



Chapter 5

Arizona Case Study: Graduate Employment Outcomes for Arizona State University, Northern Arizona University, and the University of Arizona

Dan Anderson

Photo courtesy of Minnesota State

January 2024



PSEO
COALITION



Introduction

Over fifteen years ago, the Arizona Board of Regents began publication of a report documenting the earnings of graduates from Arizona State University, Northern Arizona University, and the University of Arizona. Known at the time as the “Wages of Graduates” report and now titled “Alumni Earnings,” it was one of a few national reports documenting graduates’ earnings by the university. There was substantial interest among stakeholders to better understand Arizona public universities’ higher education outcomes. Increased earnings and stable employment are two of many reasons that higher education contributes to the benefit of Arizona’s economy and the lives of graduates.

In 2020, median earnings as reported by the U.S. Bureau of the Census of all adults 25 years of age and older in Arizona, distributed by their educational attainment, were as follows:

Less than a high school graduate	\$24,791
High school graduate (includes equivalency)	\$31,185
Some college or associate’s degree	\$37,553
Bachelor’s degree	\$53,315
Graduate or professional degree	\$68,813

Source: 2020 American Community Survey, 5-Year Estimates Arizona, Table S2001

Using a data sharing agreement with the Arizona Department of Economic Security, administrative records have been used since 2005 to understand the earnings of all graduates from the three Arizona public universities, beginning with the graduating class of 1980-81 and continuing to the present. For those who graduated in the first few classes and are employed in Arizona, the reports reflect approximately 40 years of their work life.

When the report was first produced, it answered many questions, but not all; among the questions that were most often raised were the following:

1. This tells us about the earnings of those employed in Arizona, but what about those graduates who left the state and gained employment elsewhere? A more complete picture would include earnings across the nation.
2. While many graduates are initially employed in Arizona, over time, that number declines. Where are they employed five or more years after graduation?

3. Students graduate with a major in a particular field. What kinds of businesses employ those graduates, and how does that change over time?
4. How do Arizona graduates' earnings compare to graduates from similar institutions nationwide?

To answer these and many other questions requires a more robust dataset to analyze.



Postsecondary Employment Outcomes

The Postsecondary Employment Outcomes (PSEO) program is an experimental tabulation developed by researchers at the U.S. Bureau of the Census. PSEO data provides earnings and employment outcomes for college and university graduates by degree level, degree major, and postsecondary institution. These statistics are generated by matching university student records with a national database of jobs, using state-of-the-art confidentiality protection mechanisms to protect the underlying data.

The access to PSEO data is made possible through data sharing partnerships between universities, university systems, state departments of education, state labor market information offices, and the U.S. Bureau of the Census. PSEO data is available for postsecondary institutions whose student records have been made available to the U.S. Census Bureau through a data sharing agreement.

For a detailed understanding of the program, see the following link:

https://lehd.ces.census.gov/data/pseo_experimental.html

To review data, see:

<https://lehd.ces.census.gov/applications/pseo/?type=earnings&compare=postgrad&specificity=2&state=04&institution=00108100°reelevel=05&gradcohort=0000-3&filter=50&program=00,52,09,13,4-5,14>

As of October 2023, 816 institutions across 27 states are participating in the PSEO program. More states and institutions are being added over time. Since this is an experimental and voluntary effort, the pace of expansion is still being determined. The matching results are released twice a year, depending on the availability of all necessary data. Near the end of the calendar year, data for all participating institutions are updated. The mid-year release includes new institutions that have been added since the annual update.

Differences Between Alumni Earnings and PSEO

It is not possible to directly compare graduate earnings across the two reports for several reasons. Among the most important are the following:

In the Alumni Earnings report, graduates are grouped by academic year. That means students who graduated following the fall or spring semesters of the same academic year are grouped. In the PSEO report, the Census has chosen to group graduates by calendar year. That means that students who graduate in the fall semester are separate from students who graduate in the spring semester of the same academic year.

In the Alumni Earnings report, earnings are reported for each graduating class. At the same time, Census has chosen to put multiple graduating classes together into three-year cohorts such as the 2007-2009 or the 2013-2015 cohorts. The earliest cohort are the 2004-2006 students through the 2016-2018 students. That amounts to six different groups of cohorts. In this report, all cohorts have been aggregated together for reporting purposes. This represents about 174,300 undergraduate students and about 5,800 graduate students.

Since the PSEO tabulations aggregate multiple graduating classes together, adjustments must be made to reflect changes in earnings over time both within the cohort and between cohorts. For example, those who graduated with a bachelor's degree from Arizona State University in the 2007-2009 cohort had median earnings five years after graduation of \$53,031 in 2020 adjusted dollars. Those who graduated with a bachelor's degree from Arizona State University in the 2010-2012 cohort had median earnings five years after graduation of \$55,440 in 2020 adjusted dollars.

Similarities Between Alumni Earnings and PSEO

Both reports rely on the same administrative records from the states. Census is the only entity with these records, performing all record-matching services. This ensures the confidentiality of the underlying records and makes it possible to compare the results across states and institutions participating in the PSEO program.



Results

Information on the following pages is a subset of what is currently available. For example, the earnings of those who received a bachelor's degree from the University of Arizona in Social Sciences have expected median earnings in 2020 dollars of \$51,515 five years after graduation. Within that broad group, here are the following majors and their corresponding five years after graduation median earnings:

Geography and Cartography	\$51,413
Anthropology	\$39,232
Sociology	\$45,456
Economics	\$64,480
Political Science and Government	\$53,558

All the earnings data presented in this report is for median earnings in 2020 dollars. That means that half of the graduates earned more than that amount of money, and half of the graduates earned less than that amount. For those interested in knowing more about the distribution of earnings for a particular major, that information can be obtained online at the link provided earlier. Here is an example of those in the 2010-2012 cohort who received a Bachelor's degree in Engineering from Arizona State University five years after graduation.

25th Earnings Percentile (25% earn less than)	\$67,174
50th Earnings Percentile (half earn more, half earn less)	\$84,407
75th Earnings Percentile (25% earn more than)	\$103,792

It is also possible to measure the flow of students from particular majors into specific industries. For example, at Northern Arizona University, for those in the 2010-12 cohort who received a Bachelor's degree, after five years, 23.5 percent were employed in Educational Services. This masks the fact that of those students who found employment in educational services, 69.3 percent had education majors, and 30.7 percent had majors that were not education. The two largest non-education majors here are Liberal Arts (8.9%) and Business, Management and Marketing (5.2%).

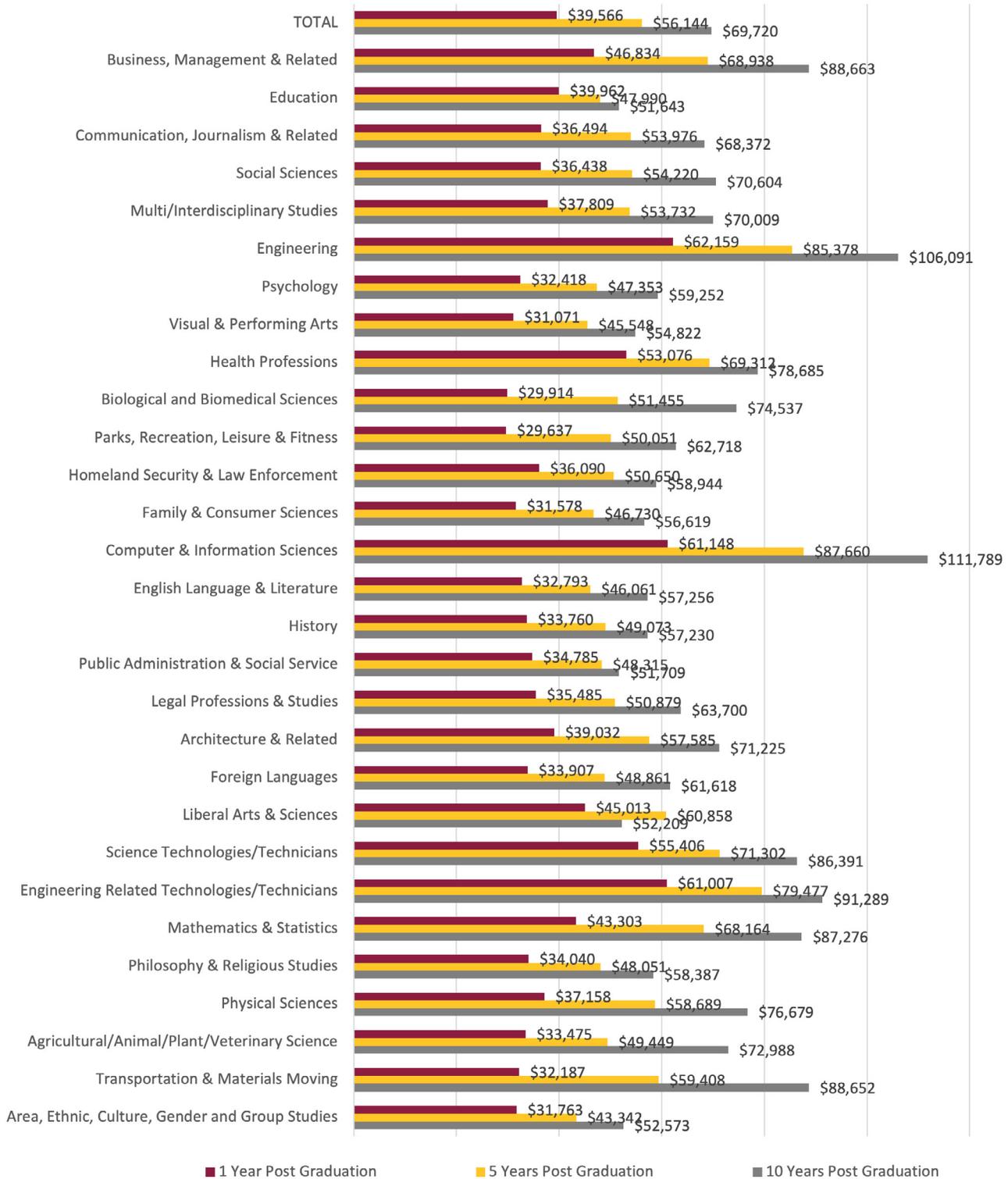
Earnings by Degree and Major

Pages eight through 19 contain the one-year, five-years, and ten-years after graduation median earnings for those working graduates from Arizona State University, Northern Arizona University, and the University of Arizona. All earnings are median, in 2020 dollars, with no adjustment for cost-of-living in the local area where the graduate is employed. The majors are listed in declining order of the number

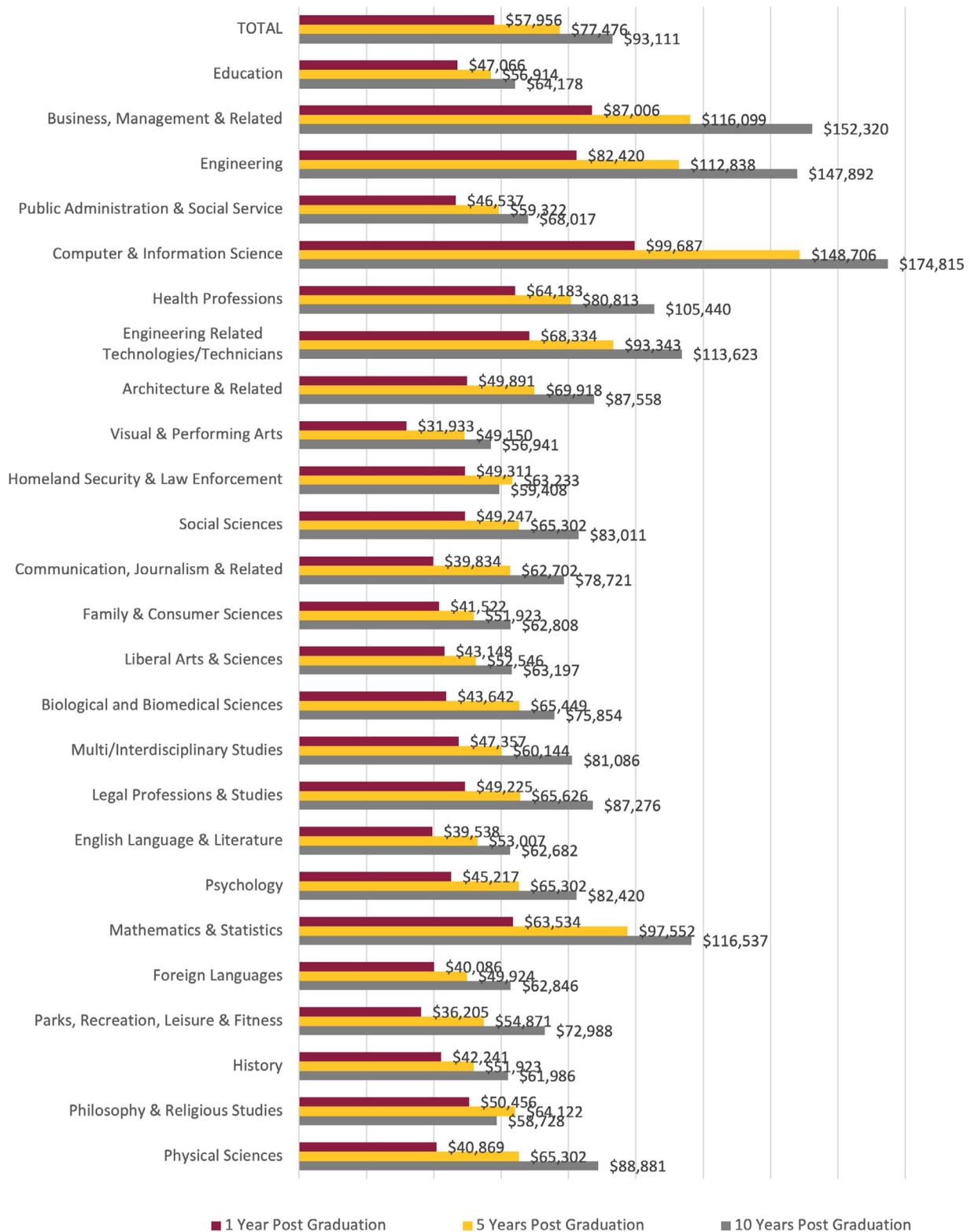
of graduating and employed. That is, the largest number of working graduates in a major are listed first, declining to the smallest number of working graduates in the major listed last. Not every major is represented. That information is suppressed when there is insufficient information to publish the one-, five- and ten-year earnings figures.

In general, those who earned a bachelor's degree from either of the three universities saw their earnings rise 30 to 50 percent between their first and fifth years after graduation. Between the fifth and tenth year of graduation, those bachelor's degree recipients saw their median earnings rise another 15 to 30 percent. Those with a graduate degree saw earnings increase on average approximately 25 to 30 percent from the first to the fifth year. The fifth to tenth-year increases for graduate degree workers rose around 20 percent. These are general figures; each university/degree/major had its own results. Some majors substantially exceeded these levels, while others did not.

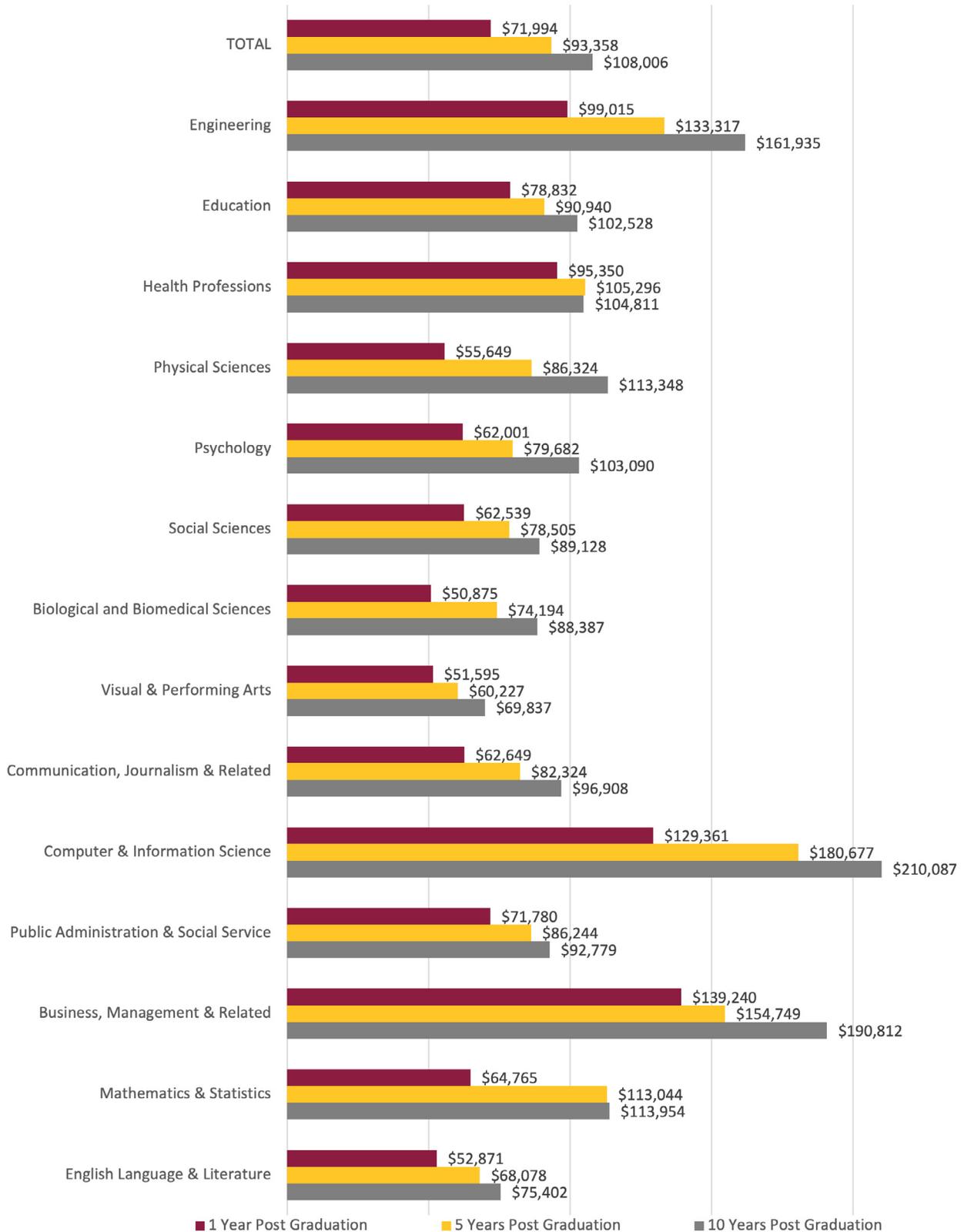
ASU Bachelor Degree Median 2020 Earnings One, Five & Ten Years after Graduation



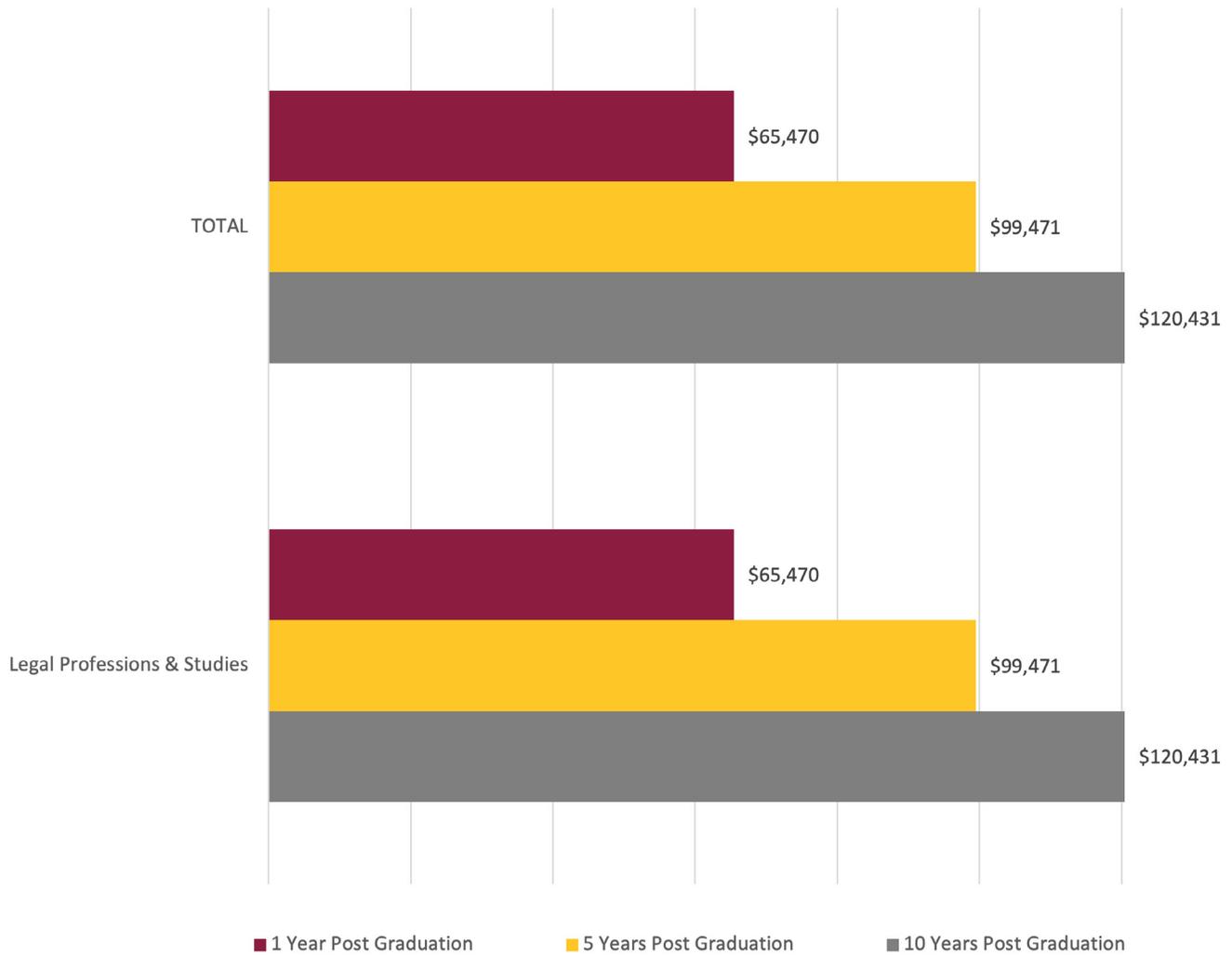
ASU Masters Degree Median 2020 Earnings One, Five & Ten Years after Graduation



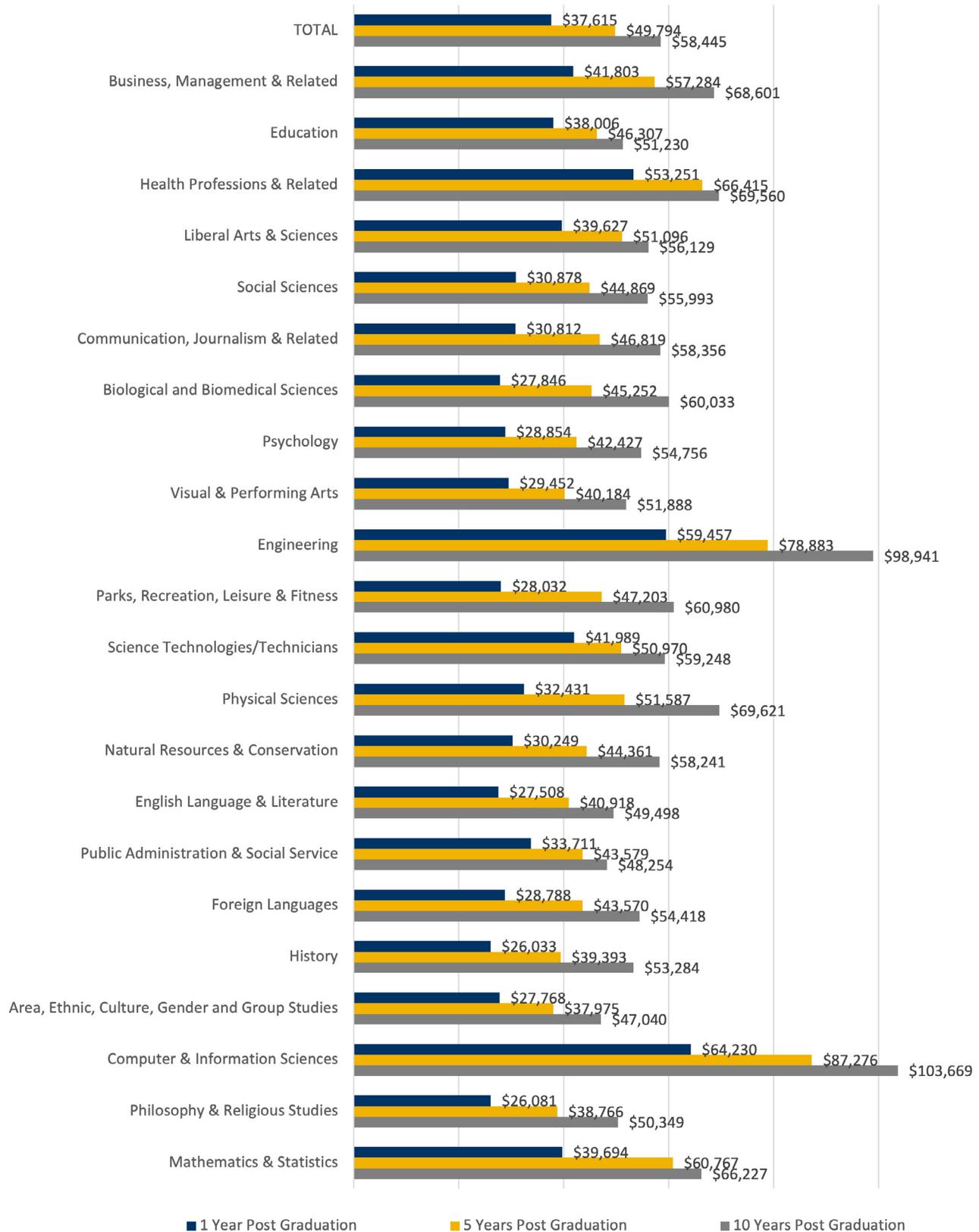
ASU PhD Degree Median 2020 Earnings One, Five & Ten Years after Graduation



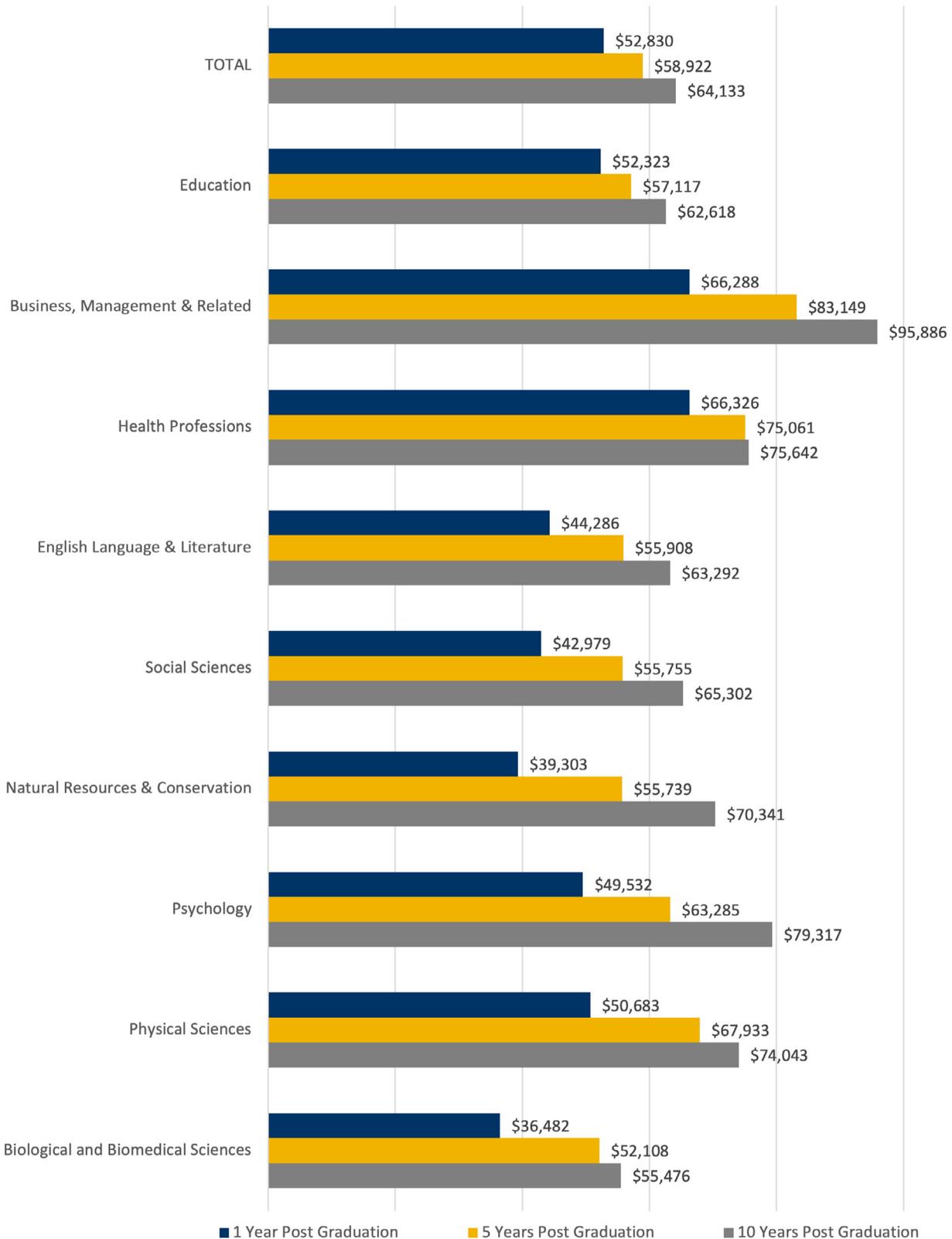
ASU Professional Degree Median 2020 Earnings One, Five & Ten Years after Graduation



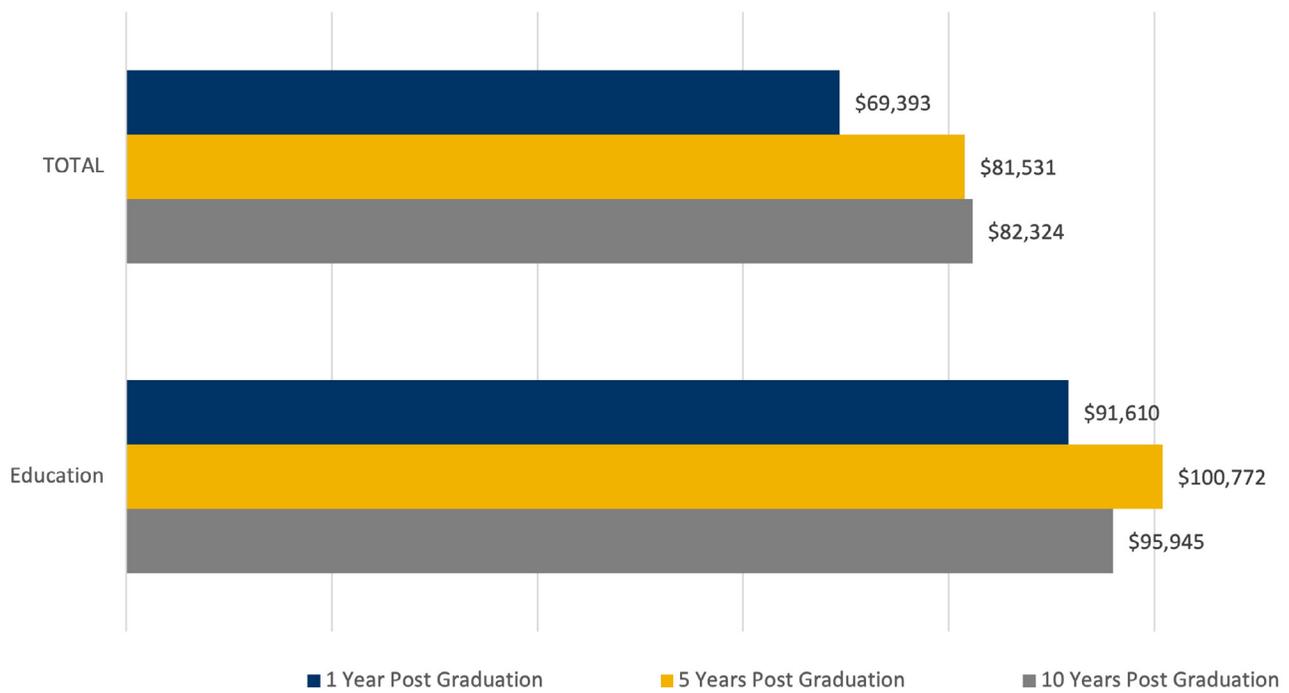
NAU Bachelor Degree Median 2020 Earnings One, Five & Ten Years after Graduation



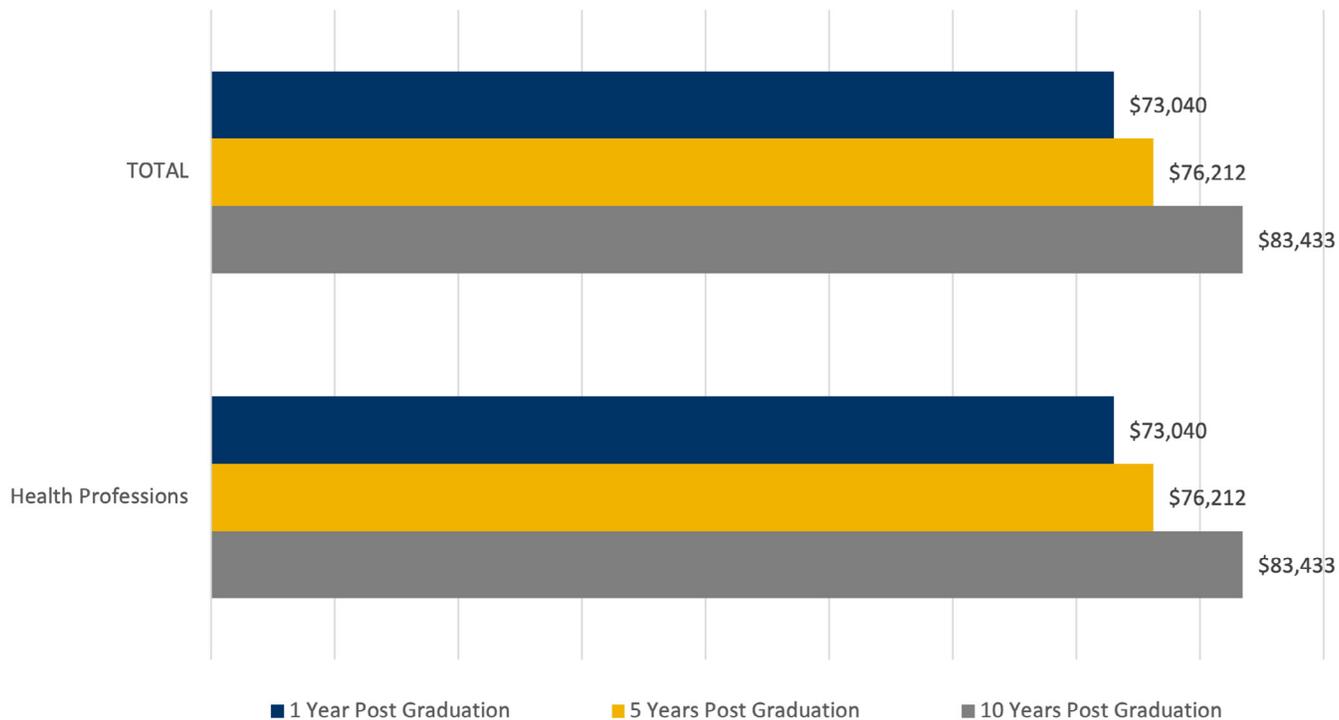
NAU Masters Degree Median 2020 Earnings One, Five & Ten Years after Graduation



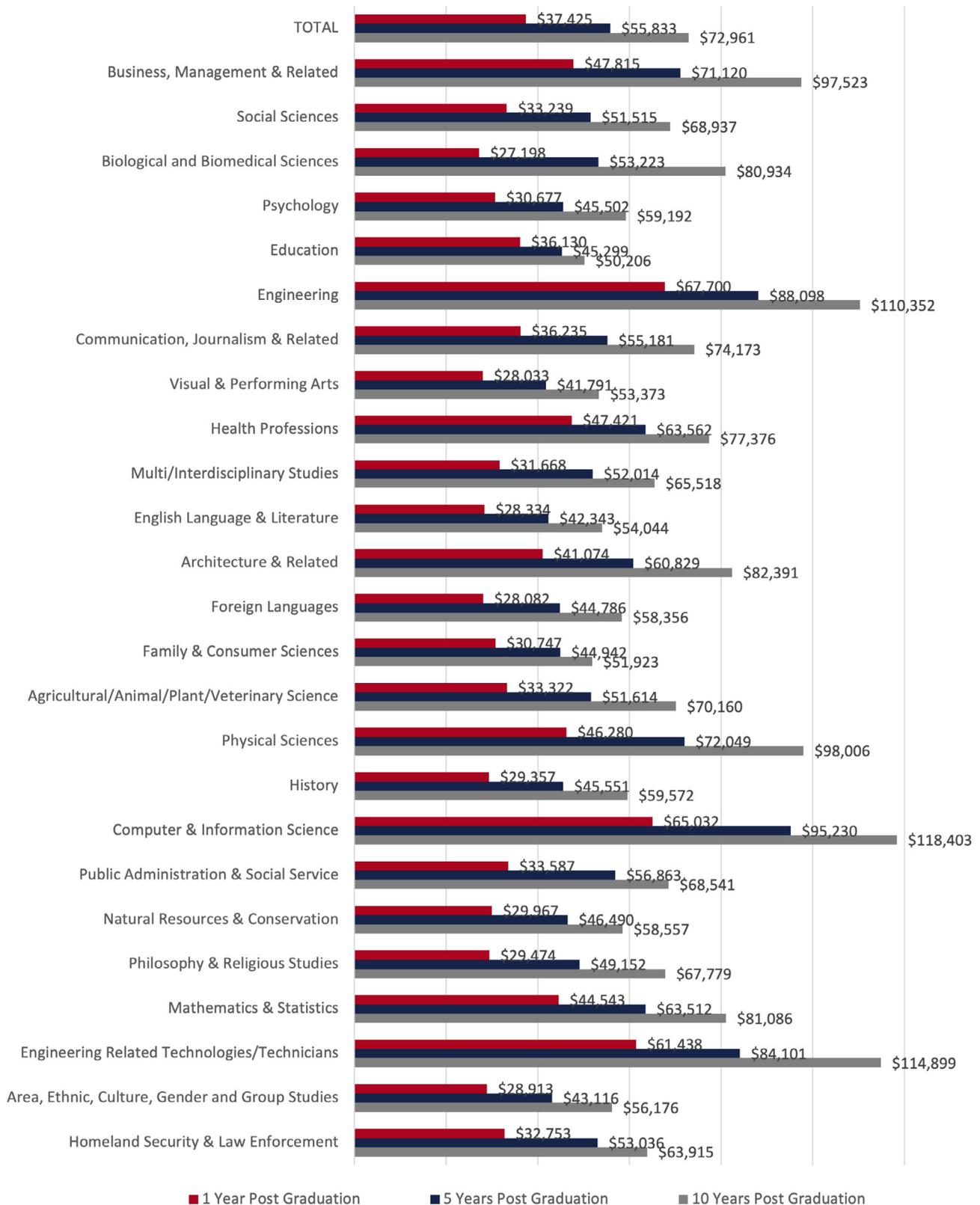
NAU PhD Degree Median 2020 Earnings One, Five and Ten Years after Graduation



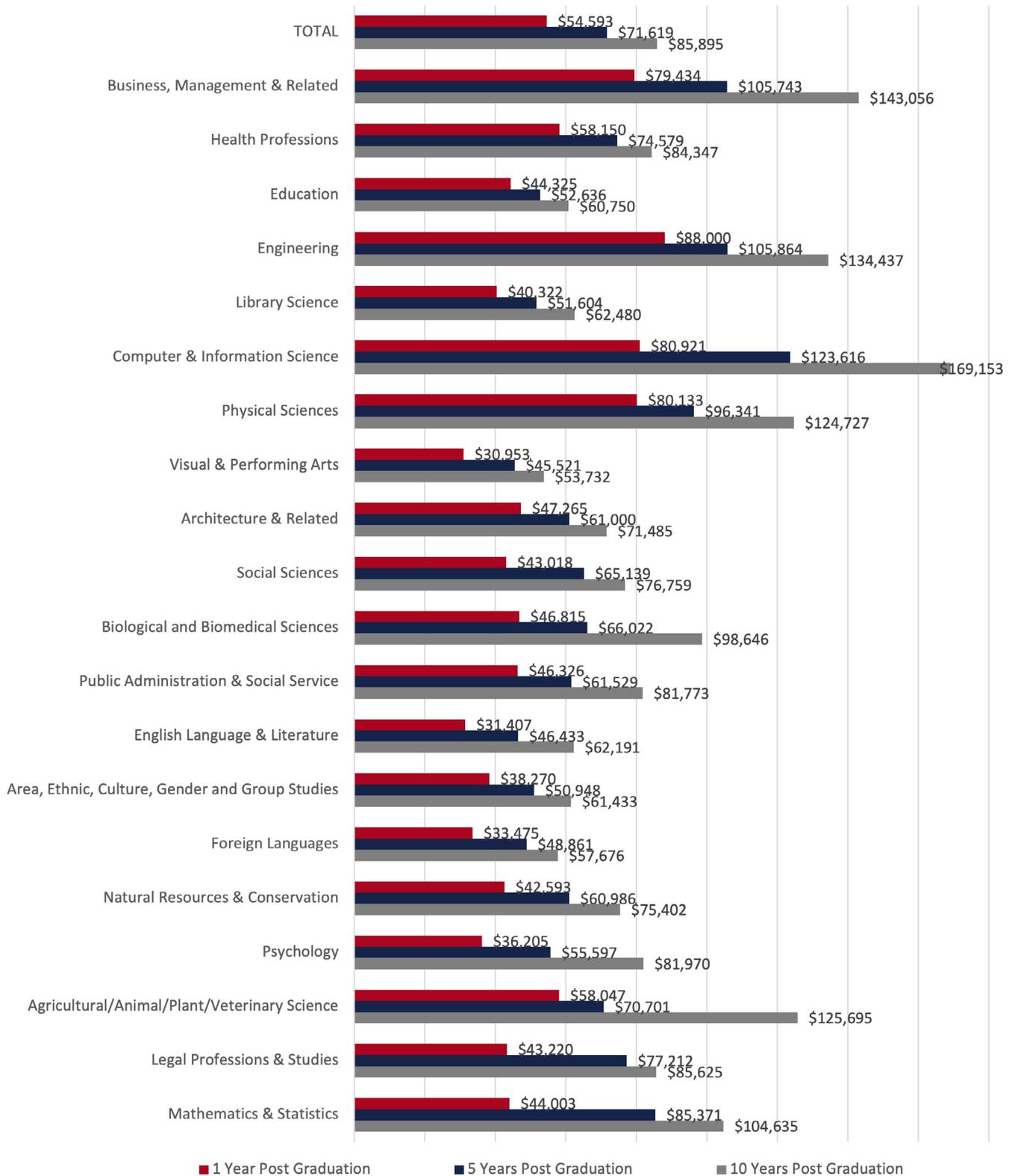
NAU Professional Degree Median 2020 Earnings One, Five & Ten Years after Graduation



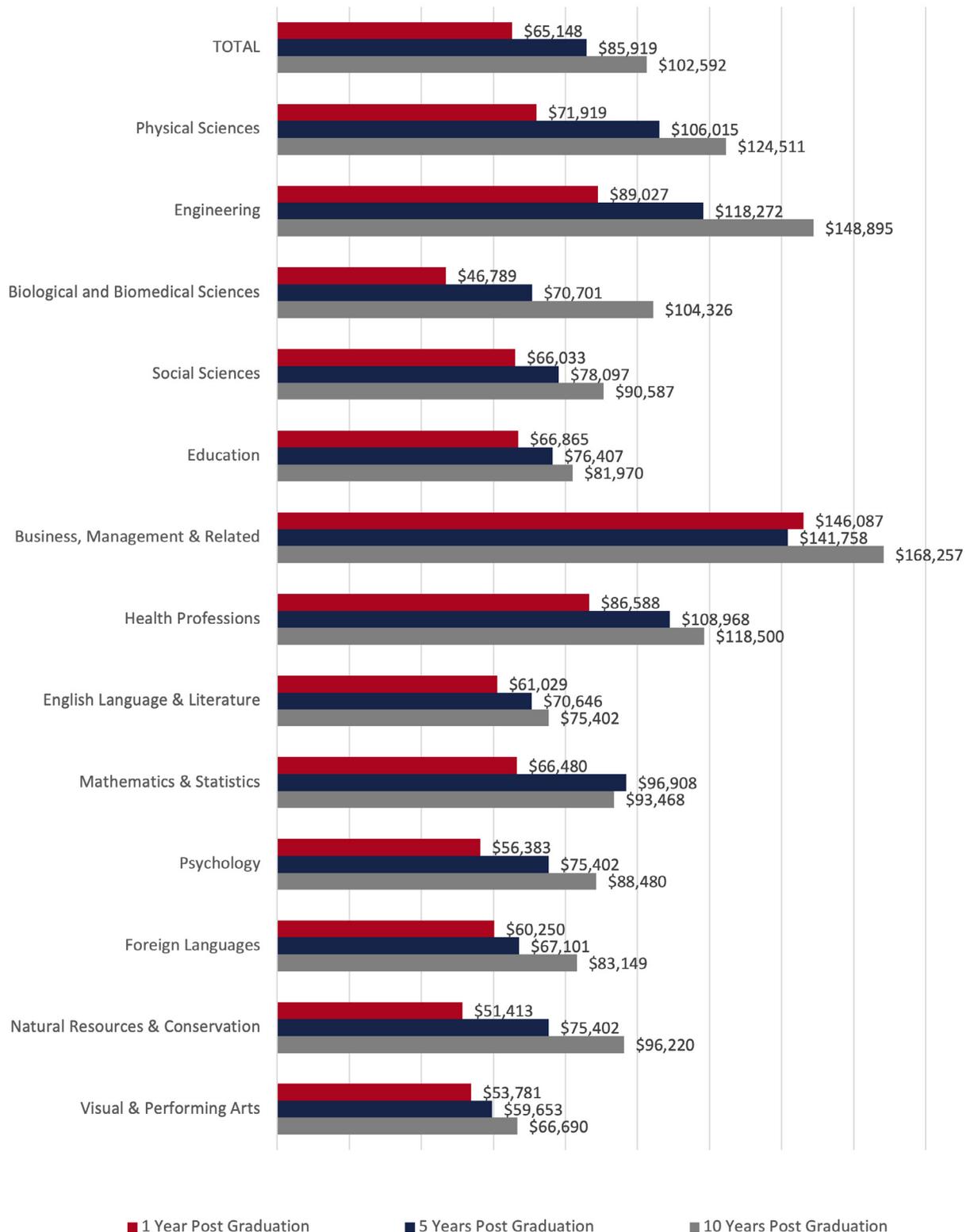
UofA Bachelor Degree Median 2020 Earnings One, Five & Ten Years after Graduation



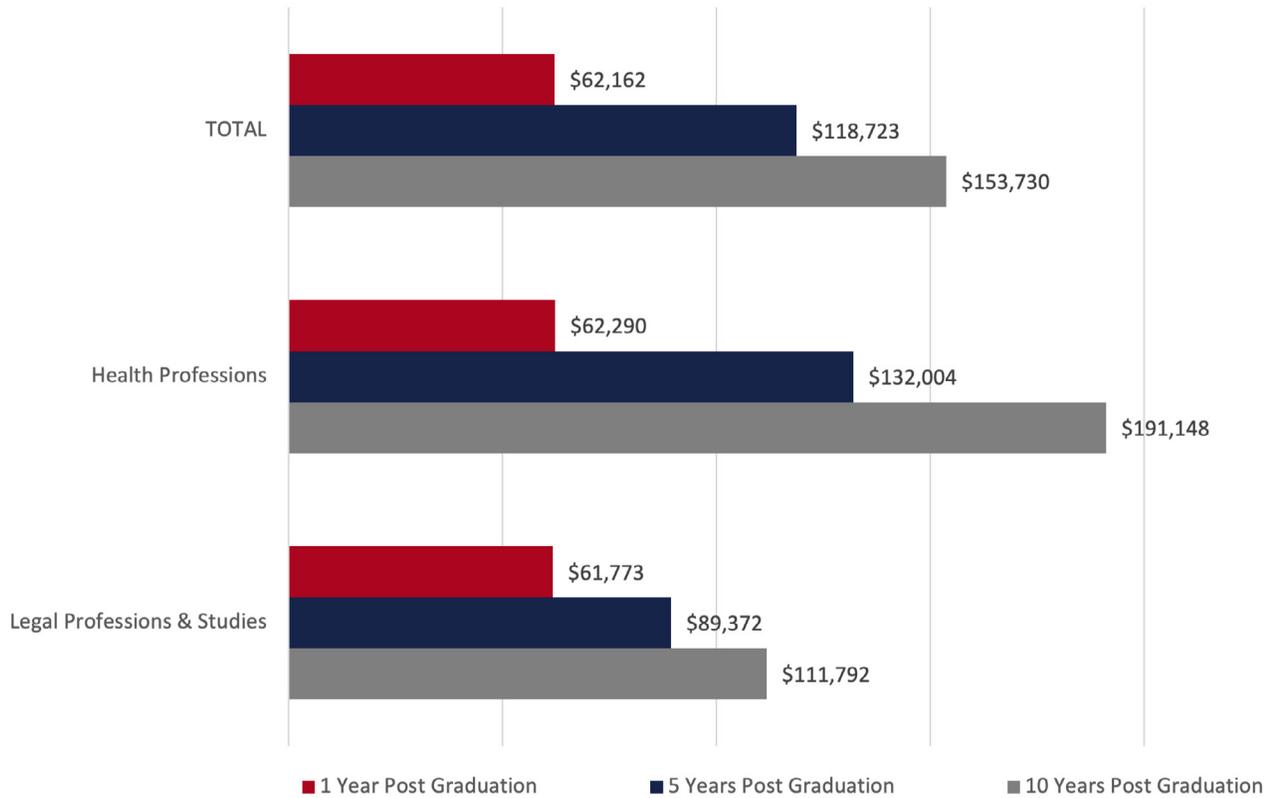
UofA Masters Degree Median 2020 Earnings One, Five & Ten Years after Graduation



UofA PhD Degree Median 2020 Earnings One, Five & Ten Years after Graduation



UofA Professional Median 2020 Degree Earnings One, Five & Ten Years after Graduation



Residency of Graduates

Census Geography

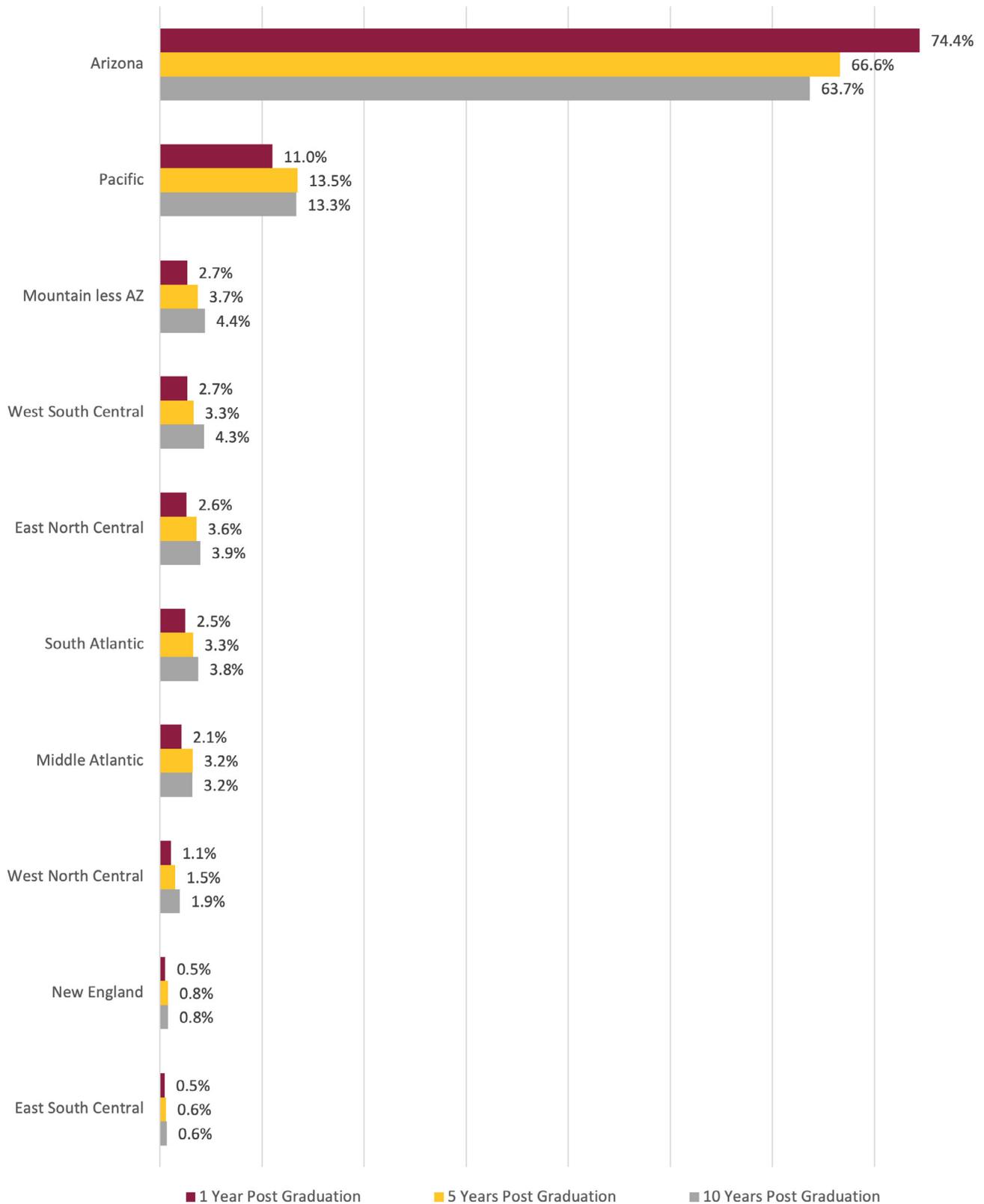
Pages 21 through 32 show the residency of Arizona public university graduates following graduation one, five, and ten years later for those recipients of a bachelor’s, master’s, PhD, and professional doctoral degree. To protect confidentiality due to small cell sizes and existing data sharing agreements, those students employed outside Arizona are reported in the following groupings listed below. Future plans will enable reporting of this data at the individual state level.

New England	Middle Atlantic	East North Central	West North Central	South Atlantic
Connecticut	New Jersey	Indiana	Iowa	Delaware
Maine	New York	Illinois	Kansas	District of Columbia
Massachusetts	Pennsylvania	Michigan	Minnesota	Florida
New Hampshire		Ohio	Missouri	Georgia
Rhode Island		Wisconsin	Nebraska	Maryland
Vermont			North Dakota	North Carolina
			South Dakota	South Carolina
				Virginia
				West Virginia

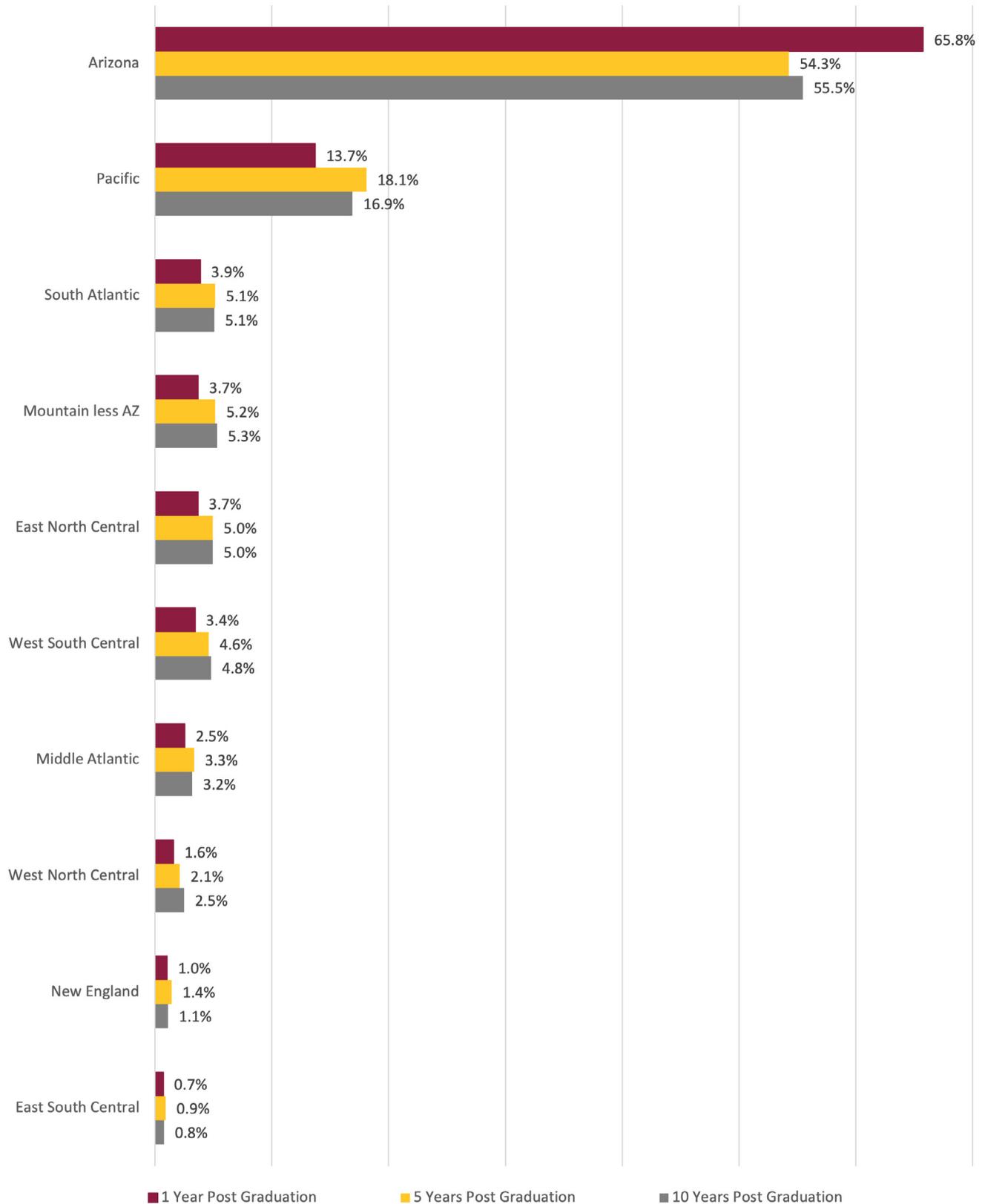
East South Central	West South Central	Mountain	Pacific
Alabama	Arkansas	Colorado	Alaska
Kentucky	Louisiana	Idaho	California
Mississippi	Oklahoma	New Mexico	Hawaii
Tennessee	Texas	Montana	Oregon
		Utah	Washington
		Nevada	
		Wyoming	

For those graduating with a bachelor’s degree, Arizona ranks first in residency, followed by the Pacific region (Alaska, California, Hawaii, Oregon, and Washington). After that, small groups of students are employed in other regions nationwide. For Graduate degrees, Arizona and the Pacific region are generally first and second, although residency is influenced by the degree and major for varying reasons.

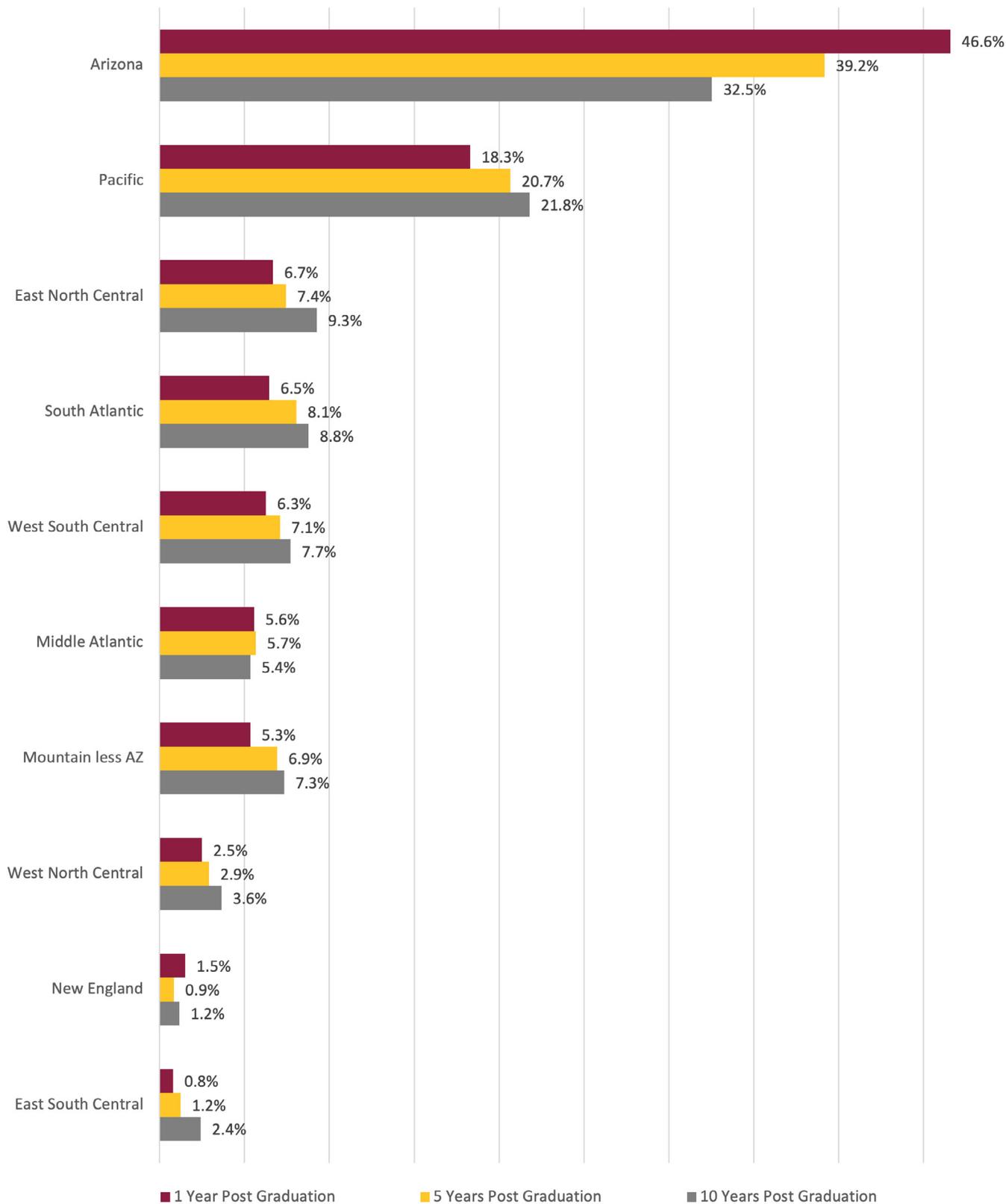
ASU Bachelor's Degree Recipient Residence One, Five & Ten Years after Graduation



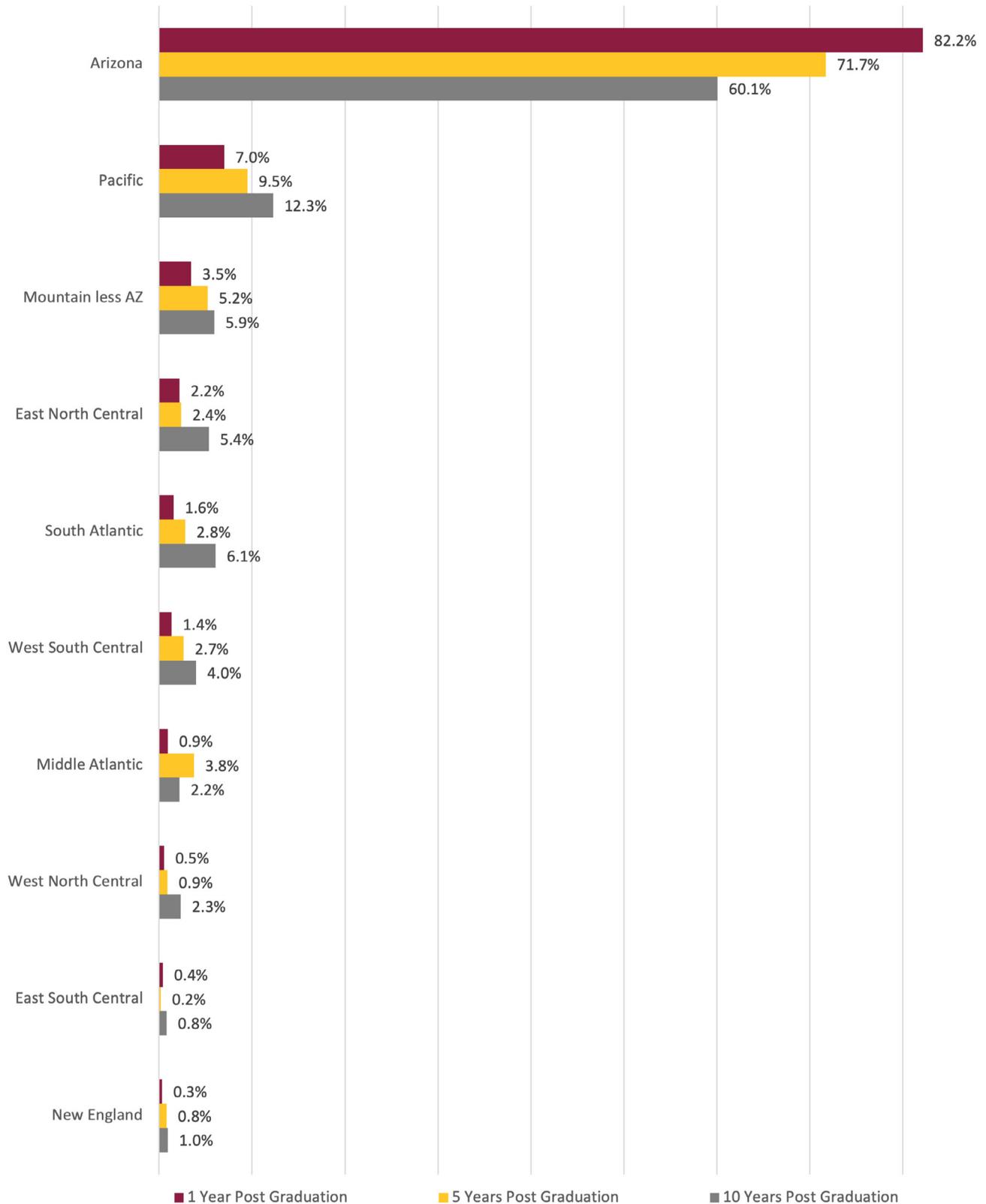
ASU Master's Degree Recipient Residence One, Five & Ten Years after Graduation



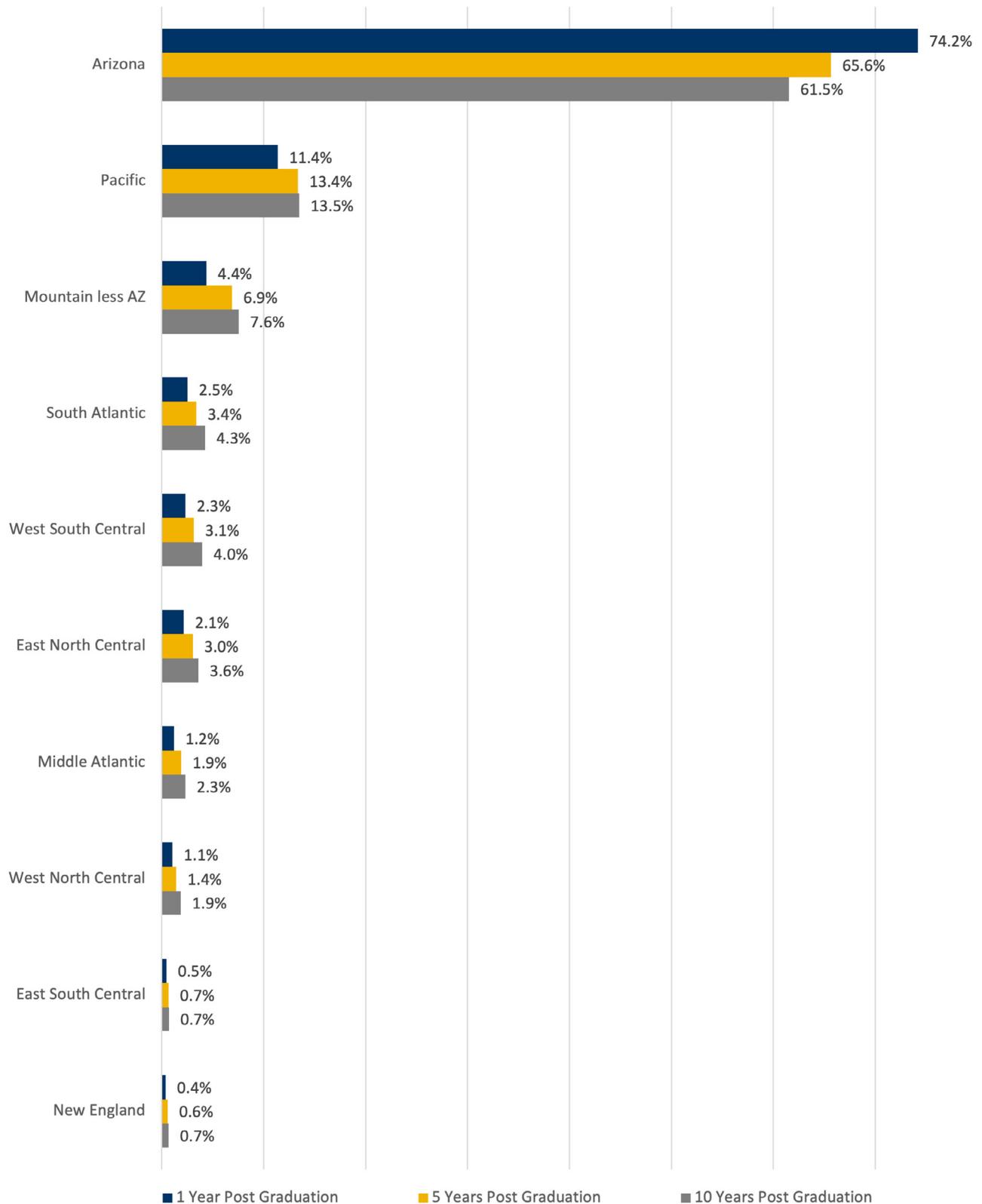
ASU PhD Degree Recipient Residence One, Five & Ten Years after Graduation



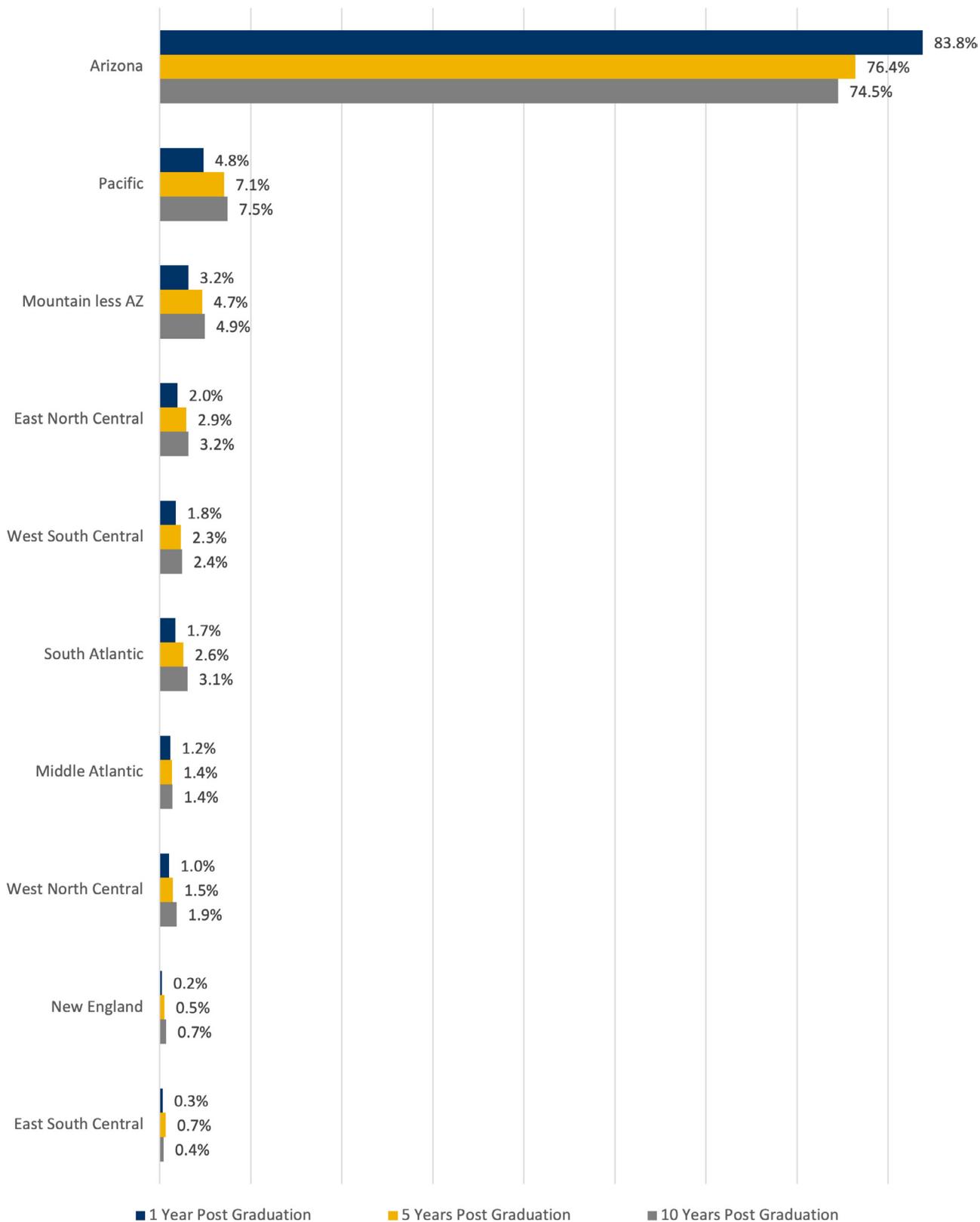
ASU Professional Degree Recipient Residence One, Five & Ten Years after Graduation



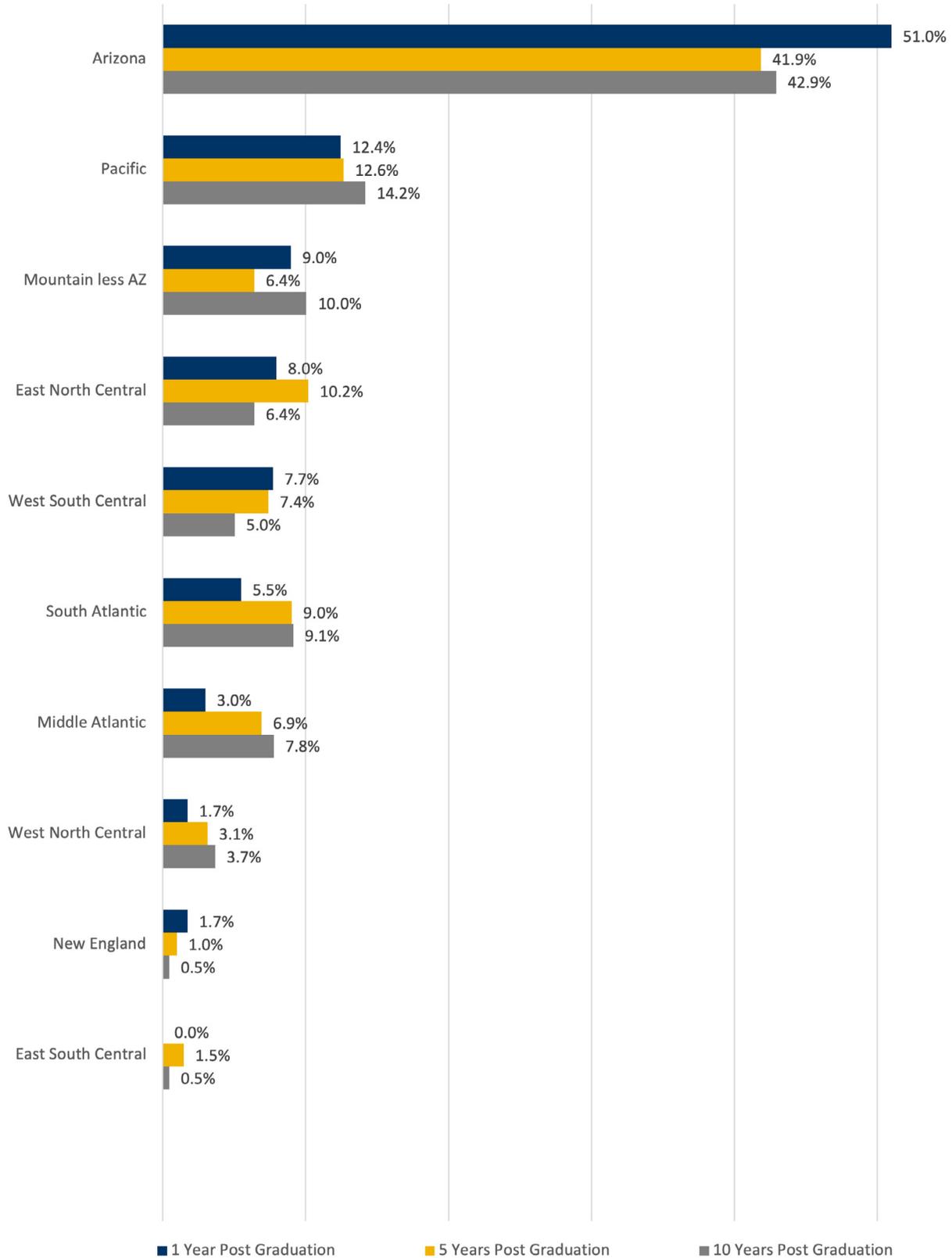
NAU Bachelor's Degree Recipient Residence One, Five & Ten Years after Graduation



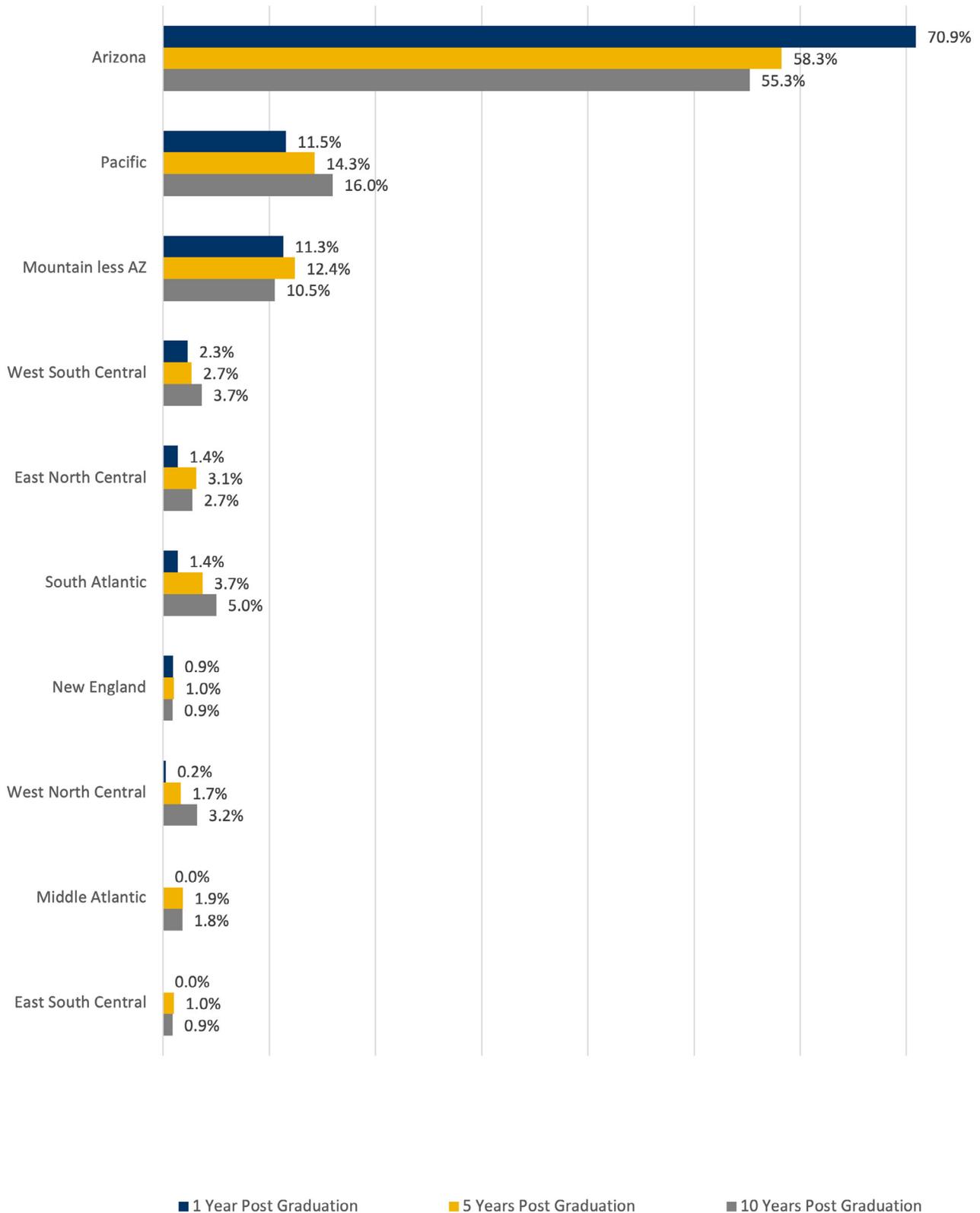
NAU Master's Degree Recipient Residence One, Five & Ten Years after Graduation



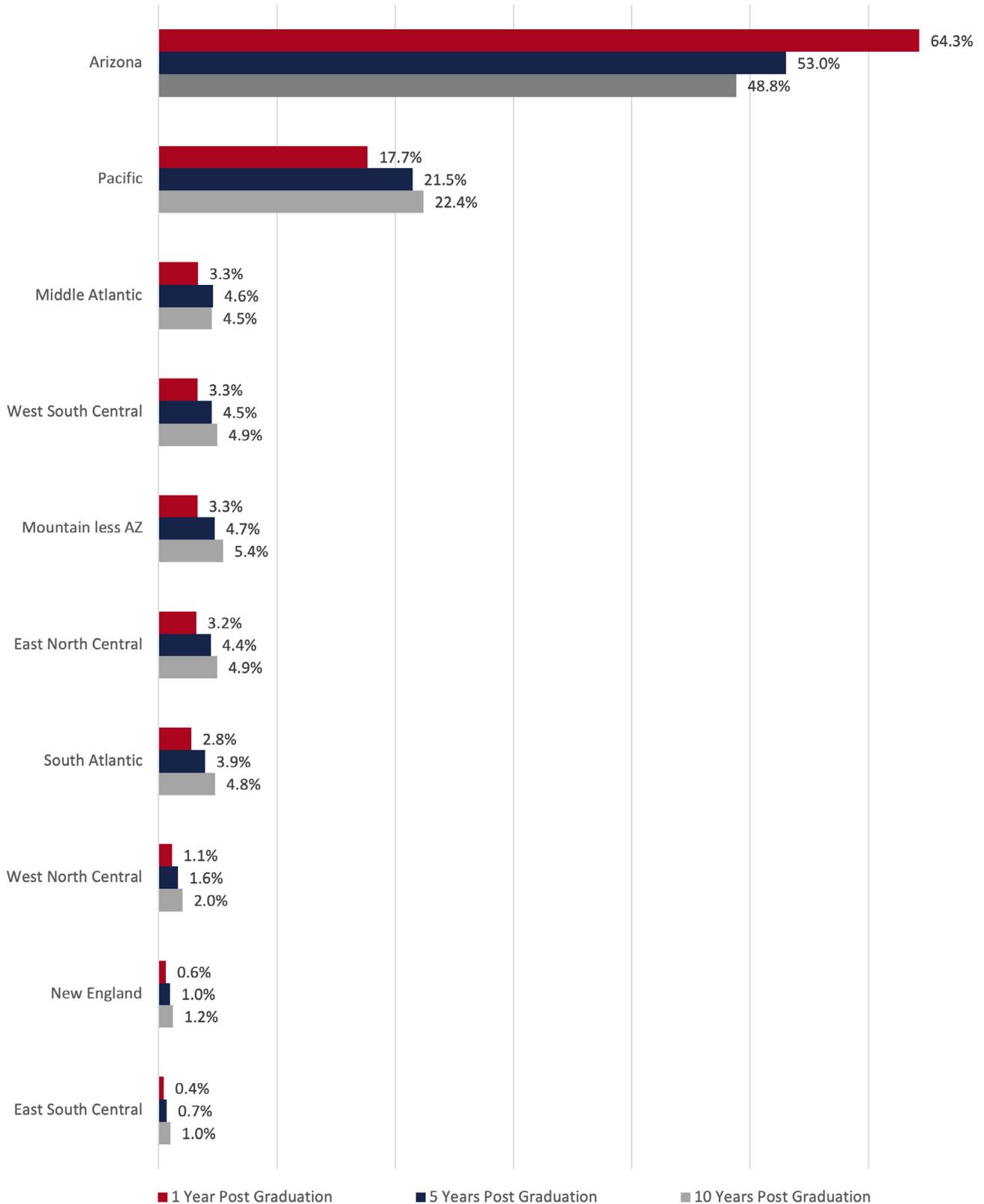
NAU PhD Degree Recipient Residence One, Five & Ten Years after Graduation



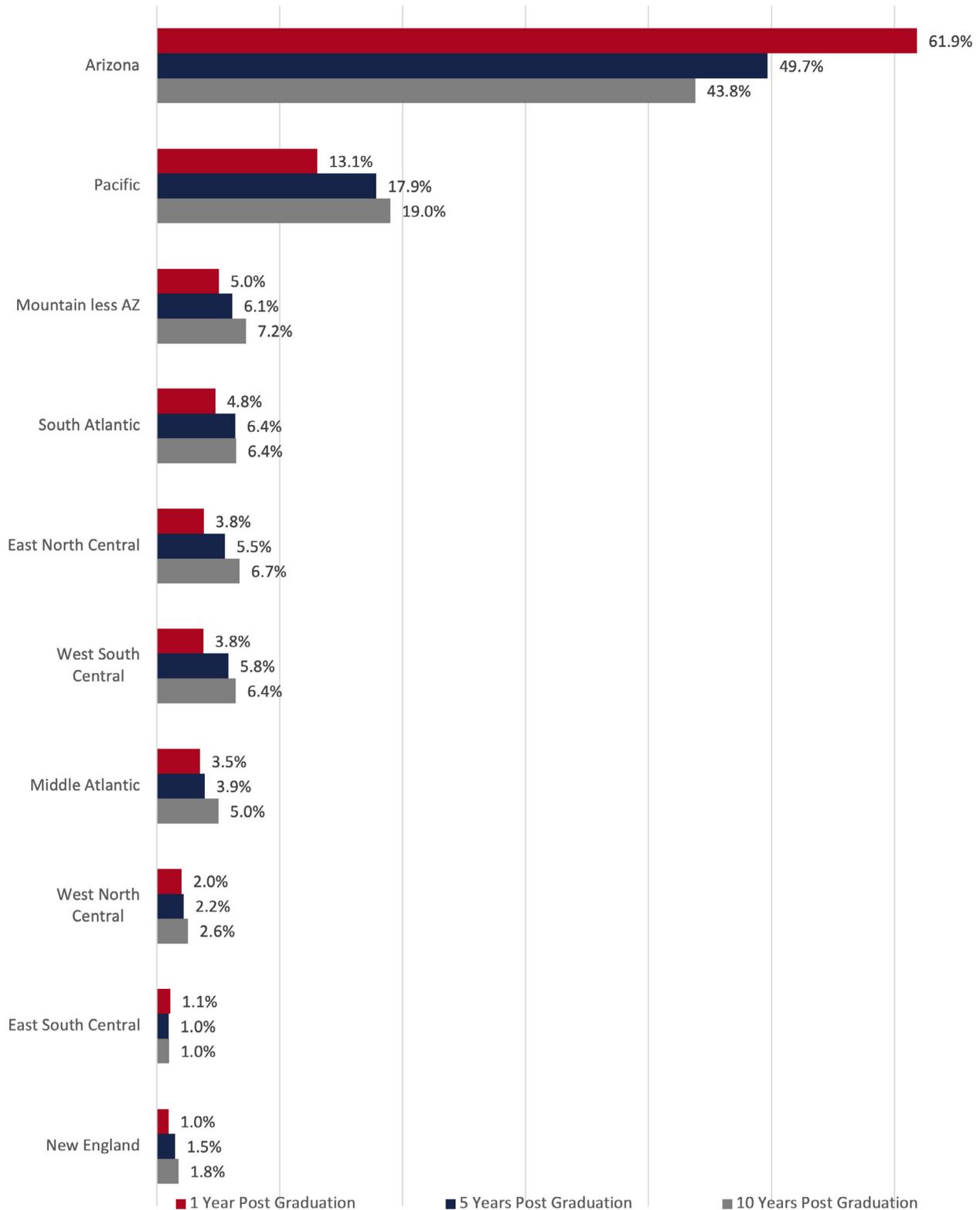
NAU Professional Degree Recipient Residence One, Five & Ten Years after Graduation



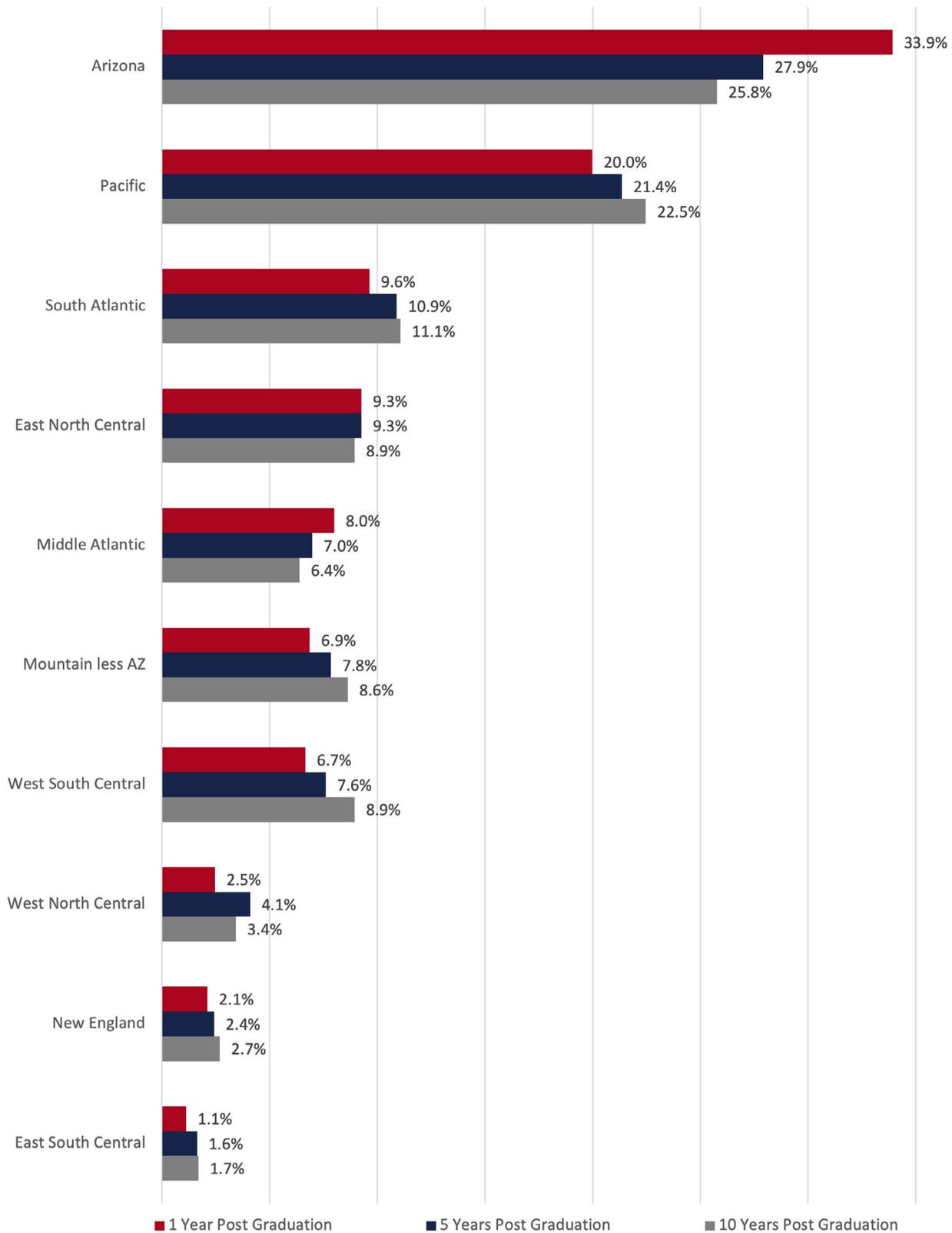
UofA Bachelor's Degree Recipient Residence One, Five & Ten Years after Graduation



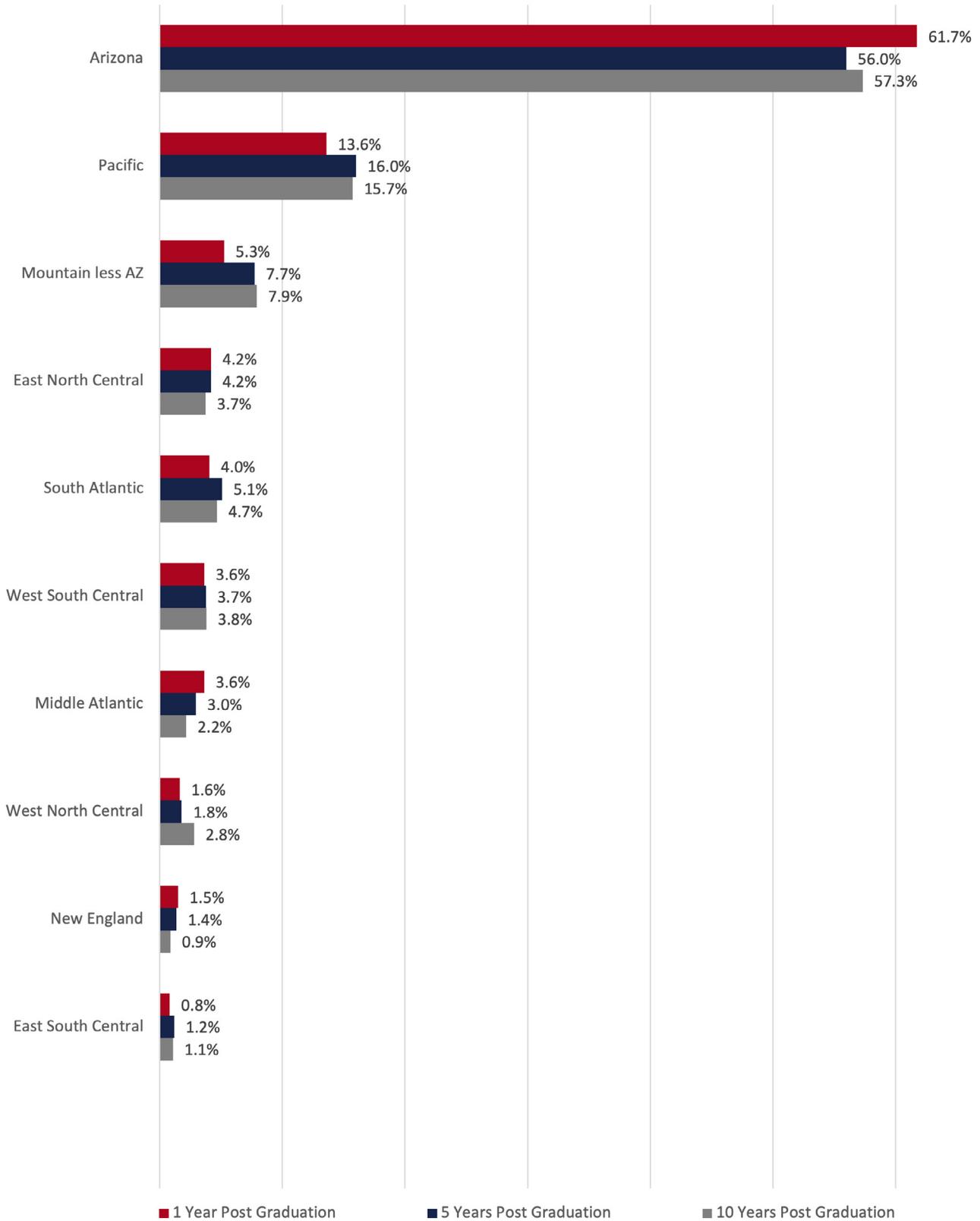
UofA Master's Degree Recipient Residence One, Five & Ten Years after Graduation



UofA PhD Degree Recipient Residence One, Five & Ten Years after Graduation



UofA Professional Degree Recipient Residence One, Five & Ten Years after Graduation



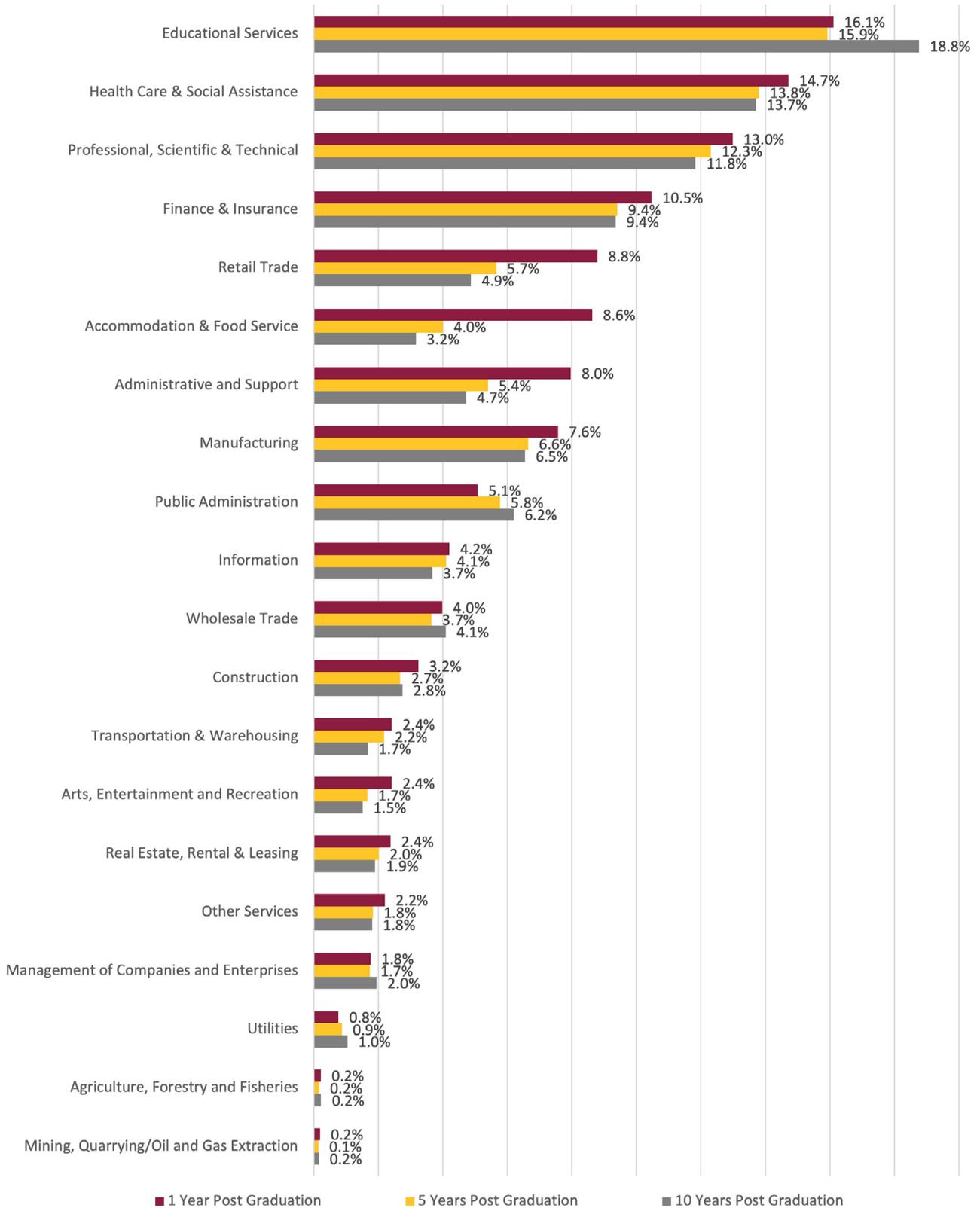


Industry of Employment

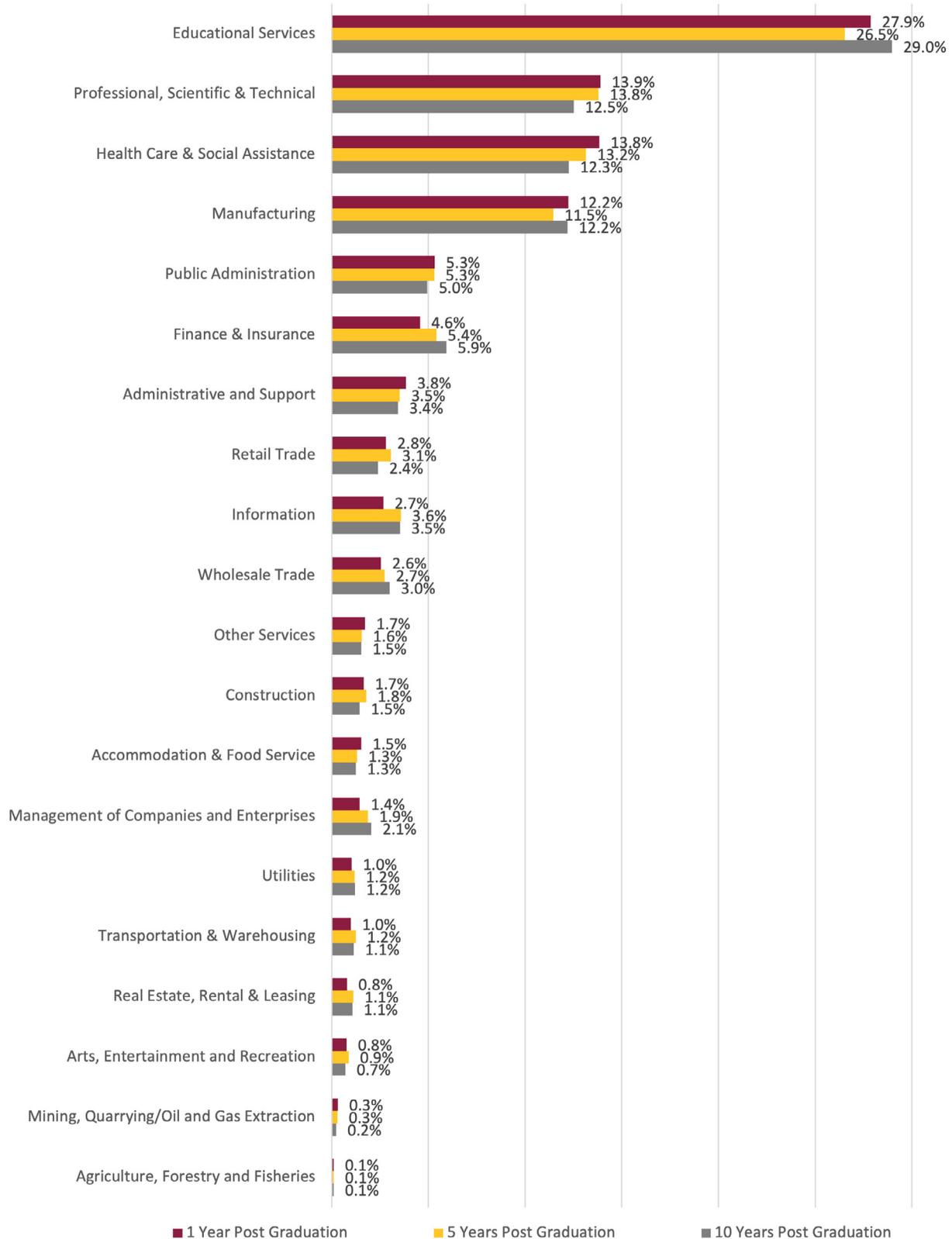
Graduates find employment in many sectors within Arizona and across the nation. From traditional sectors like mining and agriculture to high-tech manufacturing and advanced healthcare, they are important contributors everywhere. Educational Services ranks first for baccalaureate students from all three public universities. Health Care and Social Assistance ranks second at Arizona State University and Northern Arizona University. At the University of Arizona, Professional, Scientific, and Technical ranks second, with Health Care and Social Assistance ranking third.

The industries in which graduates are employed nationwide are presented on pages 32 to 43. At Arizona State University, slightly over 50 percent of baccalaureate students work in four industries (Educational Services, Health Care and Social Assistance, Professional, Scientific, Technical, and Finance and Insurance) five years after graduation. At Northern Arizona University, 58 percent of baccalaureate students work in four industries (Educational Services, Health Care and Social Assistance, Public Administration and Professional, Scientific, and Technical) five years after graduation. A similar pattern is observed at the University of Arizona where over 53 percent of baccalaureate students are working in four industries (Professional, Scientific, and Technical, Educational Services, Health Care and Social Assistance, and Finance and Insurance) five years after graduation.

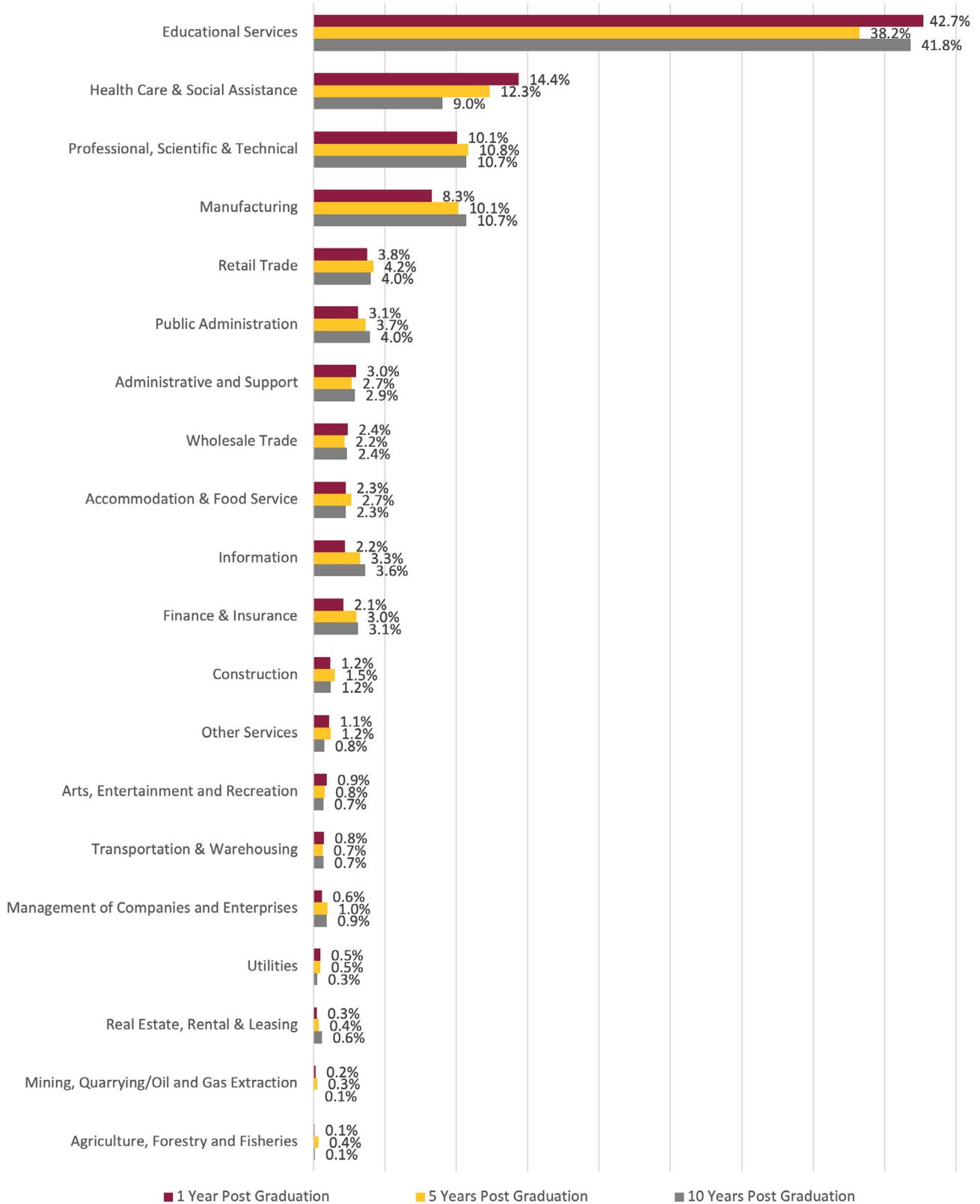
ASU Bachelor's Degree Recipients by Industry of Employment



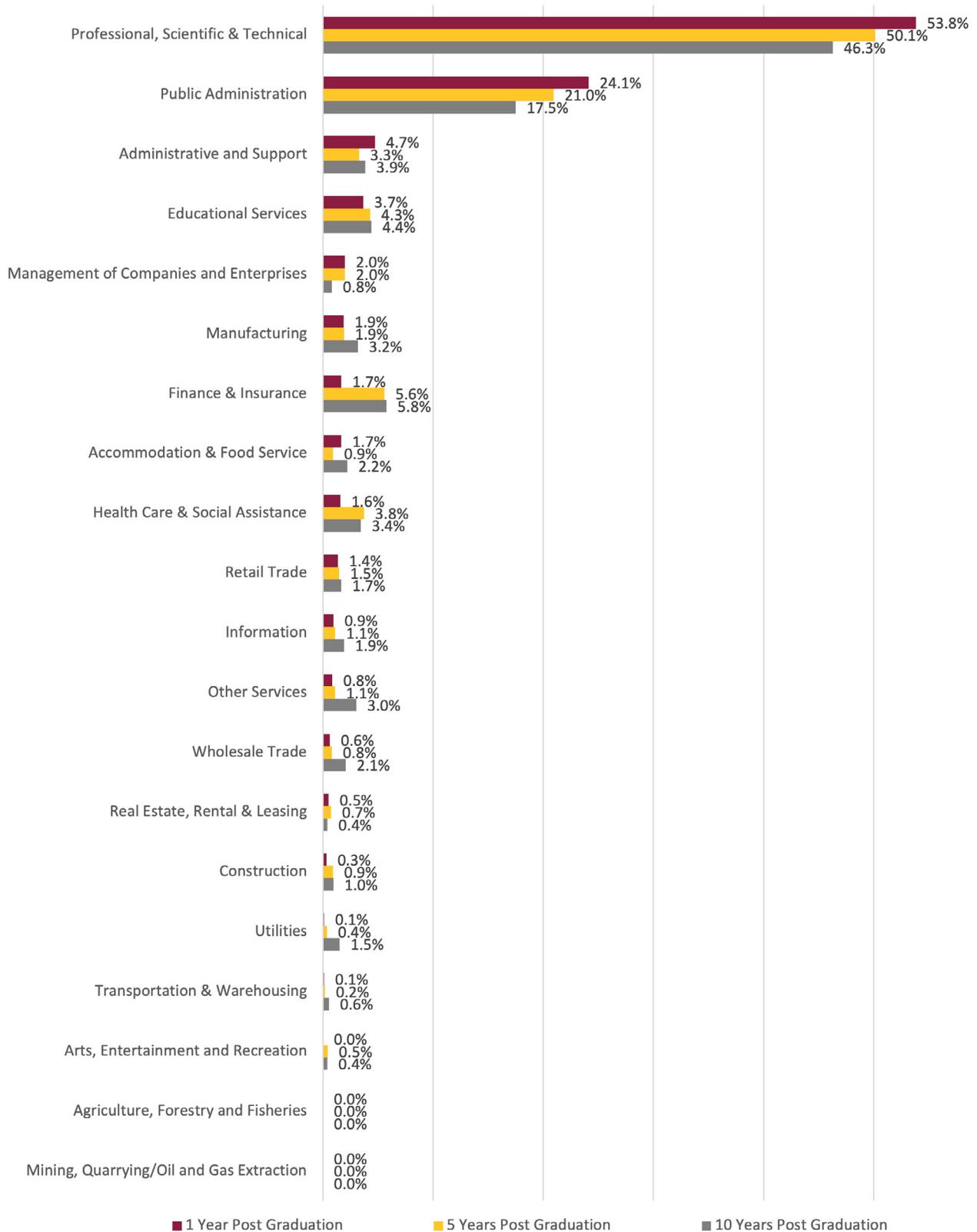
ASU Master's Degree Recipients by Industry of Employment



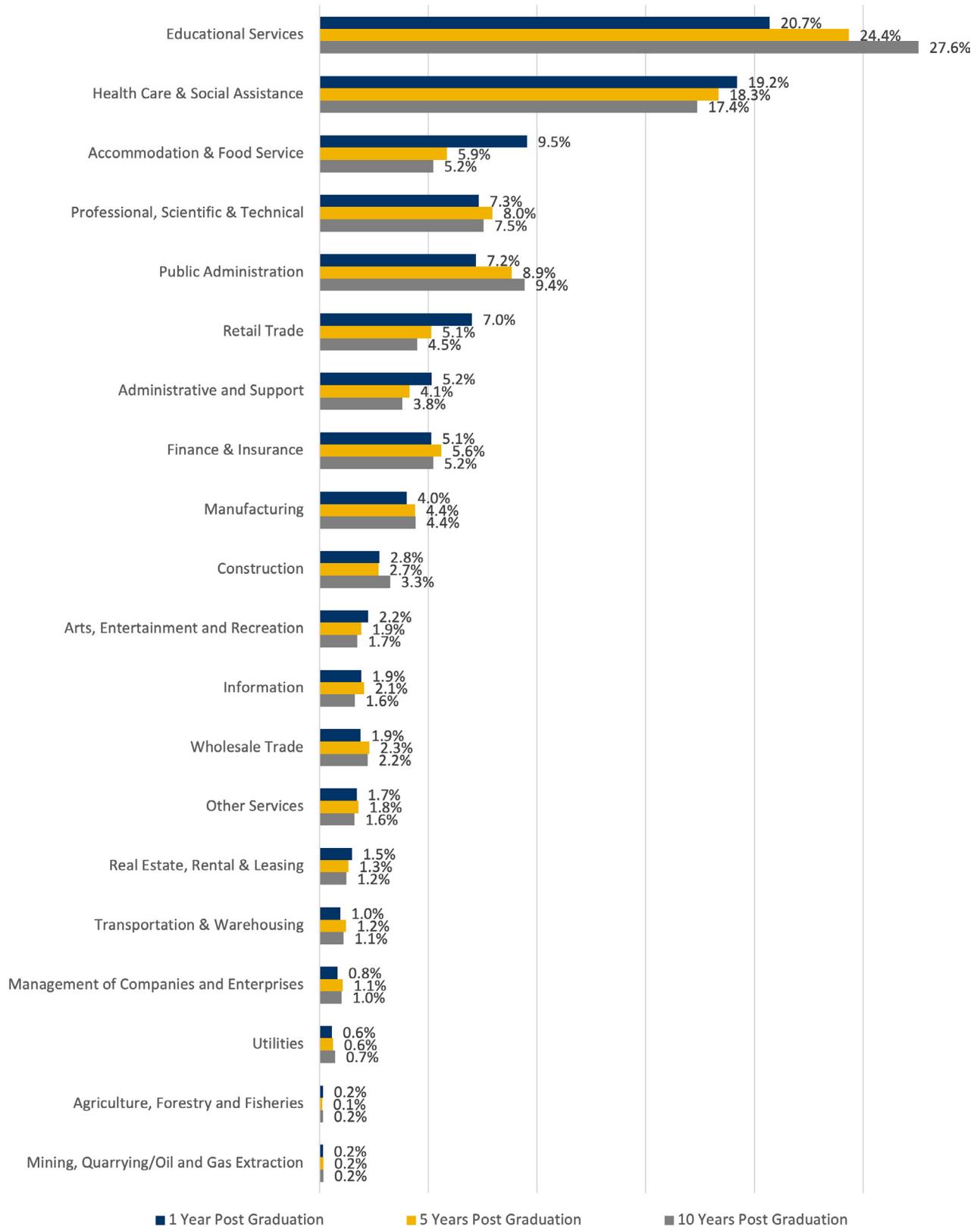
ASU PhD Recipients by Industry of Employment



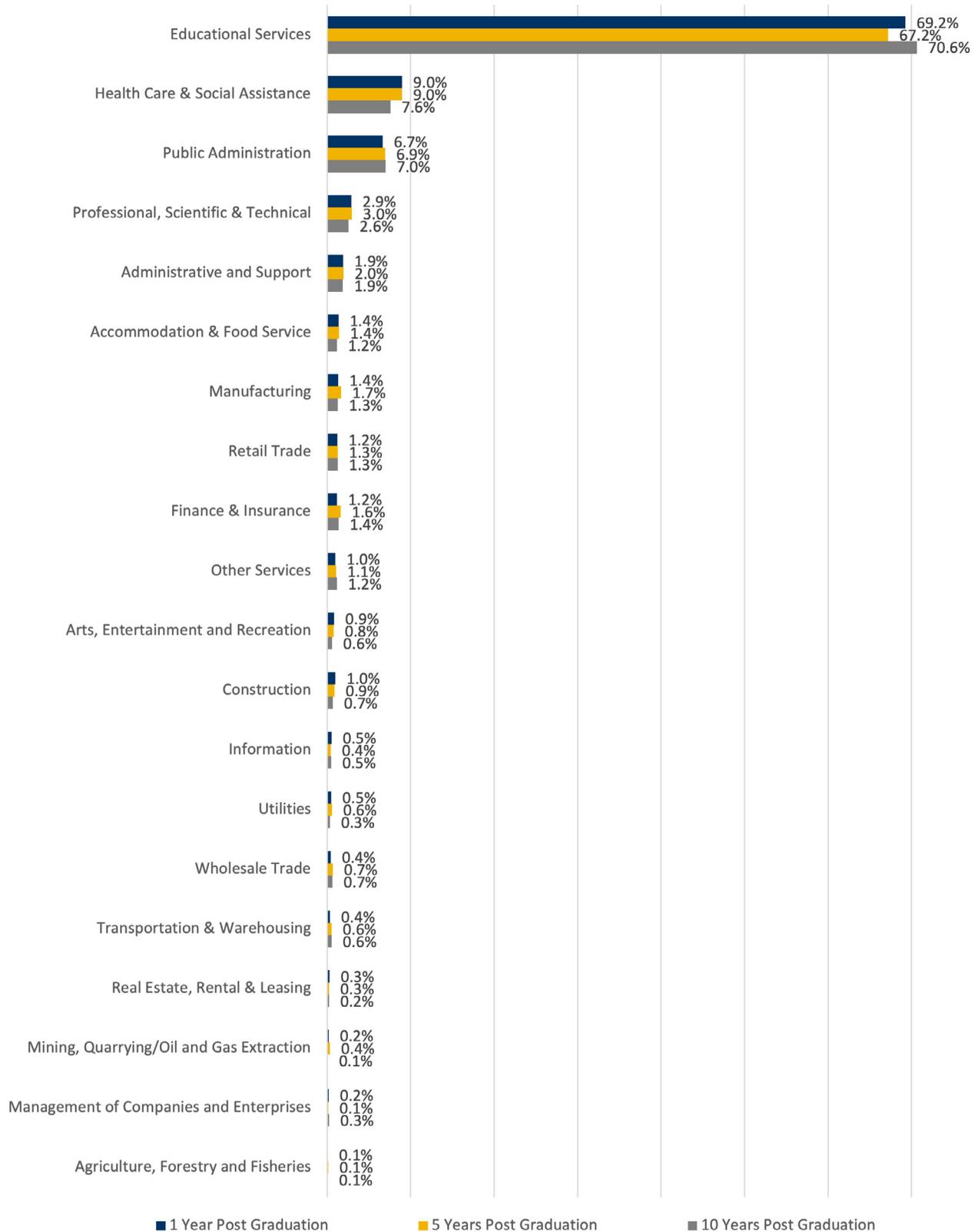
ASU Professional Degree Recipients by Industry of Employment



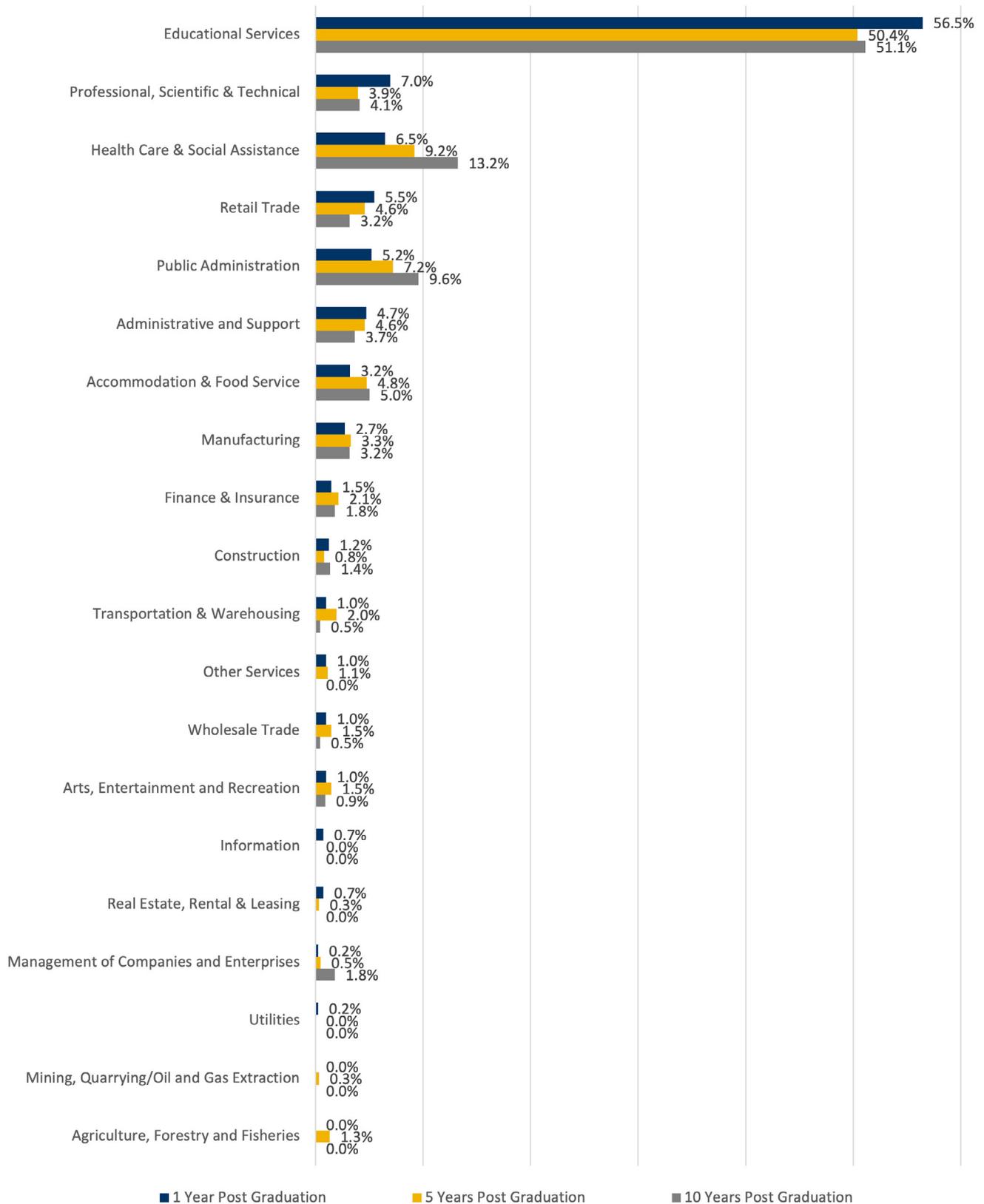
NAU Bachelor's Degree Recipients by Industry of Employment



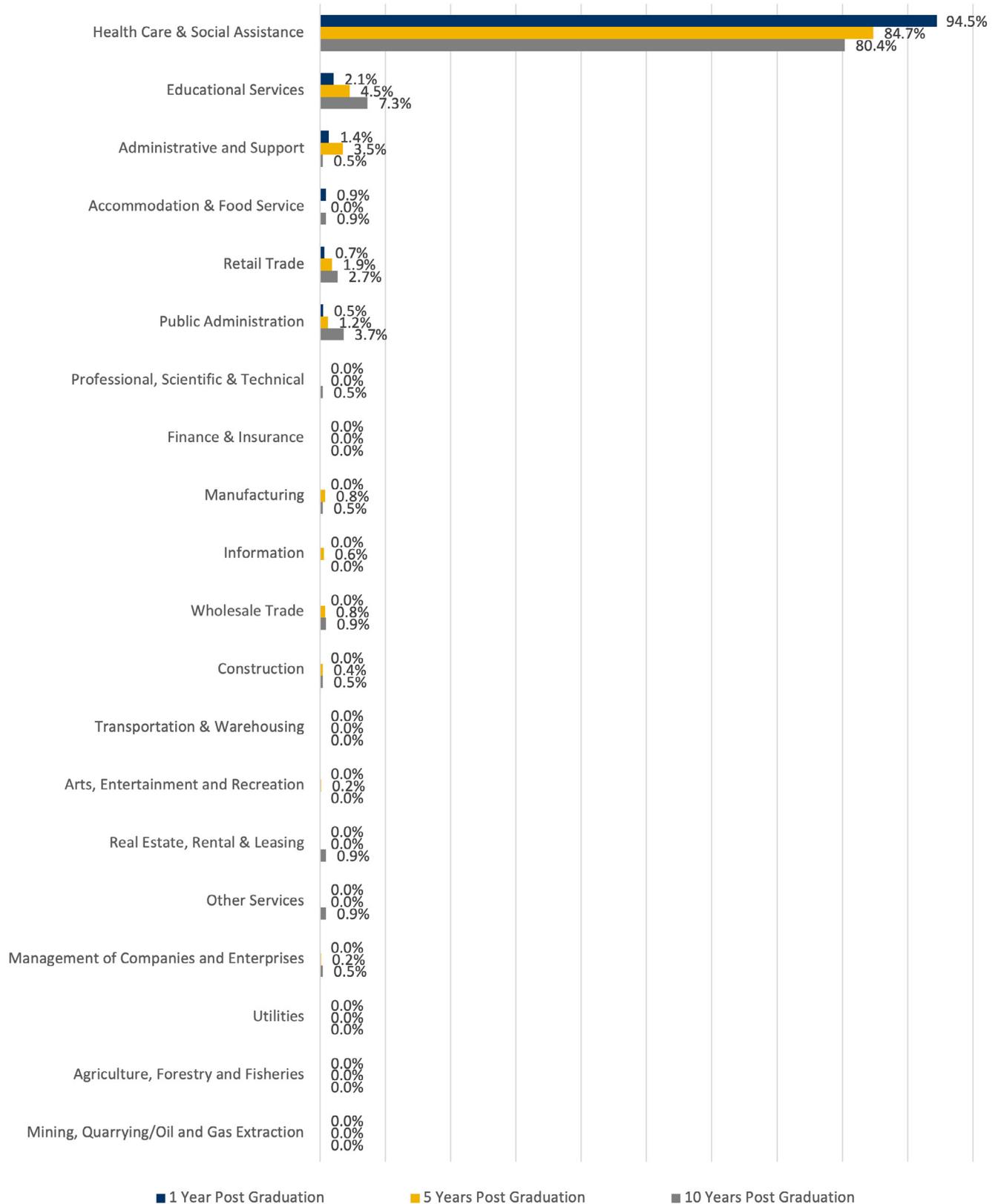
NAU Master's Degree Recipients by Industry of Employment



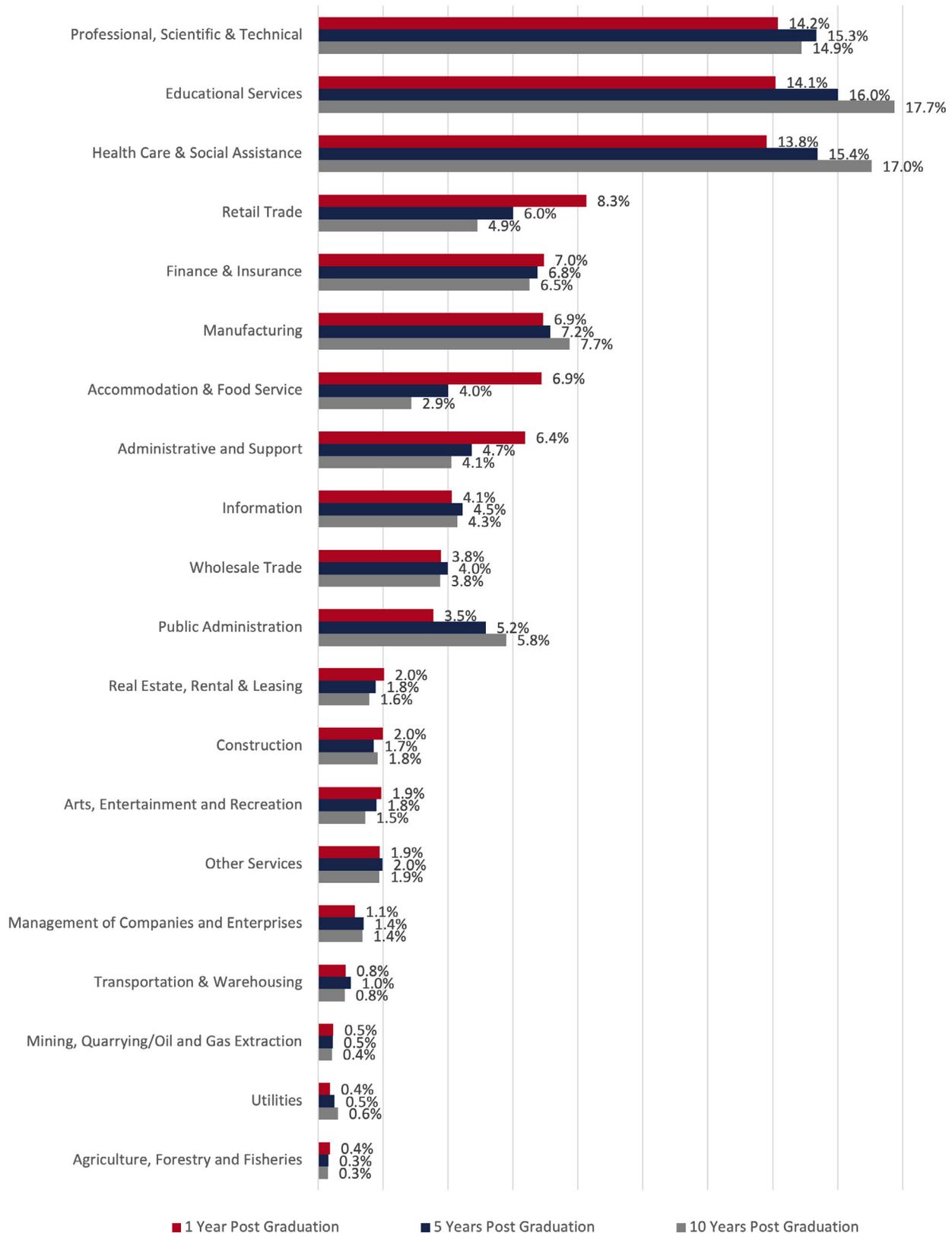
NAU PhD Recipients by Industry of Employment



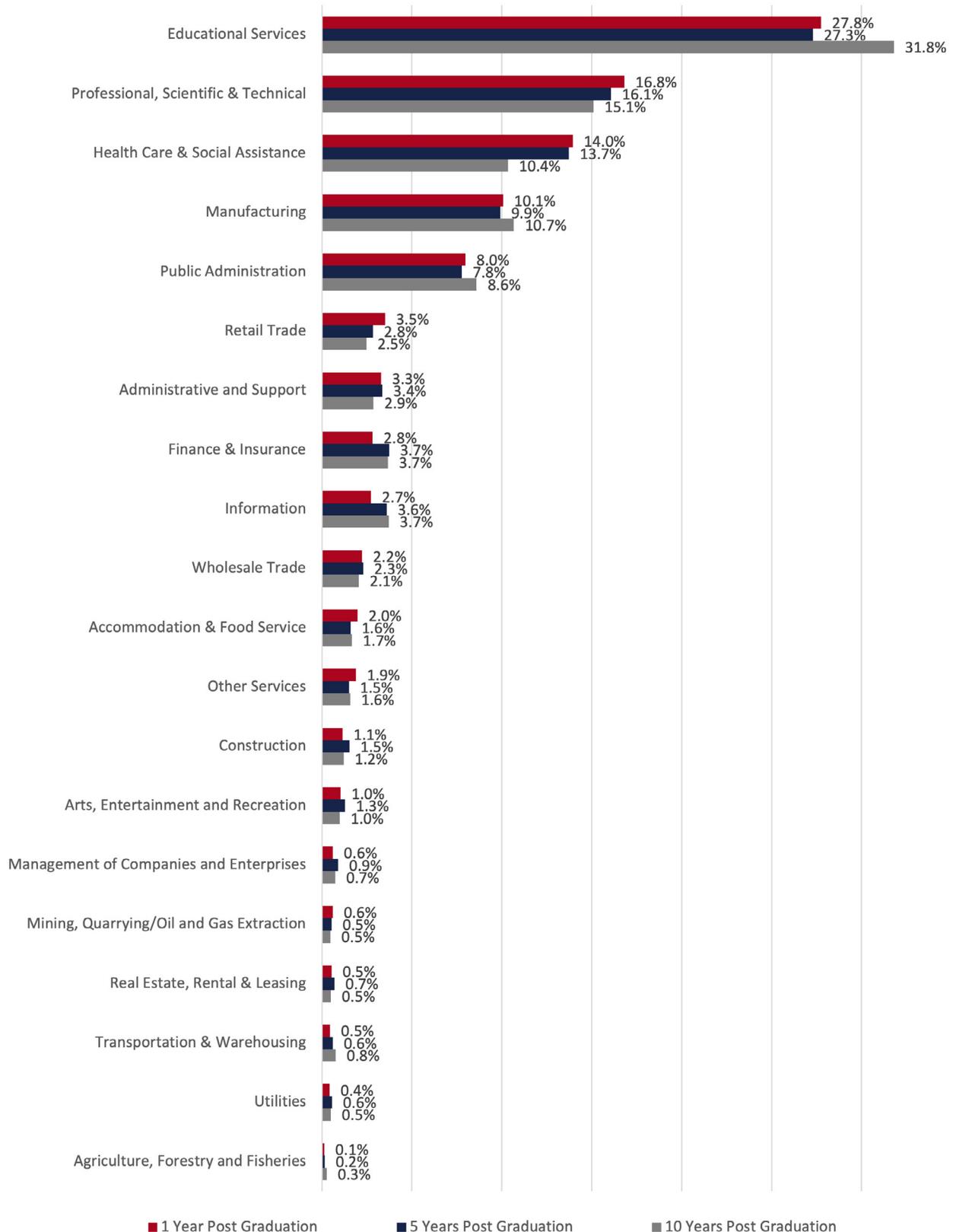
NAU Professional Degree Recipients by Industry of Employment



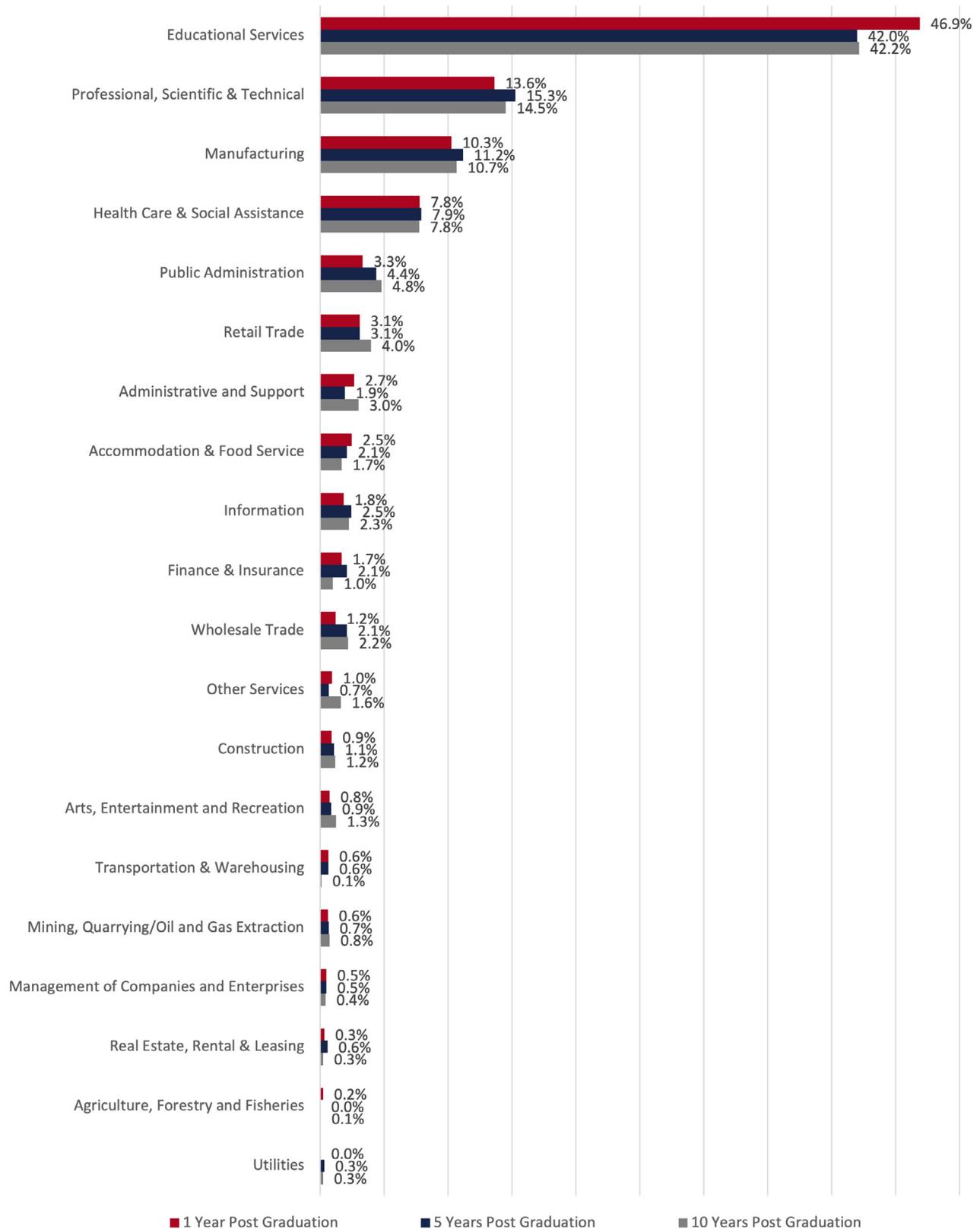
UofA Bachelor's Degree Recipients by Industry of Employment



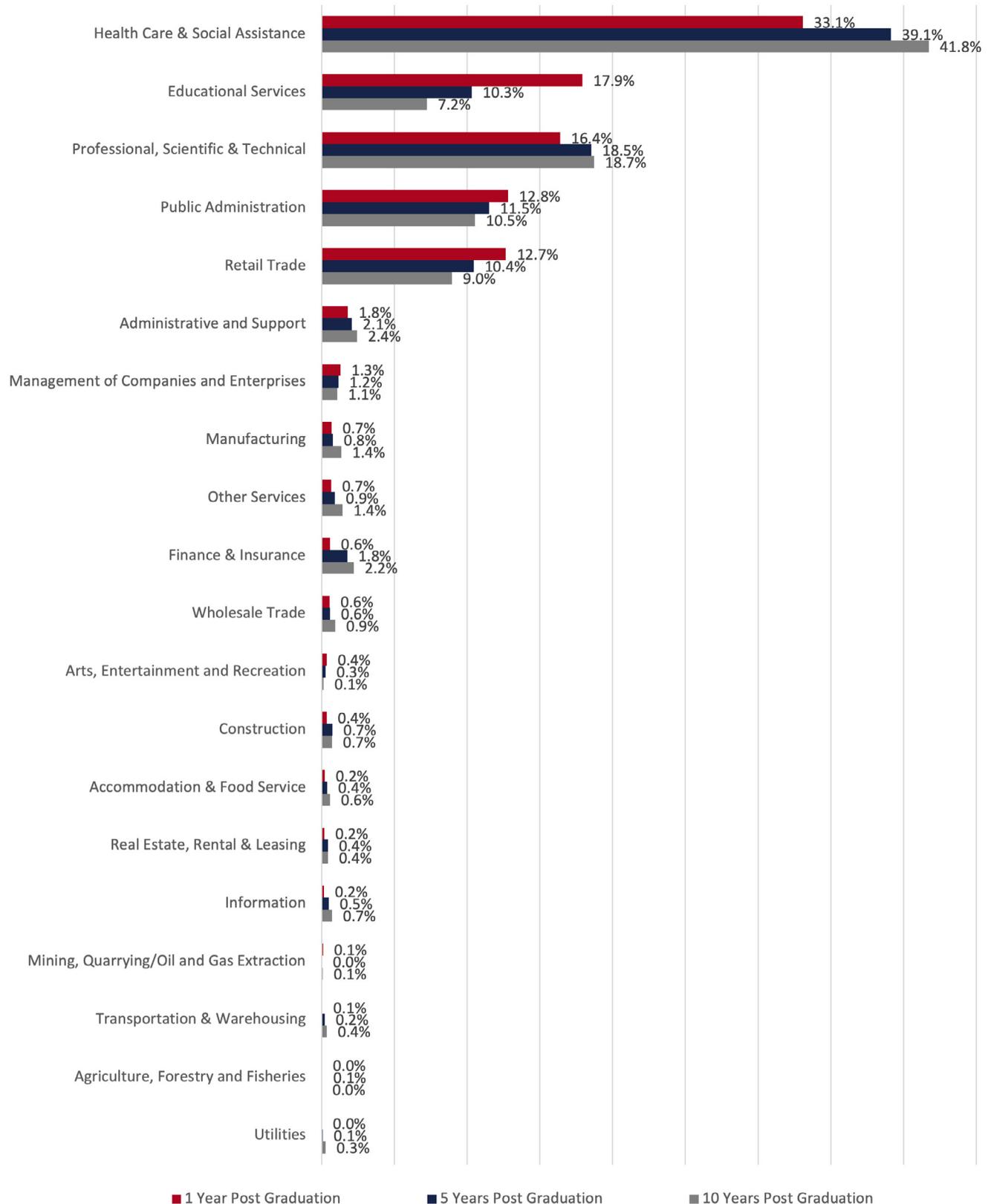
UofA Master's Degree Recipients by Industry of Employment



UofA PhD Recipients by Industry of Employment



UofA Professional Degree Recipients by Industry of Employment



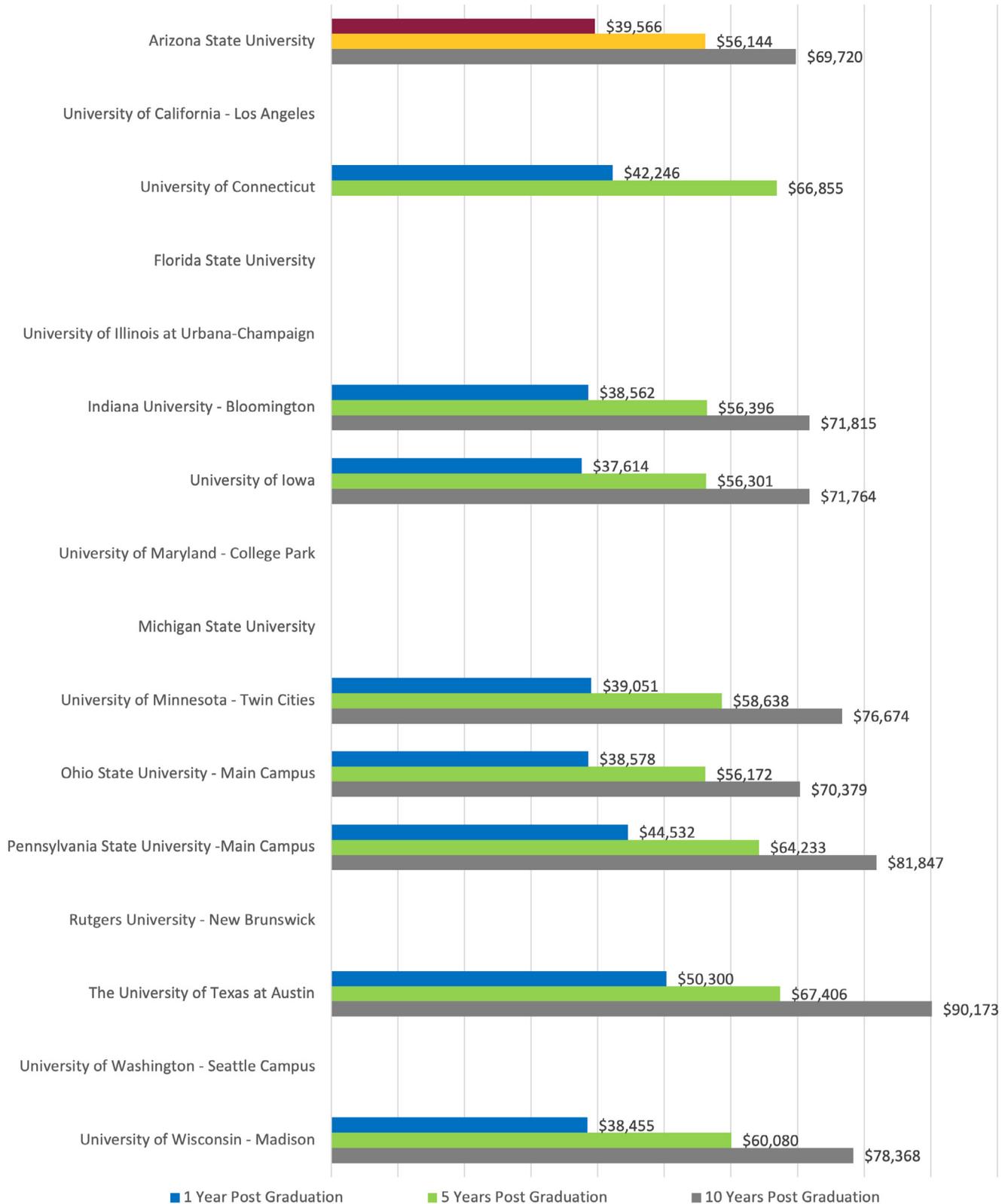


Earnings of Graduates At Peer Institutions

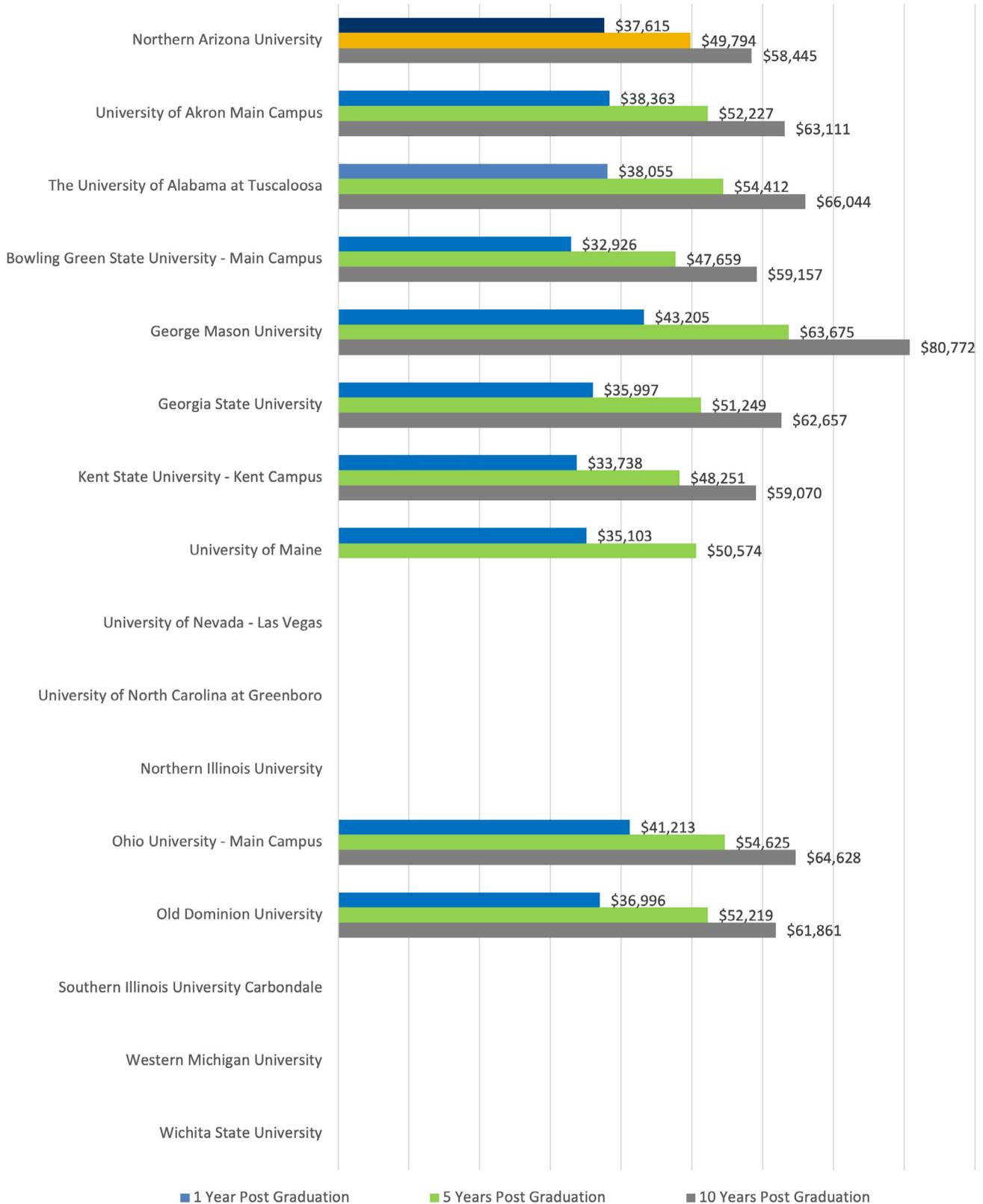
Pages 47 through 49 contain comparisons of Arizona State University, Northern Arizona University, and the University of Arizona to their respective peer institutions. Because the PSEO is an experimental program and currently only institutions from 27 states are available, this does not represent all ABOR-approved peers.

These tables compare undergraduate students' median (50th percentile) earnings one year after graduation, five years after graduation, and ten years after graduation of students who received their bachelor's degrees at these institutions. When looking at the numbers, many factors need to be considered. One important factor would be the labor market in which graduates find employment. When looking across the nation, wages vary in higher cost areas such as California or New York compared to many other areas. A second factor would be the mix of majors in the graduating class. The overall average will also rise when one institution has a more significant percentage of its graduates in fields that pay higher wages.

Arizona State University Peer Bachelor's Degree Earnings



Northern Arizona University Peer Bachelor's Degree Earnings



University of Arizona Peer Bachelor's Degree Earnings

