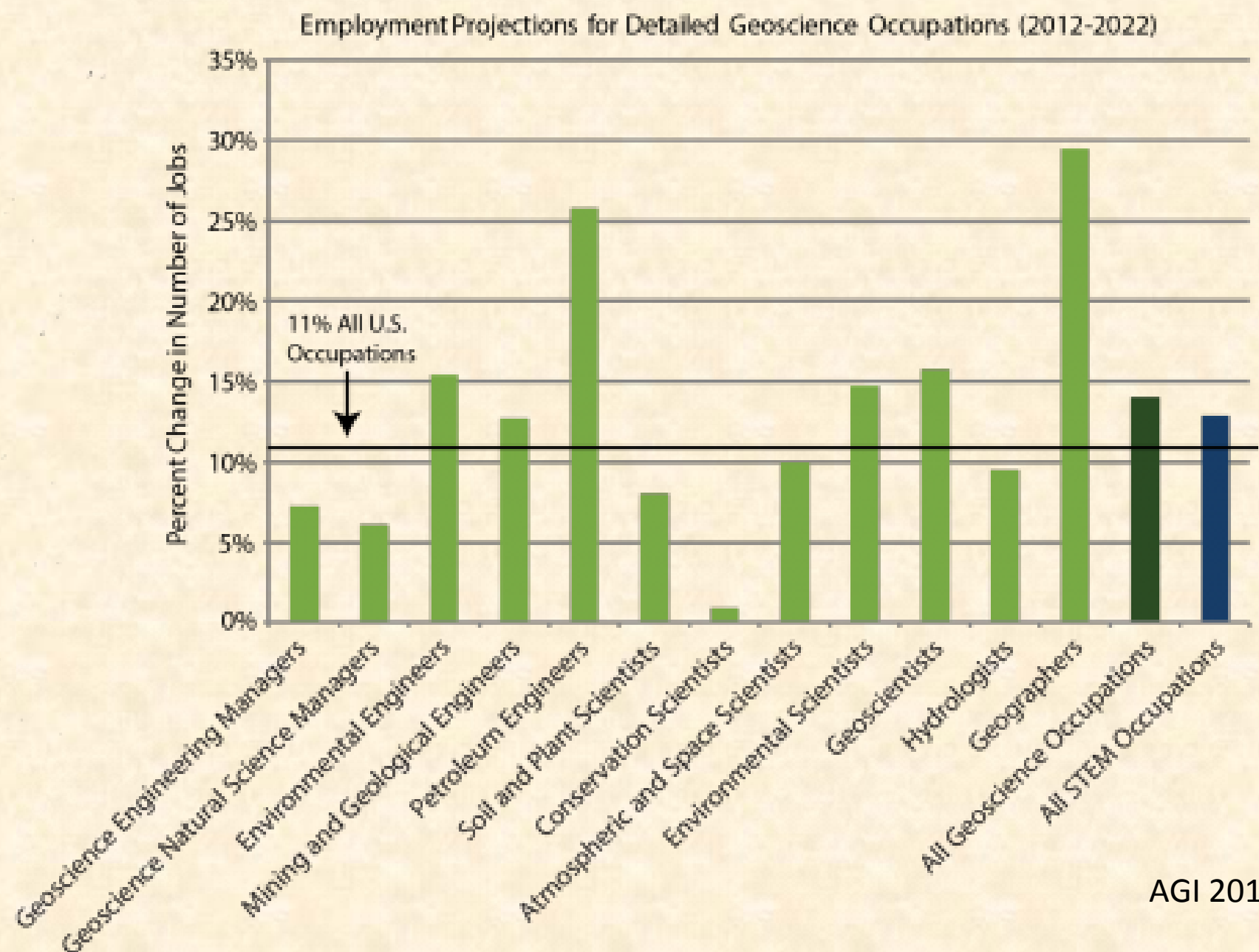


***RECRUITING SHOULD BE EASY!*** Based on estimated retirements and trends in academia, there will be at least 135,000 geoscience vacancies in 2022

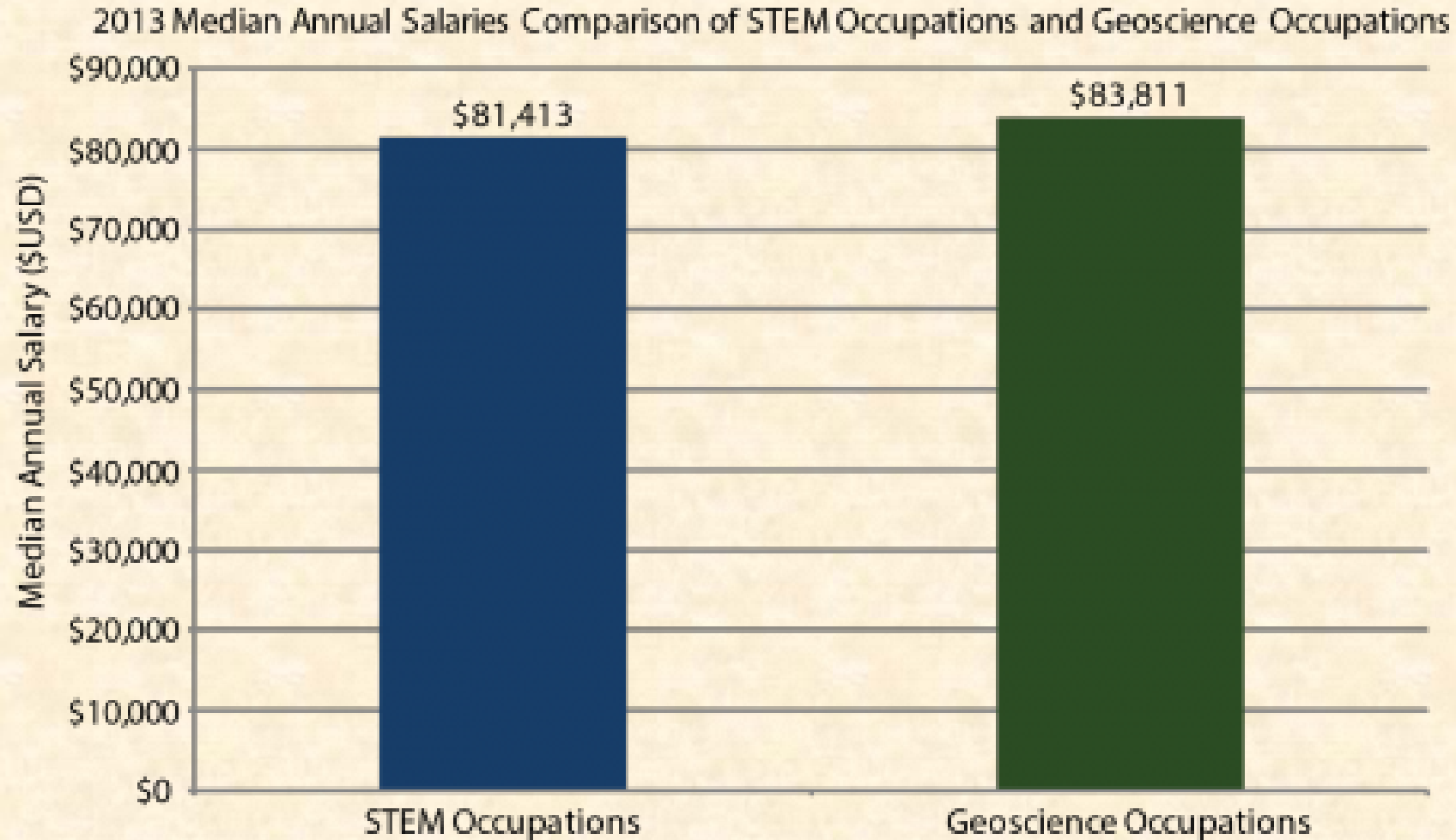




# WITH GROWTH IN ALL GEOSCIENCE AREAS, SEVERAL GREATER THAN AVERAGE



# AND SALARIES ARE GOOD

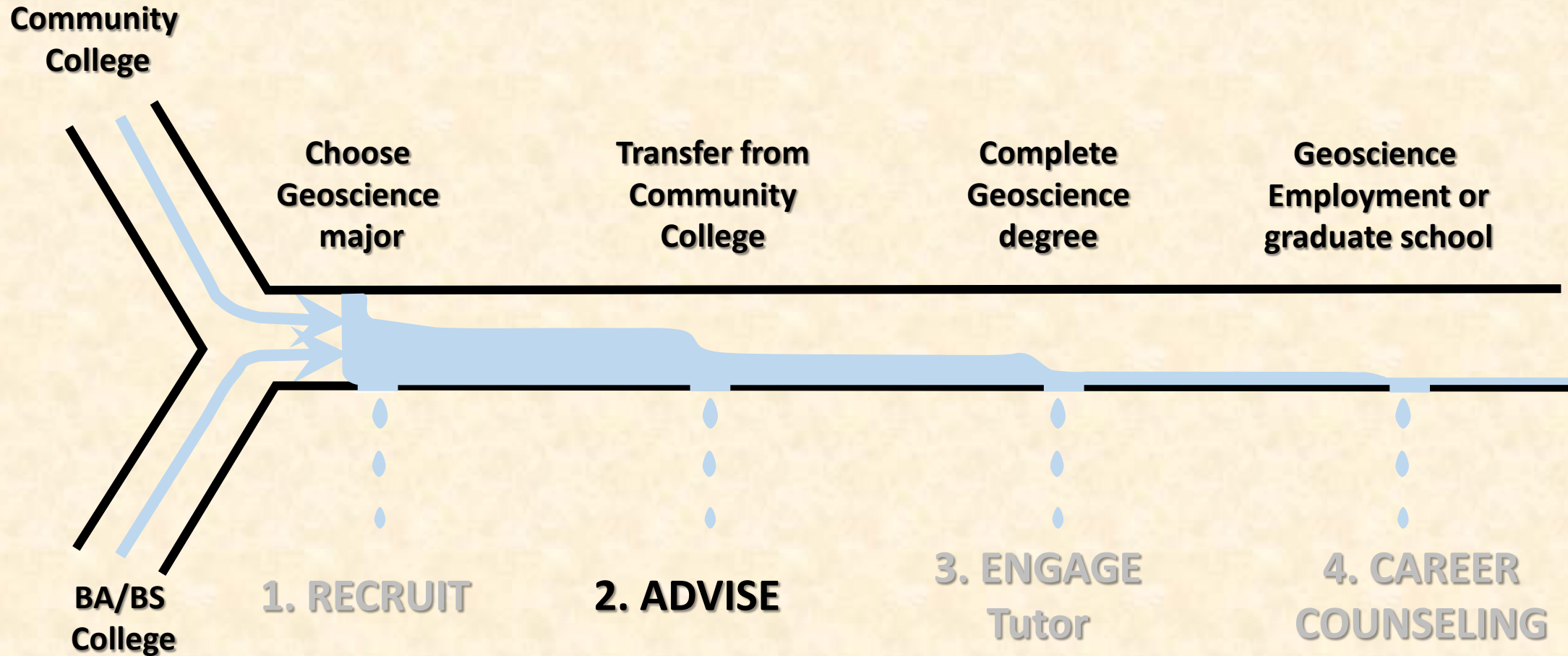


# RECRUITMENT ISSUES AND STRATEGIES

- ❖ High school and college students are not aware of this good news
- ❖ Geoscience careers are not as familiar as other career choices– especially for urban students
- ✓ **Send geoscience information to feeder HS guidance counselors *and families of incoming freshmen – designed by and coordinated among all three campuses***
- ❖ Research shows that underrepresented minorities, especially Hispanics, have a negative view of geoscience careers (if they have one at all)
- ❖ Many families believe that their children will have travel at least half a continent away from home to get a job.
- ✓ **Translate Geoscience career information for students and their families into the major languages spoken on our campuses, and include the long list of geoscience careers available in the NYC metropolitan area.**
- ❖ The goal for many students who are the first in their families to attend college is simply to graduate; many don't consider what they will do afterwards until their senior years.
- ✓ **Begin scaffolded career counseling when students become geoscience majors, including guaranteed entry to QC MS in Applied Environmental Geosciences for superior students**



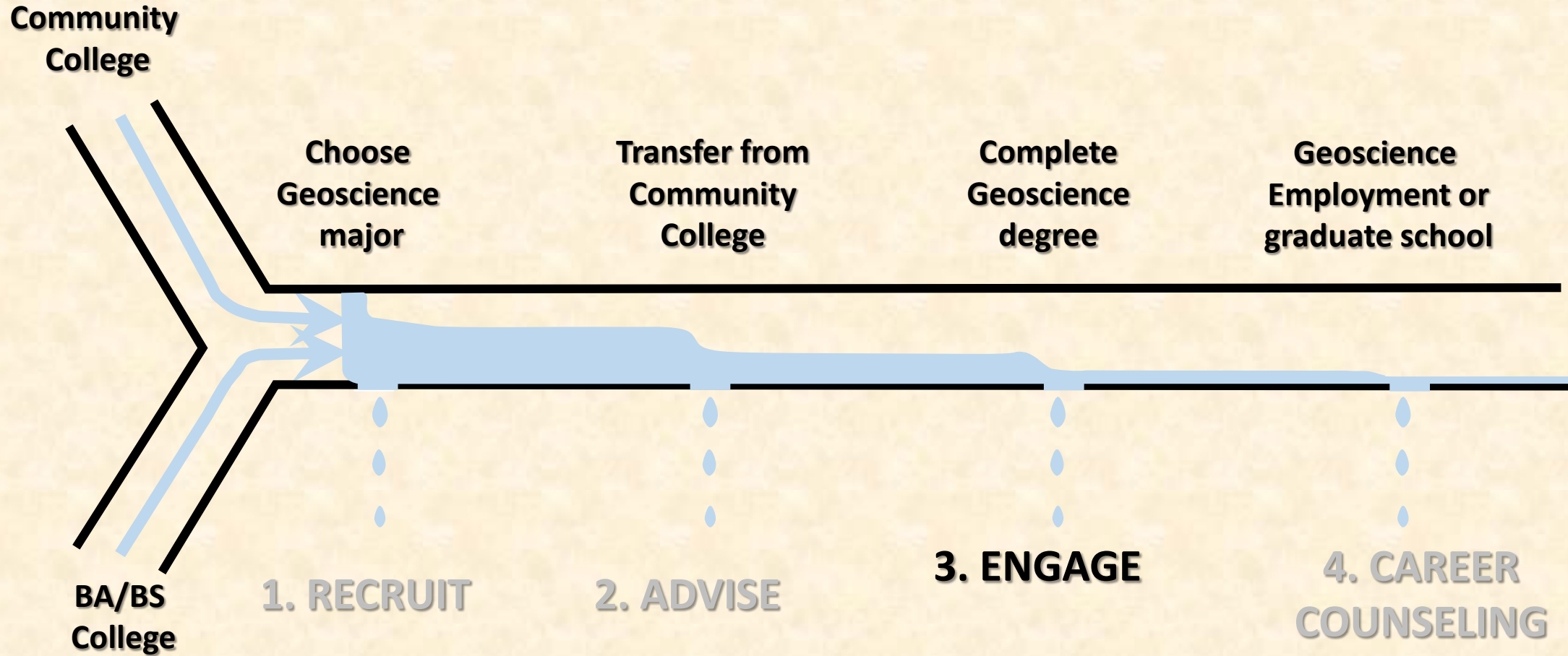
# PLUGGING LEAKS IN THE GEOSCIENCE CAREER PIPELINE



## ❖ **Coordinate advising across the three campuses**

- **Uniform information about paths through the EnSci and GEOL majors. Prepare community college students for the transfer process from Day 1 as a geoscience major**
  - **Train peer advisers at QCC and LGA, and former transfer students at QC**
  - **Successful transfers return to QCC and LGA for group advising sessions**
  - **QC EnSci, Geology, and Graduate advisers work closely with QCC and LGA advisers; visit the community colleges during major fairs**
  - **Update articulation agreements – LGA and QCC participate in discussions of changes in majors at QC**
- ## ❖ **Don't wait: begin career advising when students declare a geoscience major**
- Explain what employers and graduate schools expect from good candidates**
- ## ❖ **New majors must know from Day 1 that the Masters is the preferred job entry degree**
- ## ❖ **Lay out a timeline for building a strong resumé, considering post-graduate options, etc.**

# PLUGGING LEAKS IN THE GEOSCIENCE CAREER PIPELINE





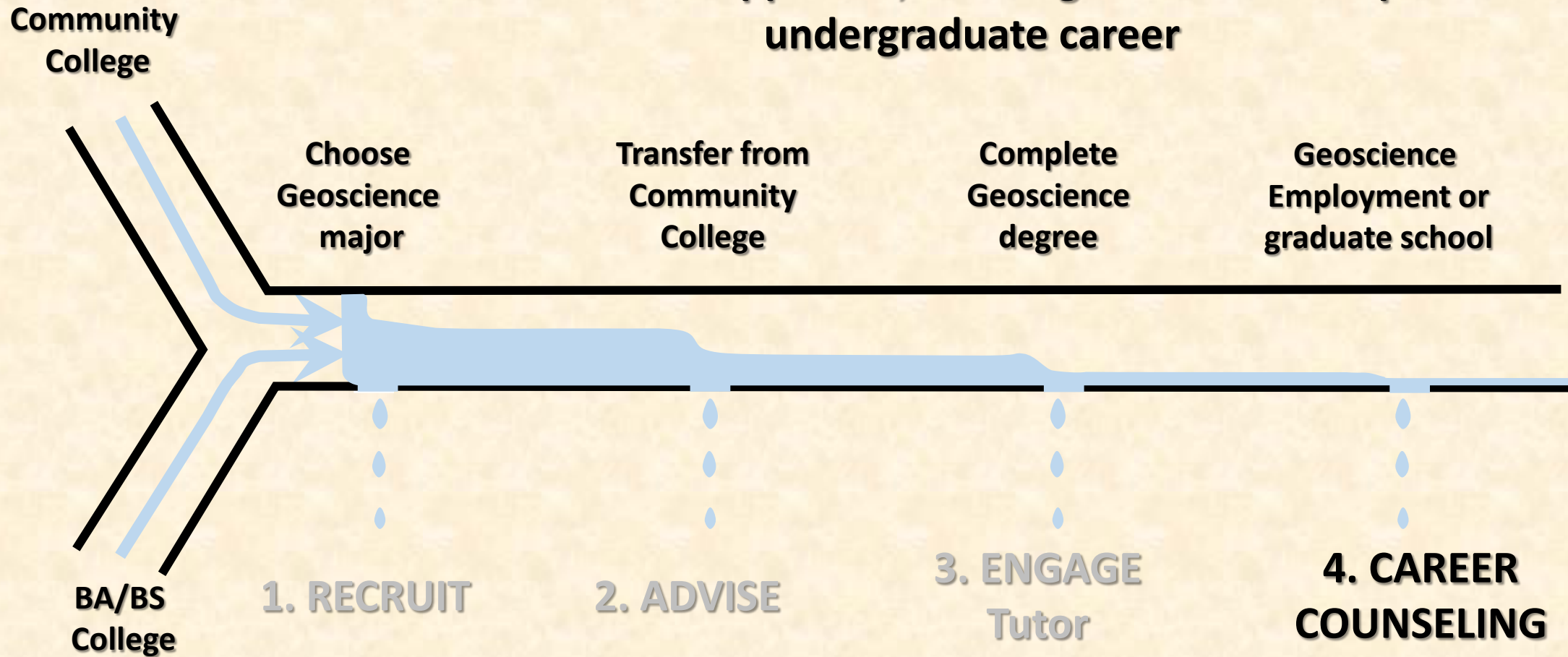
# Engagement Strategies

**IN ADDITION TO encouraging students to participate in research:**

- ❖ ***Build a 3-campus geoscience learning community*** [majors, faculty, graduate students] modeled after our successful freshman and Honors learning communities.
  - research poster session at QC to highlight ongoing research at the three campuses and introduce LGA and QCC students ***and their mentors*** to peers at QC.
  - welcome new majors at ceremonies each semester
  - Social event/field trip/retreat just before academic year for previous year's new majors
  - Share schedules for colloquia and other events across all three campuses
  - Free tutoring in Calculus by a special cohort of math majors.
- ❖ ***Introduce service learning to immerse majors in geoscience teaching and research:*** For superior students, stipend for tutoring or assisting in introductory labs (reinforces *their* understanding while helping the next generation of potential majors); work research assistants with faculty, Doctoral, and Masters students.
- ❖ ***Reward success with the opportunity to stay in the community after graduation to improve career preparation:*** Students with >3.0 GPA guaranteed admission to QC MS in Applied Environmental Geosciences or MS in Environmental Risk Management.

# PLUGGING LEAKS IN THE GEOSCIENCE CAREER PIPELINE

We chose a holistic approach, focusing on four critical points in an undergraduate career



# CAREER COUNSELING STRATEGIES

*Start early and build throughout the undergraduate experience:*

- ❖ **Begin career counseling during recruiting: inform about career options *and requirements*.**
- ❖ **Scaffolded career planning advice in collaboration with QC Career Guidance Office, QCC and LGA advisers**
  - **Freshman year**
    - **Explain process, especially timeline, for finding a good job or graduate program**
    - **Ways to make you and your resume competitive. *Build it from day 1!!***
  - **Sophomore year: Graduate school or employment?**
    - **searching for the right job or graduate school**
    - **Alumni career talks**
  - **Junior year: Get ready to apply**
    - **Writing resumés, personal goals, etc.**
    - **The dos and don'ts of applying for a job or graduate school**
  - **Senior year: interview skills**