ENHANCING VETERANS’ ACCESS TO STEM EDUCATION AND CAREERS:
A Labor Market Analysis of Veterans in the STEM Workforce

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ABOUT THE INSTITUTE FOR VETERANS AND MILITARY FAMILIES AT SYRACUSE UNIVERSITY (IVMF)

The Institute for Veterans and Military Families (IVMF) is the first interdisciplinary national institute in higher education focused on the social, economic, education, and policy issues impacting veterans and their families. Through its professional staff and experts, the IVMF delivers leading programs in career, vocational, and entrepreneurship education and training, while also conducting actionable research, policy analysis, and program evaluations. The IVMF also supports communities through collective impact efforts that enhance delivery and access to services and care. The Institute, supported by a distinguished advisory board, along with public and private partners, is committed to advancing the lives of those who have served in America’s armed forces and their families. For more information, visit ivmf.syracuse.edu.

ABOUT THE AUTHORS

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Rosalinda Maury is the Director of Applied Research and Analytics at IVMF at Syracuse University. She has worked on numerous projects, including the effects of personal financial mismanagement behaviors, training needs assessment, workforce assessment, and occupational analysis, equal pay for equal work, job compatibility assessment, and factors affecting military spouse and veteran employment. She has extensive experience in survey development and worldwide data collection, and has been responsible for developing, implementing and managing surveys for data collection on the large and small scale, for organizations and government sectors. Her work has been featured in numerous publications and she has presented at various professional conferences. Maury received her Master of Science in Psychology from the University of Texas at San Antonio.

BRICE STONE, PH.D.
Brice M. Stone has a Ph.D. in Economics from Texas A&M University, awarded in 1978 with areas of emphasis in Industrial Organization and Econometrics. Dr. Stone has over 35 years of experience as a behavioral scientist, labor economist, and statistical analyst. He has been an economic consultant and principal investigator with a significant degree of experience in assessing and modeling human behavior across agencies such as the Department of Defense, Department of State, Defense Manpower Data Center, IVMF (Institute for Veteran and Military Families at Syracuse University), Department of Justice, and Department of Health and Human Services. He has performed research in both the private and government sectors. He has performed research for branches of the U.S. armed forces to develop behavioral models for the prediction of accession and retention of enlisted and officer personnel.

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Nick Armstrong is the Senior Director for Research and Evaluation at the IVMF at Syracuse University where he leads IVMF’s growing portfolio of applied research, program evaluation efforts, and data analytics. Armstrong is also an affiliated adjunct public management faculty member in the Department of Public Administration and International Affairs at Syracuse University’s Maxwell School. Before joining the IVMF, Armstrong served for six years as a research fellow at Syracuse University’s Institute for National Security and Counterterrorism (INSCCT) where he led government and privately sponsored projects on various security topics including security sector reform, wartime contracting, post conflict reconstruction, and community resilience. Armstrong is also an eight-year veteran of the U.S. Army and served in Iraq, Afghanistan, and Bosnia as a Ranger qualified artilleryman. Armstrong is a graduate of the U.S. Military Academy at West Point (B.S.) and the Maxwell School of Citizenship and Public Affairs at Syracuse University (Ph.D., M.P.A.).

SUGGESTED CITATION:

OVERVIEW

The nation’s future and economic competitiveness hinge, more than ever, on our ability to develop, grow, and sustain a workforce proficient in science, technology, engineering and math (STEM). In the last decade alone, jobs requiring some level of STEM expertise have grown 34 percent—to include jobs that do not require a bachelor’s degree. At the same time, veterans and transitioning service members represent a valuable, skilled talent pool from which to help meet this critical need.

To this broader purpose, the Institute for Veterans and Military Families (IVMF) recently provided research support to the Council for Adult and Experiential Learning (CAEL), in collaboration with the Helmsley Charitable Trust, in an effort to inform the development of local and regional STEM ecosystems of educators and employers aimed increasing veterans’ access to STEM careers. Specifically, the project intended to better equip local postsecondary institutions and employers with the collaborative tools and information needed to successfully align education, training, and employer needs in STEM, alongside efforts to recruit and retain veterans into local employment opportunities.

This research brief presents key highlights on recent veteran participation in the STEM workforce drawing upon an analysis of the American Community Survey (2012-2016), led by the U.S. Census Bureau. From this data, the research team examined veteran participation across 49 distinct STEM occupations, which are grouped into the following five occupational clusters: Engineering, Information Technology and Computer Science, Life and Physical Sciences, Mathematics, and Supervisory/Management of STEM occupations. Among other analyses, the research team identified year-over-year trends in veteran participation, geographic distribution, and comparisons to non-veterans across all STEM occupations.


MAIN DATA SOURCE: 2012-2016 American Community Survey 5-Year Estimates

OTHER DATA SOURCES USED IN HIGHLIGHTS SELECTED STATES SECTION:
Overall Participation in STEM fields

The majority of those in the labor force are not in STEM occupations (6% compared to 8%).

Veterans in STEM occupations also tend to out-earn, at even higher rates, both their veteran and non-veteran counterparts in non-STEM fields.

Veteran Participation in STEM fields:

Veterans are 1.47X more likely to be in a STEM occupation compared to nonveterans.

Veteran Earnings in STEM Careers:

Veterans in STEM occupations earned 8% more than their non-veteran peers.

Veteran Unemployment in STEM fields:

Veterans in STEM fields tend to experience lower overall unemployment than those in other occupations, although unemployment was slightly higher for veterans in STEM compared to nonveterans in STEM.

Top States for STEM Earnings Growth:

36 of the 51 states (including District of Columbia) exhibited positive trends in the average total annual personal income for veteran STEM workers (in nominal dollars) from 2012 to 2016.

Selected State Highlights:

The STEM occupations with the largest positive yearly increase for veterans are:
1. Computer Occupations (0.85% point/year)
2. Computer Support Specialties (0.19% point/year)
3. Software Developers & Programmers (0.18% point/year)
4. Information Security Analysts (0.17% point/year)
5. Computer & Information Systems Managers (0.13% point/year)

The top STEM occupations for veterans are:
1. Software Developers & Programmers (13%)
2. Computer & Information Systems Managers (10%)
3. Information Security Analysts (9%)
4. Computer Support Specialists (7%)
5. Computer Systems Analysts (6%)

The top 10 STEM metropolitan areas:
- Washington-Arlington-Alexandria, DC-VA-MD (9%)
- Dallas-Fort Worth-Arlington, TX (4%)
- Los Angeles-Long Beach-Anaheim, CA (3%)
- New York-Newark-Jersey City, NY-NJ-PA (3%)
- Atlanta-Sandy Springs-Roswell, GA (3%)
- Vineyard-Bridgeport, CT (3%)
- Phoenix-Mesa-Scottsdale, AZ (2%)
- Baltimore-Columbia-Towson, MD (2%)
- San Diego-Carlsbad, CA (2%)
- Seattle-Tacoma-Bellevue, WA (2%)

Top States for Growing Veteran Participation:

• California accounts for the largest concentration of veterans in the STEM workforce.
• The South Atlantic region (District of Columbia, Delaware, West Virginia, South Carolina, Maryland, Virginia, Georgia, North Carolina, and Florida) exhibited the highest odds ratio of veterans in the STEM workforce.

Veteran Unemployment in STEM fields:

Veterans in STEM fields tend to experience lower overall unemployment than those in other occupations, although unemployment was slightly higher for veterans in STEM compared to nonveterans in STEM.

Trends:

Between 2012 and 2016, veterans entered into STEM occupations at an increasing annual rate of 0.23% point/year.

Top STEM Clusters for Veteren:

- Information Technology & Computer (43%)
- Engineering Stem (38%)

Veteran Participation in STEM fields:

8% of veterans in STEM compared to 6% of nonveterans.
HIGHLIGHTS

Selected States

**California**
- Rank 4 of veterans in workforce by state.
- Includes 10% of veterans in the STEM workforce.
- **VETERAN POPULATION**: 1,720,635
- Estimated number of separations over the next 5 years: 101,001
- Total GI Bill students in 2017: 96,361

**Georgia**
- Rank 7 of veterans in workforce by state.
- Includes 3% of veterans in the STEM workforce.
- **VETERAN POPULATION**: 662,333
- Estimated number of separations over the next 5 years: 39,000
- Total GI Bill students in 2017: 31,734

**North Carolina**
- Rank 6 of veterans in workforce by state.
- Includes 4% of veterans in the STEM workforce.
- **VETERAN POPULATION**: 683,221
- Estimated number of separations over the next 5 years: 39,000
- Total GI Bill students in 2017: 34,920

**Texas**
- Rank 2 of veterans in workforce by state.
- Includes 9% of veterans in the STEM workforce.
- **VETERAN POPULATION**: 1,513,294
- Estimated number of separations over the next 5 years: 90,000
- Total GI Bill students in 2017: 97,926

**Florida**
- Rank 4 of veterans in workforce by state.
- Includes 5% of veterans in the STEM workforce.
- **VETERAN POPULATION**: 1,480,133
- Estimated number of separations over the next 5 years: 67,000
- Total GI Bill students in 2017: 69,758

**Maryland**
- Rank 5 of veterans in workforce by state.
- Includes 4% of veterans in the STEM workforce.
- **VETERAN POPULATION**: 392,771
- Estimated number of separations over the next 5 years: 29,000
- Total GI Bill students in 2017: 30,382

**Ohio**
- Rank 11 of veterans in workforce by state.
- Includes 3% of veterans in the STEM workforce.
- **VETERAN POPULATION**: 779,187
- Estimated number of separations over the next 5 years: 37,978
- Total GI Bill students in 2017: 21,812

**Virginia**
- Rank 3 of veterans in workforce by state.
- Includes 8% of veterans in the STEM workforce.
- **VETERAN POPULATION**: 696,685
- Estimated number of separations over the next 5 years: 51,000
- Total GI Bill students in 2017: 53,512

**New York**
- Rank 12 of veterans in workforce by state.
- Includes 3% of veterans in the STEM workforce.
- **VETERAN POPULATION**: 789,553
- Estimated number of separations over the next 5 years: 37,000
- Total GI Bill students in 2017: 31,429

**Pennsylvania**
- Rank 10 of veterans in workforce by state.
- Includes 3% of veterans in the STEM workforce.
- **VETERAN POPULATION**: 840,258
- Estimated number of separations over the next 5 years: 37,000
- Total GI Bill students in 2017: 24,445

**Washington**
- Rank 8 of veterans in workforce by state.
- Includes 3% of veterans in the STEM workforce.
- **VETERAN POPULATION**: 552,863
- Estimated number of separations over the next 5 years: 29,000
- Total GI Bill students in 2017: 24,617

**Colorado**
- Rank 9 of veterans in workforce by state.
- Includes 5% of veterans in the STEM workforce.
- **VETERAN POPULATION**: 383,699
- Estimated number of separations over the next 5 years: 18,662
- Total GI Bill students in 2017: 29,828

**North Carolina**
- Rank 7 of veterans in workforce by state.
- Includes 3% of veterans in the STEM workforce.
- **VETERAN POPULATION**: 683,221
- Estimated number of separations over the next 5 years: 39,000
- Total GI Bill students in 2017: 34,920

**Georgia**
- Rank 7 of veterans in workforce by state.
- Includes 3% of veterans in the STEM workforce.
- **VETERAN POPULATION**: 662,333
- Estimated number of separations over the next 5 years: 39,000
- Total GI Bill students in 2017: 31,734

**North Carolina**
- Rank 6 of veterans in workforce by state.
- Includes 4% of veterans in the STEM workforce.
- **VETERAN POPULATION**: 683,221
- Estimated number of separations over the next 5 years: 39,000
- Total GI Bill students in 2017: 34,920
STAY IN TOUCH

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