



**STEM**

SCIENCE TECHNOLOGY ENGINEERING MATHEMATICS

**Presented at:**

**The Roundtable on Education and Human Capital Requirements**

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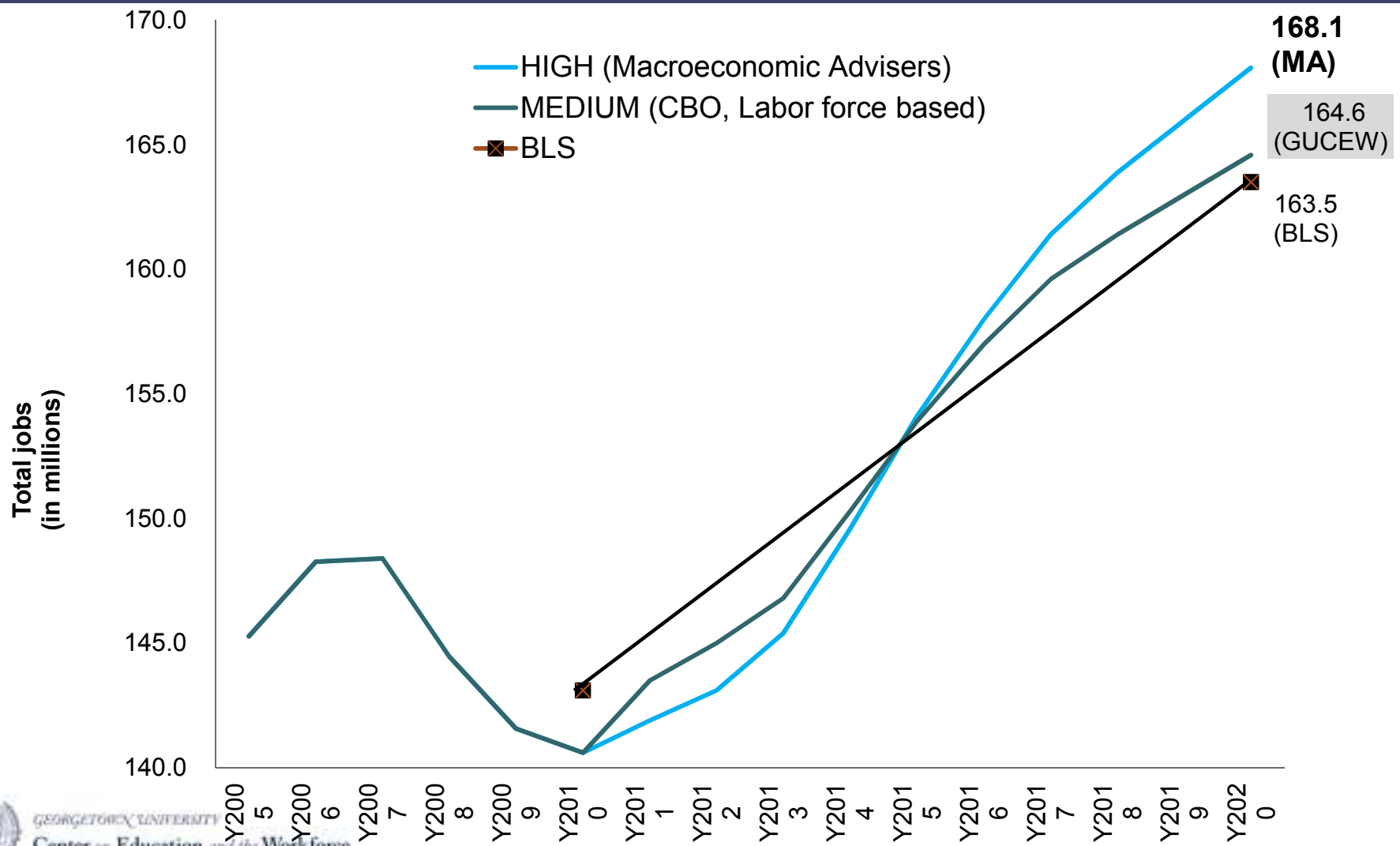
GEORGETOWN UNIVERSITY

Center on Education and the Workforce

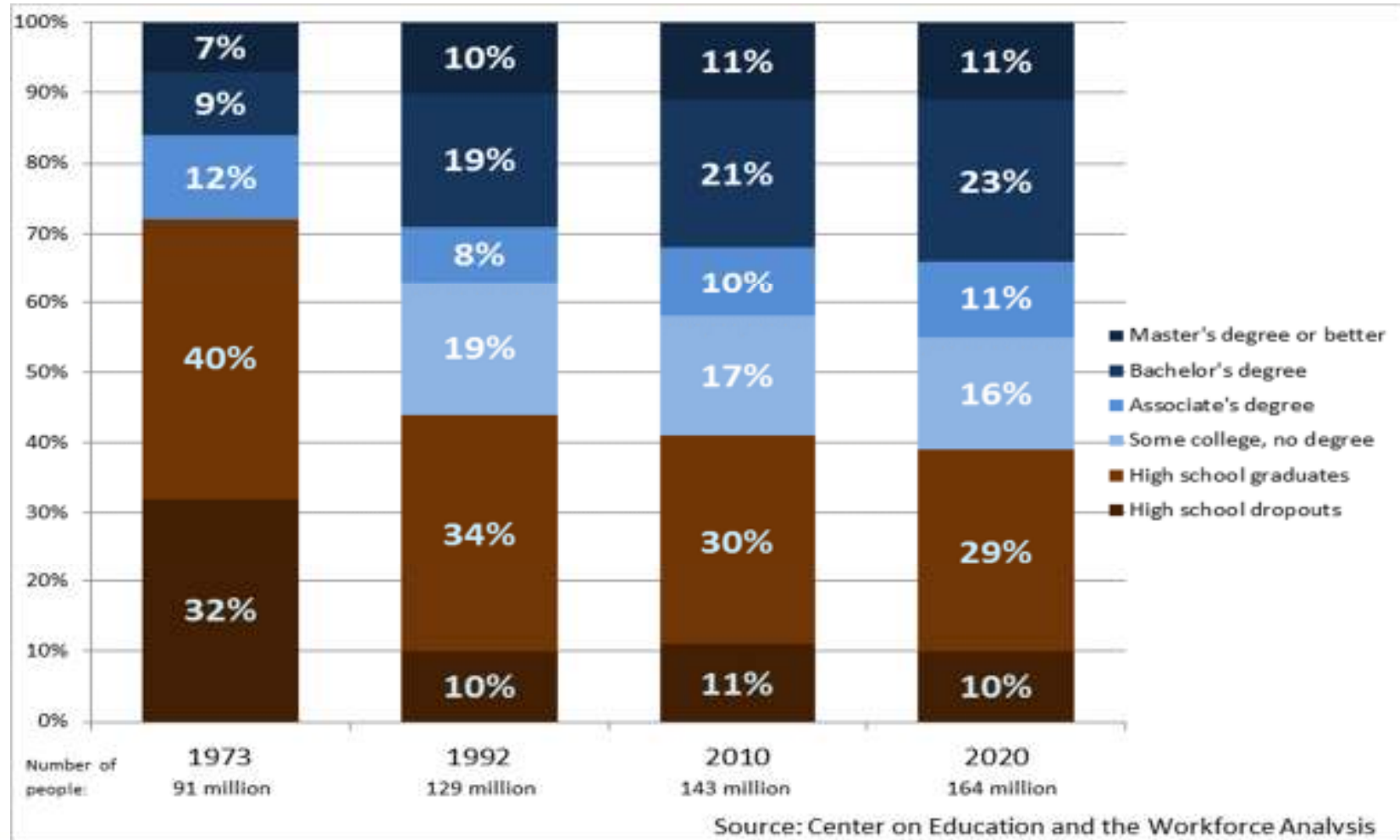
February 22, 2012

# Our projections fall somewhere in the middle of standard estimates

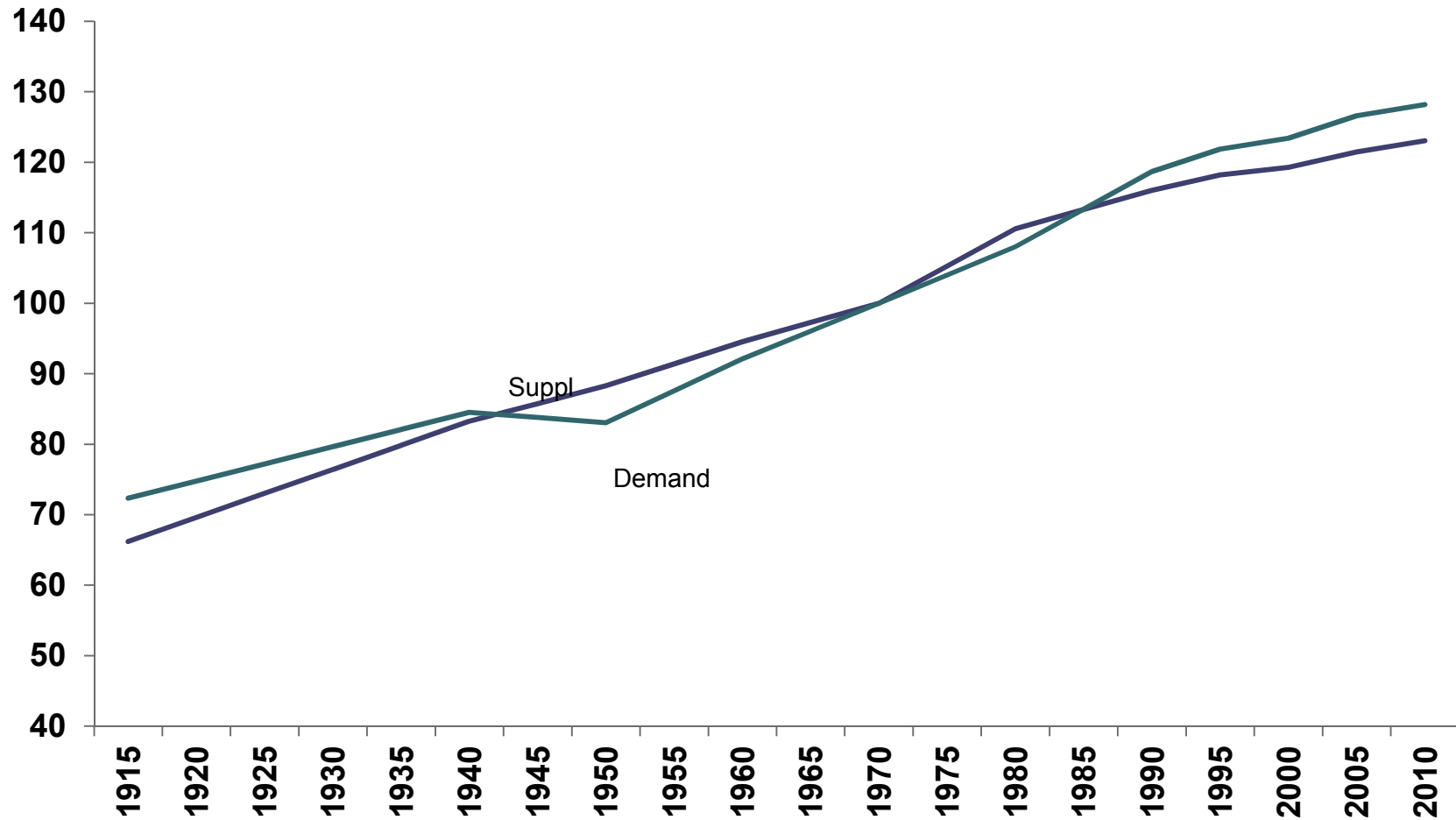
(Alternative Projections of Total Jobs through 2020)



Today, we are more educated than ever: In 1973, 28% of jobs were held by workers with postsecondary education. By 2020, that number is projected to be 65%



Since 1980, the demand for skilled labor has grown faster than the supply



## Summary

- **Shortages:** We face a chronic shortage in STEM competencies as the demand for STEM talents grows outside of traditional STEM jobs.
- **STEM Diversion:** Potential STEM workers divert throughout the transition from student to worker because of differing **work values** and **work interests** as well as higher pay in other occupations that utilize STEM competencies.
- The U.S. has to produce 5 high school students with top quartile math scores to get one STEM worker.

**The STEM career pathway leverages deep technological knowledge learned in school to access high value technology and learning on the job.**

## Work Interests and Work Values (highly associated with STEM)

- Derived from the O\*NET database and Census data.
- Certain key knowledge areas, skills, abilities, work interests, and work values are significantly more important to, and characteristic of, STEM and STEM-competitor occupations than other occupations.
- These similarities facilitate the diversion of STEM talent into other occupations, especially STEM competitors, which on average pay better than STEM occupations.
  - **Work Interests associated with STEM:** Realistic and Investigative
  - **Work Values associated with STEM :** Individual Achievement, Independence, and Recognition

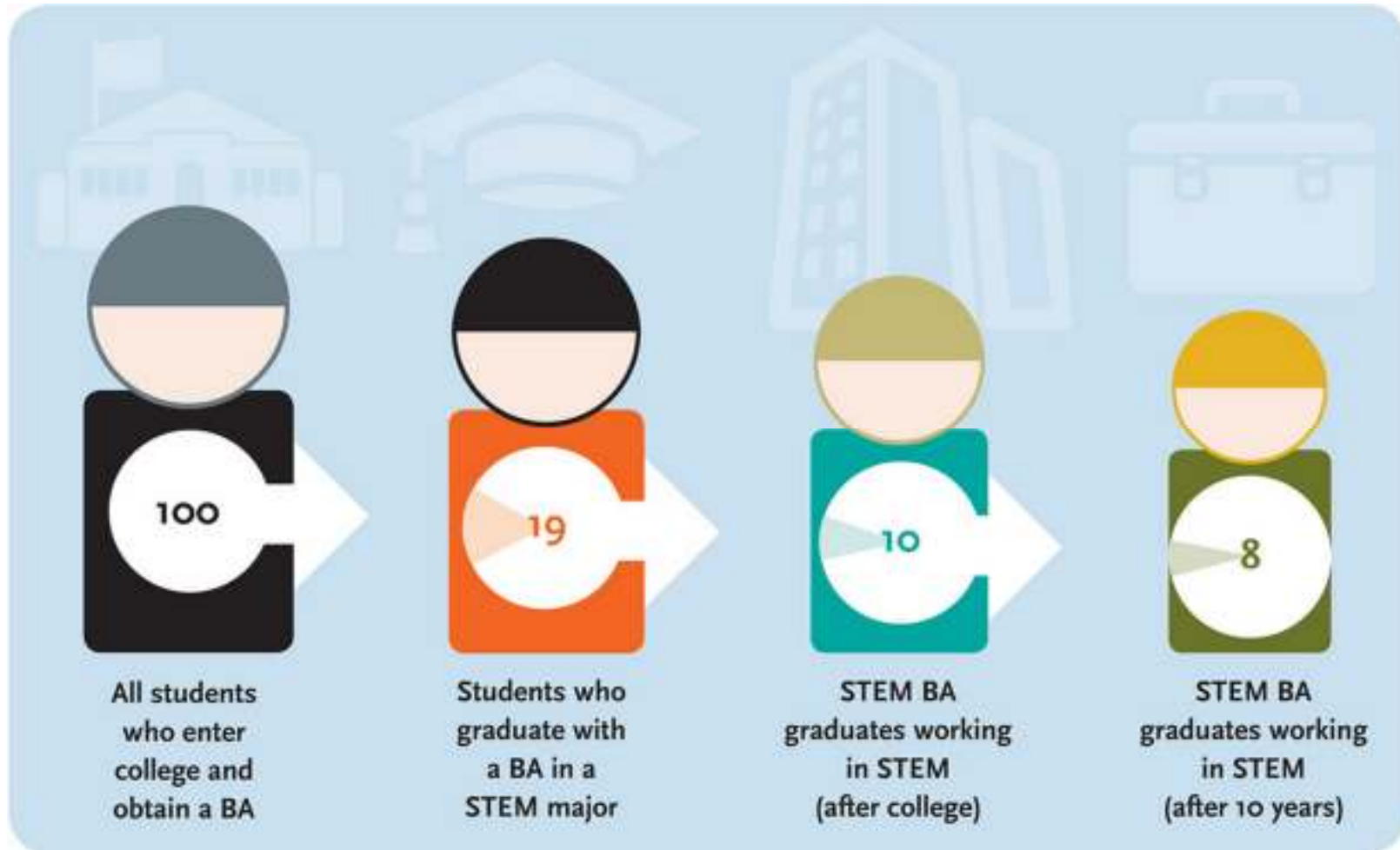


In a pure sense, STEM is about 5% of all jobs, yet more and more occupations are “poaching” STEM skills

- **Total jobs:** STEM occupations will grow from 6.8 million to 8 million total jobs by 2018.
- **Job openings:** STEM occupations will provide 2.4 million job openings through 2018, including 1.1 net new jobs and 1.3 replacement jobs due to retirement.
- **Postsecondary education:** 92% of STEM jobs will be for those with at least some postsecondary education and training.
- **Equity:** Diversion of women and minorities is compounded by other factors.
  - For women and minorities, STEM is the best equal opportunity employer.
  - Although pay gaps exist between minorities and Whites/Asians and women and men in STEM, they are smaller than in other occupations.

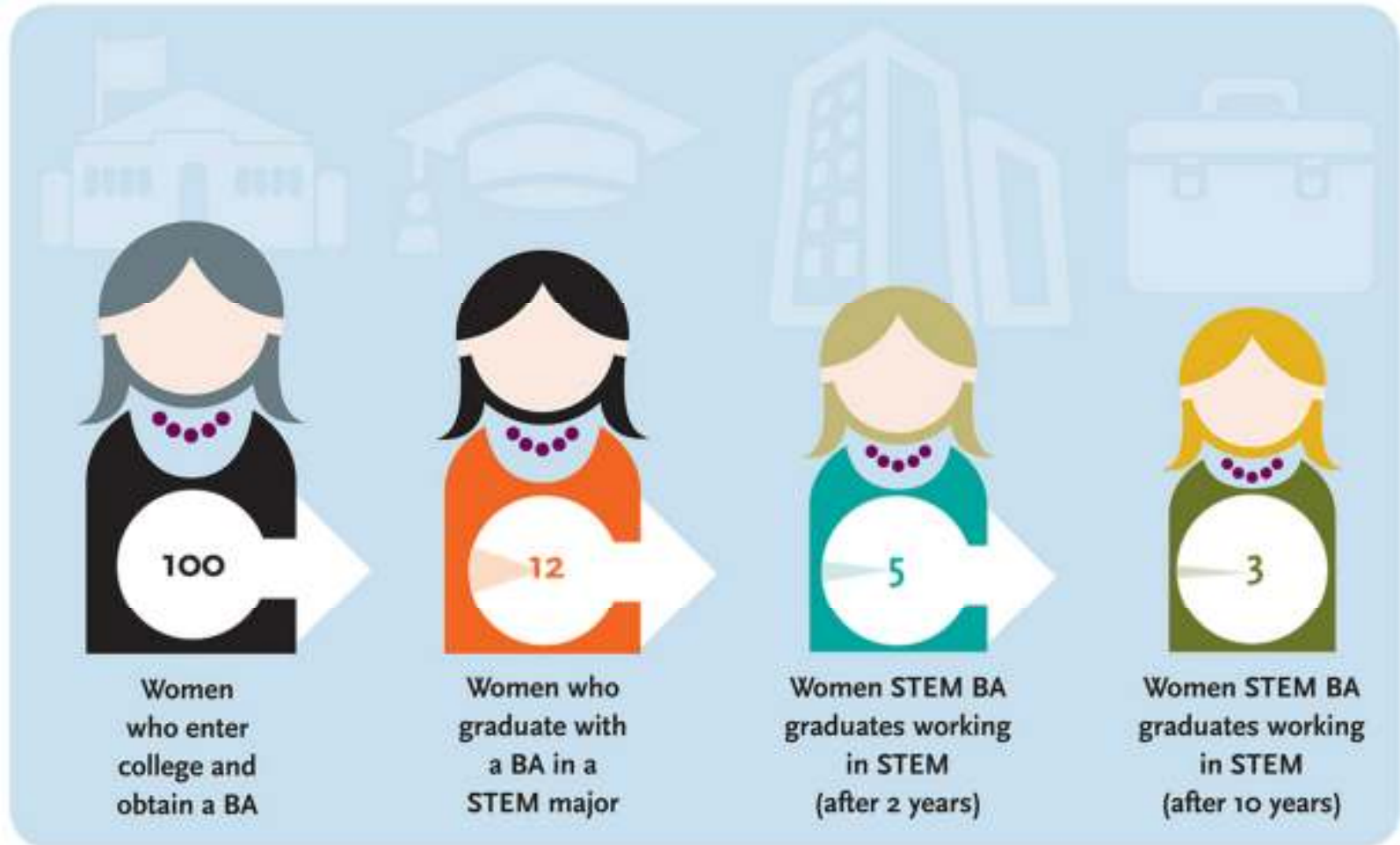


Students and workers divert from STEM in school and in the workforce. Diversion has to do with interests, values, and pay.

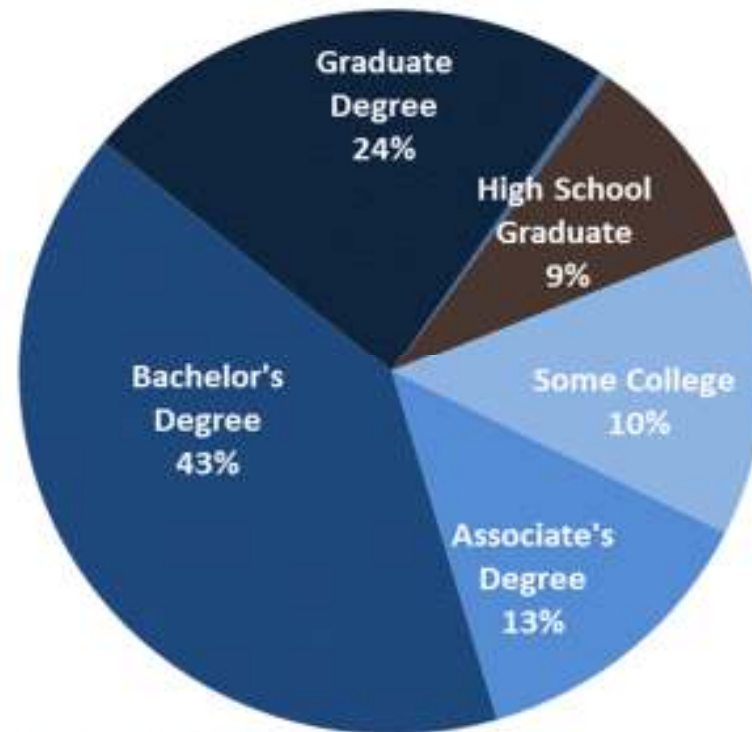




Women are less likely to be found in STEM jobs or fields of study and these decisions begin well before wages have any significant impact on a student's assessments.



By education type, STEM jobs will predominantly require a Bachelor's degree or better. Still, about a third of all STEM jobs will be for those with less than a Bachelor's degree.



**Employment projections of STEM jobs in 2018: 8 million**

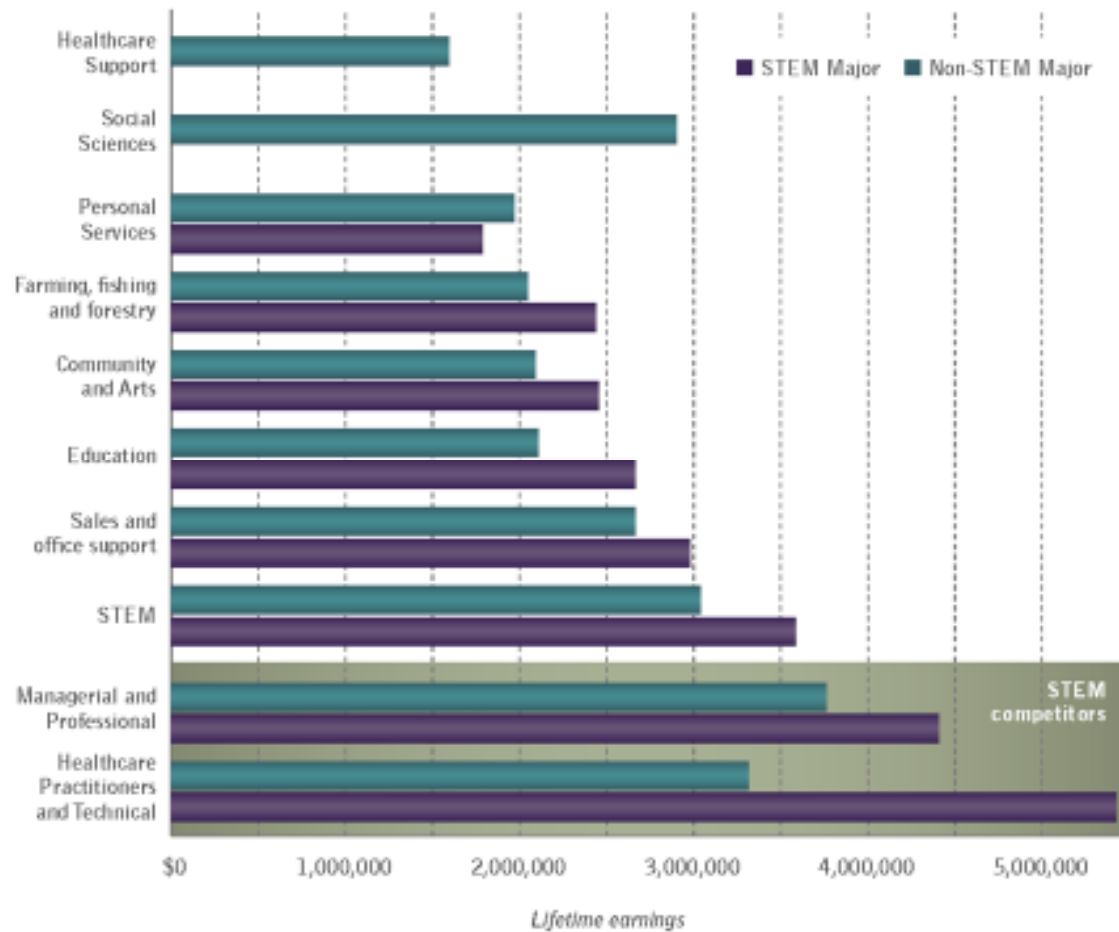


## People with lower levels of education in STEM make more than people with higher levels of education in non-STEM.

- 63 percent of Associate's degrees in STEM earn more than Bachelor's degrees in non-STEM occupations.
- 65 percent of Bachelor's degrees in STEM earn more than Master's degrees in non-STEM occupations.
- 47 percent of Bachelor's degrees in STEM occupations earn more than PhDs in non-STEM occupations.
- Certificate holders in engineering earn more than Associate's degree-holders in business and more than Bachelor's degree-holders in education.

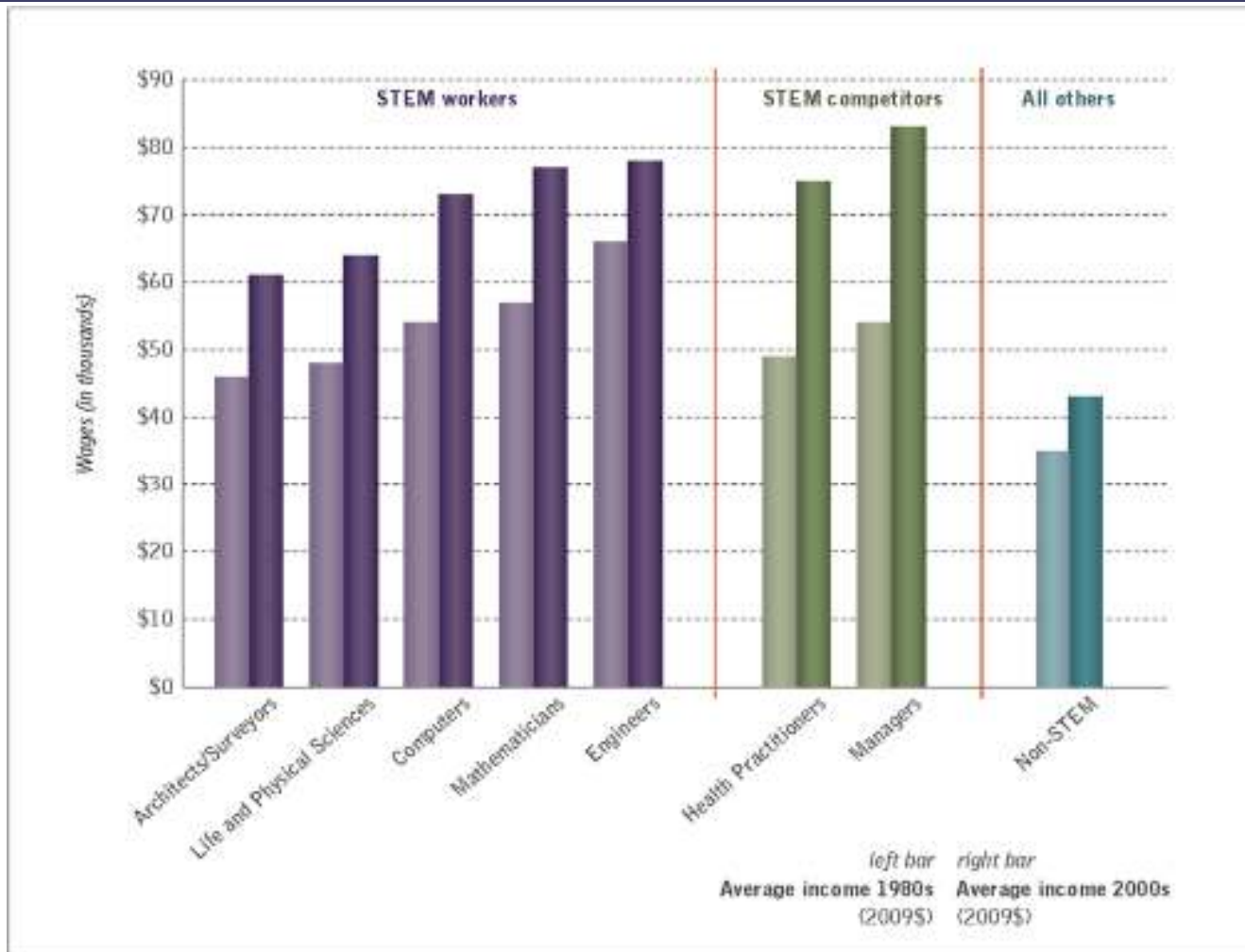


# STEM majors earn more, in any field they choose.



Wages for STEM workers rose more than for non-STEM workers between the 1980s and the 2000s.

*Healthcare Practitioners and Managerial and Professional Occupations pay the best of all .*



# It's not just your degree. Occupational choice also influences earnings

