Research & Policy Brief

August 1, 2019 | No. 19

UTAH WOMEN & LEADERSHIP Project

Utah Women in STEM Education: A 2019 Update

According to a recent article in *Utah Business Magazine*, Utah had the strongest job growth in the nation in 2018, with no signs of slowing down.[1] Forbes ranked Utah second in their 2018 Best States for Business scorecard, moving it up from third the previous year.[2] Given the increase in the number of high-tech firms in Utah, it should come as no surprise that many jobs are based in the STEM (science, technology, engineering and mathematics) fields. In fact, Utah contains three of the top 100 best cities for STEM jobs in the United States, including Salt Lake City (#8), Provo (#26), and Ogden (#41). These rankings are based on a combined score that includes professional opportunities, STEM-friendliness, and quality of life. Provo ranked first in the nation for the single category of "Highest STEM Employment Growth."[3]

Utah has clearly become an economic powerhouse, and the supply of skilled workers is critical to maintaining that position. The demographic variability of the workforce is also an essential factor. Researchers continue to find that companies with a more diverse leadership team and workforce can recruit better talent, create stronger customer bonds, increase employee satisfaction, and make better decisions.[4] Perhaps most important for their stakeholders, they perform better financially.[5] A diverse labor pool of both men and women is required to meet the hiring needs of Utah's high-tech businesses, and it is also a factor that company executives consider when they are looking to relocate companies here.[6]

A diverse labor pool of both men and women is required to meet the hiring needs of Utah's high-tech businesses.

It has been challenging in recent years for the Utah technology sector to find enough talent and diversity.[7] Nationally, females comprise 47% of the workforce and 28% of the tech workforce (a 1% decrease over the past 15 years).[8] In Utah, women comprise 44% of the labor force, and their numbers in STEM fields remain particularly low. The Department of Workforce Services (DWS) data show that in the 2013–2017 timeframe, females represented only 19% of those employed in the computer/engineering sciences field.[9]

This brief is intended to update Utah leaders and other stakeholders (e.g., educators, parents, counselors) about the gender status of STEM education and attainment in Utah. It highlights progress made since the publication of the 2013 research and policy brief on the same topic.[10] Data about the K–12 STEM system and postsecondary STEM degrees within public colleges and universities are provided. National Assessment of Educational Progress (NAEP) comparisons are included as well. NAEP assesses the national performance of fourth- and eighth-grade students in science and mathematics. These findings provide an indication of the educational fitness of students who are filling the STEM pipeline. Skill gaps at an early age may signal more difficulties later in life.

STEM Disciplines

STEM fields include the broad disciplines of science, technology, engineering, and math. The availability and variety of STEM majors have evolved since the early 2000s. Long-standing fields such as biology and engineering have branched into subfields and specialty areas, creating robust industry demands.[11] U.S. Bureau of Labor Statistics show that between 2009 and 2015, STEM-based jobs increased 10.5% compared with 5.4% in non-STEM occupations.[12] Computer professions had the highest growth rate, followed by engineers. The Bureau of Labor estimates that between 2014 and 2024 occupations in mathematical sciences will grow by 28.2%, in computer-related fields by 12.5%, and in architecture and engineering by 8%.[13]

STEM college majors tend to earn more than their non-STEM counterparts when they enter the workforce. According to the Pew Research Center,[14] the yearly average salary of a STEM major is about $81,000 compared to $61,000 of a non-STEM major. Even in non-STEM jobs, STEM majors outearn non-STEM majors by about $10,000. According to the U.S. Department of Commerce, women in STEM jobs earn 40% more than men in non-STEM jobs. In addition, the wage gap is smaller between males and females employed in STEM jobs.[15]

Degree data used in this research brief are from the Integrated Postsecondary Education Data System (IPEDS),[16] which is used by the Department of Education and is the standard reporting venue for universities. Following are the STEM categories identified in IPEDS: 1) Biological and Biomedical Sciences, 2) Computer and Information Sciences, 3) Engineering and Engineering Technologies, 5) Mathematics and Statistics, and 6) Physical Sciences and Science Technologies. Academic researchers in Utah often include two additional categories: Agricultural Sciences and Health Professions, which are included in this report as well.

K-12 STEM Pipeline

Knowing how children perform in their early academic careers is important to understanding the STEM pipeline. One measure of student achievement in the U.S. is the National Assessment of Educational Progress (NAEP). Current STEM areas that are assessed include mathematics and science. In 2014 Technology & Engineering Literacy (TEL) was added. Table

1 shows Utah data for two cohorts (2009/2011 and 2015/2017) of fourth- and eighth-grade students.

Table 1: NAEP for Proficiency in Utah (2009/2011 and 2015/2017 Cohorts)

MATHEMATICS	At or Above Proficient 2009*/2011	At or Above Proficient 2015/2017 (% Change)
4th Grade Males	46%	48% (2%)
4th Grade Females	40%	42% (2%)
8th Grade Males	37%	41% (4%)
8th Grade Females	33%	37% (4%)
SCIENCE		
4th Grade Males	39%*	48% (9%)
4th Grade Females	36%*	42% (6%)
8th Grade Males	47%	54% (7%)
8th Grade Females	38%	46% (8%)

Source: U.S. Department of Education. *The Nation's Report Card, Utah.*[17]

Utah males outperformed females in every proficiency level for both cohorts in fourth and eighth grades for math and science. The largest gender gap was in eighth-grade science, where males led females by 9 and 8 percentage points, respectively. On a positive note, all students performed better in 2015/2017. In math categories for both grades, males and females improved at the same rate between 2009/2011 and 2015/2017 (2% in fourth and 4% in eighth). This indicates that all Utah students are improving on these measurements regardless of gender. Science proficiency also improved for all students at similar rates.

The TEL assessment was added to define and assess what eighth grade students know about technology in the following three areas: 1) technology and society, 2) design and systems, and 3) information and communication technology.[18] Currently only national data are available. In both 2014 and 2018, eighth-grade females significantly outperformed their male counterparts on their overall score.[19] While these data are not specific to Utah students, they do show that in junior high/early high-school years, females in U.S. schools have strong technology and engineering literacy skills. It would be interesting in the future to see if Utah students fare similarly.

ACT scores are another measurement of STEM readiness for students. The ACT is generally taken by students in their junior year and measures college readiness in six core areas (English, math, reading, science, STEM, and writing). The most recent ACT Profile Report for Utah (graduating class 2017) shows that males continue to outperform females (when considering current and 2012 scores).[20] In the "percent of students who met college readiness benchmark scores" category, males outperformed females in mathematics (38% vs. 32%) and science (37% vs. 32%). Both males and females lag behind their national peers by 3% in science, compared to 2% in 2012. Larger gaps remain in mathematics readiness. In Utah, 38% of males were proficient vs. 44% nationally (43% vs. 50% in 2012), as were 32% of Utah females vs. 39% nationally (37% vs. 42% in 2012). It appears that all U.S. student scores in math and science have dropped over the last six years. In the ACT STEM category, which was added in 2015, males and females had similar average scores. In Utah, males earned 20.8 and females 20.2, neither of which met the national benchmark score of 26.

A recent review of literature, supported by Microsoft and a faculty member at Southern Utah University, asserts that young women do not always see themselves in a STEM career.[21] Young women experience very little exposure to STEM applications within the classroom and do not initially see the creative opportunities for world impact. The report states that young women who are introduced to a woman in a STEM career are 61% more likely to feel empowered and engage in STEM classroom activities. According to the research, activities for girls in grades 5–8 (e.g., STEM clubs) could increase the likelihood for girls to choose STEM classes in high school by as much as 30%. Encouragement from both parents and teachers is critical in determining whether a young woman will continue in a STEM educational pathway into college.[22]

Postsecondary STEM Degrees

The total number of students in Utah public institutions (i.e., Dixie State University, Salt Lake Community College, Snow College, Southern Utah University, University of Utah, Utah State University, Utah Valley University, and Weber State University) who completed STEM degrees increased from 2,358 in 2012 to 3,279 in 2017. Correspondingly, the number of women who earned STEM degrees increased as well. In fact, their graduation numbers increased in every IPEDS-identified STEM category, as shown in Table 2.

Table 2: Utah Women with IPEDS-Identified STEM Certificates and Degrees (2012 & 2017, USHE Colleges and Universities)

Category	2012		2017	
	No.	%	No.	%
Biological/ Biomedical	234	38%	317	40%
Comp/Info Sciences	96	13%	303	14%
Engineering	129	12%	237	17%
Engineering Tech.	34	11%	36	10%
Math and Statistics	57	36%	83	35%
Physical Sciences	114	33%	143	35%
Science Technicians	13	39%	25	30%
TOTAL	**677**	**20%**	**1,144**	**21%**

Source: IPEDS Completions Survey Data for Certificates and Degrees Awarded in STEM and Health Related Areas of Study, Utah Colleges and Universities.[23]

However, as a percentage of the total graduating class, they increased only 1% (from 20% to 21%). The Appendix includes a detailed comparison of all 2012 and 2017 STEM degrees

Authors: Dr. Cheryl Hanewicz (Assistant Professor of Technology Management, Utah Valley University), Dr. Susan Thackeray (Assistant Professor of Technology Management, Utah Valley University), and Dr. Susan R. Madsen (Orin R. Woodbury Professor of Leadership & Ethics, Utah Valley University). For questions and information: uwlp@usu.edu or www.utwomen.org

earned by award level and Utah System of Higher Education (USHE) institution.

The share of degrees earned by women in Utah remains substantially lower than men in all IPEDS STEM categories. However, there have been some improvements. The percentage of degrees/certificates earned by women in biological/biomedical fields increased from 38% to 40%, and those in physical sciences increased from 33% to 35%. Engineering had the greatest jump from 12% to 17%. The largest share decrease was in the science technicians category, dropping from 39% in 2012 to 30% in 2017. Even though the number of female graduates doubled during this time, the increase in male graduates almost tripled, resulting in a 9% decrease.

Utah women continue to have strong completion rates in agricultural sciences and health professions (see Table 3). While certificates lower than associate degrees are an important entry point into healthcare, associate-level degrees and above generally result in higher-paying jobs. According to Utah Department of Workforce Services, two of the three fastest growing occupations are affiliated with healthcare and computer software, which typically require a bachelor's degree.[24] Statewide, there was an 8% increase in the percent of associate degrees in health professions that were earned by women (from 74% to 82%), while the percentage of bachelor's degrees earned by women in this field remained fairly stable, around 79%. Utah women also earn masters and doctoral degrees in these areas at higher rates than Utah men (see Appendix).

Table 3: Utah Women with Agricultural Sciences and Health Professions Certificates and Degrees (USHE Colleges and Universities)

Category	2012		2017	
	No.	%	No.	%
Agricultural Sciences	81	44%	94	47%
Health Professions	3,471	73%	3,670	76%

Source: IPEDS Completions Survey Data for Certificates and Degrees Awarded in STEM and Health Related Areas of Study, Utah Colleges and Universities.[25]

A national 2017 Georgetown study[26] identified more college-level women involved in STEM majors than was previously thought. However, they also noticed women leaving the STEM pathway before completing a degree. The study emphasized that when female students received low grades in a male-dominated STEM field, the "triple-threat" (e.g., low grades, gender composition of a major, and gender stereotypes) compelled the women in their study to switch out of the discipline more quickly than their male peers. Data continue to demonstrate the misconception that female students often believe that men are "inherently a better fit" in STEM majors. Instead of recognizing that a STEM course might be challenging, low grades in difficult courses may contribute to the female misperception that they "don't fit." It is important to help young women overcome stereotype bias to succeed in STEM fields.

Conclusion

This updated research and policy brief has focused on the status of STEM education and attainment for girls and women in Utah. For details on the status of women in the Utah workforce, see the 2016 Utah Women & Leadership Project research snapshot titled "Utah Women and STEM."[27] Of course, there is a critical link between women's STEM education and women being employed in STEM jobs.

In summary, educational assessment data for Utah students is varied. NAEP data indicate that fourth- and eighth-grade females improved their math and science scores since 2009 but still trail males in all categories. ACT scores for 2017 also show Utah women attaining lower scores than men in math and science. Both males and females in Utah earned similar scores on the ACT STEM assessment, but the scores are still below the required benchmark. While students showed improvement in all NAEP categories, ACT scores dropped during the same timeframe.

At the college and university levels, women continued to have high graduation rates in agricultural sciences and health professions. In addition, the number of female students completing degrees increased in every IPEDS-identified STEM category, which could be in part due to the increase in the total number of students attending Utah colleges and universities. As a percentage of the student body, female graduation rates showed slight improvements in the fields of biological/biomedical, computer/information sciences, and physical sciences. The largest jump was in engineering, from 12% to 17%, although it remains one of the lowest categories for female participation. The share of degrees being awarded to women in engineering technologies, math/statistics, and science technicians decreased during this time.

Overall, the modern economy requires a diverse STEM workforce to support economic growth and to generate new ideas and support needed technical innovations.[28] Therefore, the continued challenge in substantially moving the needle in these disciplines needs to be addressed more assertively, particularly in Utah. Often, women are not represented by large enough numbers to make an institutional difference in a male-dominated environment. This consistent fact, especially in technical industries, is a primary reason STEM-educated women are leaving these fields to work in other non-STEM industries.[29] Researchers continue to find that throughout childhood, youth, and young adulthood, there is a persistent message and misconception that girls and women do not fit in the masculine STEM environment.[30] Yet, the number of STEM-related jobs will continue to grow. A STEM degree provides women with a pathway to a career with high wages and secure employment. Overall, motivating more female students to seek degrees in the fields of computer science, mathematics, and engineering is critical.

Utah leaders have recognized the importance of this issue, and government, nonprofit, and industry leaders are working to address the gender gap in STEM. Multiple examples of

supportive interventions are found through the Utah STEM Action Center, Utah System of Higher Education, and the Utah Board of Education.[31] The Utah Computer Science Grant Act (HB 227), passed in the 2019 legislative session, is intended to support teachers and school districts to integrate computer science education into the curriculum of each Utah elementary school. In addition, the Women Tech Council, guided by an all-female board of STEM professionals, continues to mentor the future female workforce and to provide networking opportunities. Through its diverse board, Silicon Slopes strives to promote diversity within the Utah technical industries. These and other efforts to promote an inclusive culture in education and the workforce will continue to encourage more young girls and women to gain an interest, obtain an education, and move towards successful STEM careers. Yet, more needs to be done. Hopefully the data and insights shared in this brief will spark discussion and assist organizations and society at large in making the needed changes to help Utah increase gender diversity in STEM education and careers.

[1] Derricott, B. (2019, March 21). Come thrive in the silicon slopes. *Utah Business.* Retrieved from https://www.utahbusiness.com/tech-silicon-slopes/

[2] Badenhausen, K. (2018, November 28). The best states for business 2018: North Carolina leads the way. *Forbes*. Retrieved from https://www.forbes.com/sites/kurtbadenhausen/2018/11/28/the-best-states-for-business-2018-north-carolina-leads-the-way/#4d820cf33c30

[3] McCann, A. (2019, January 8). Best & worst metro areas for STEM professionals. *WalletHub*. Retrieved from https://wallethub.com/edu/best-worst-metro-areas-for-stem-professionals/9200/

[4] Hunt, V., Layton, D., & Prince, S. (2015, January). Why diversity matters. *McKinsey & Company*. Retrieved from https://www.mckinsey.com/~/media/McKinsey/Business%20Functions/Organization/Our%20Insights/Why%20diversity%20matters/Why%20diversity%20matters.ashx; Madsen, S. R. (2015, January 12). Why do we need more women leaders in Utah? Retrieved from https://www.usu.edu/uwlp/files/briefs/10-why-do-we-need-more-women-leaders.pdf

[5] Hunt, V., et al. (2015, January).

[6] Jackson, J, III. (2019, May 23). Our companies need diversity. *Utah Business*. Retrieved from https://www.utahbusiness.com/diversity-economic-progress/

[7] Hanks, M. (2017, August 30). Bridging the STEM gender gap in Utah. *A Medium Corporation*. Retrieved from https://medium.com/silicon-slopes/bridging-the-stem-gender-gap-in-utah-9320dfccdbd1

[8] STEMconnector. (2017). Diversity in technology. *Tata Consultancy Services*. Retrieved from https://www.stemconnector.com/wp-content/uploads/2018/11/Diversity-in-Technology-1.pdf

[9] Utah Department of Workforce Services. (2019). Women in the workforce. Retrieved from https://jobs.utah.gov/wi/data/library/laborforce/womeninwf.html

[10] Hanewicz, C., & Thackeray, S. (2013, June 6). Utah women in STEM. *Utah Women & Leadership Project*. Retrieved from https://www.usu.edu/uwlp/files/briefs/5-women-in-stem.pdf

[11] Moody, J. (2019, January 24). A guide to STEM majors: Science, technology, engineering and math offer many degree options across interdisciplinary fields. *U.S. News and World Report*. Retrieved from https://www.usnews.com/education/best-colleges/articles/2019-01-24/a-guide-to-stem-majors

[12] Fayer, S., Lacey, A, & Watson, A. (2017, January). STEM occupations: Past, present, and future. *U.S. Bureau of Labor Statistics*. Retrieved from https://www.bls.gov/spotlight/2017/science-technology-engineering-and-mathematics-stem-occupations-past-present-and-future/pdf/science-technology-engineering-and-mathematics-stem-occupations-past-present-and-future.pdf

[13] Stella, F., et al. (2017, January).

[14] Pew Research Center. (2018, January 8). STEM college majors tend to earn more than non-STEM college majors. Retrieved from https://www.pewsocialtrends.org/2018/01/09/women-and-men-in-stem-often-at-odds-over-workplace-equity/ps_2018-01-09_stem_1-16/

[15] Noonan, R. (2017). Women in STEM: 2017 update. ESA Issue Brief# 06-17. *US Department of Commerce*. Retrieved from https://www.commerce.gov/sites/default/files/migrated/reports/women-in-stem-2017-update.pdf

[16] National Center for Education Statistics. (n.d.). Status and trends in the education of racial and ethnic groups. *Appendix B Glossary*. Retrieved from https://nces.ed.gov/programs/raceindicators/glossary.asp#stem

[17] U.S. Department of Education. (n.d.) The nation's report card, Utah. Retrieved from National Center for Education Statistics: http://nces.ed.gov/nationsreportcard/states/; * 2011 science assessment was administered at grade 8 only.

[18] National Assessment of Educational Progress. (n.d.). Technology and engineering literacy assessment. Retrieved from https://nces.ed.gov/nationsreportcard/subject/tel/pdf/tel_overview_factsheet.pdf

[19] National Center for Education Statistics. (2018). Technology and engineering literacy. Retrieved from https://nces.ed.gov/nationsreportcard/tel/

[20] ACT. (n.d.). The ACT profile report – Utah: Graduating class 2017. Retrieved from https://www.act.org/content/dam/act/unsecured/documents/cccr2017/P_45_459999_S_S_N00_ACT-GCPR_Utah.pdf

[21] Kesar, S. (2017). Closing the STEM gap: Why STEM classes and careers still lack girls and what we can do about it. Retrieved from https://query.prod.cms.rt.microsoft.com/cms/api/am/binary/RE1UMWz

[22] Kesar, S. (2017).

[23] National Center for Education Statistics. (n.d.). Results from IPEDS completions survey data for certificates and degrees awarded in STEM and health related areas of study, Utah Colleges and Universities.

[24] Department of Workforce Services. (2018, October 24). They're here – Utah releases new long-term occupational projections. Retrieved from https://jobs.utah.gov/blog/post/2018/10/24/they-re-here-utah-releases-new-long-term-occupational-projections

[25] National Center for Education Statistics. (n.d.).

[26] Georgetown University. (2017, October 11). Complex reasons spur women to change STEM majors, new Georgetown study finds. *McCourt School of Public Policy*. Retrieved from https://mccourt.georgetown.edu/Change-STEM-Majors

[27] Madsen, S. R., Goryunova, E., & Scribner, R. T. (2016, December 2). Utah women and STEM. *Utah Women & Leadership Project.* Retrieved from https://www.usu.edu/uwlp/files/snapshot/16.pdf

[28] Pham, N. D., & Triantis, A. J. (2015, March 19). Reaching the full potential of STEM for women and the U.S. economy. *U.S. Chamber of Commerce Foundation*. Retrieved from https://www.uschamberfoundation.org/reports/reaching-full-potential-stem-women-and-us-economy

[29] Adams, R. B., & Kirchmaier, T. (2016). Women on boards in finance and STEM industries. *American Economic Review*, *106*(5), 277–281; Nielsen, M. W., Alegria, S., Börjeson, L., Etzkowitz, H., Falk-Krzesinski, H., Joshi, A., . . . Schiebinger, L. (2017). Opinion: Gender diversity leads to better science. *Proceedings of the National Academy of Sciences*, *114*(8), 1740–1742, doi:10.1073/pnas.1700616114; Filbeck, G., Foster, B. P., Preece, D., & Zhao, X. (2017). Does diversity improve profits and shareholder returns? Evidence from top rated companies for diversity by DiversityInc. *Advances in Accounting*, *37*(C), 94–102, doi:10.1016.j.adiac.2017.02.001

[30] Wynn, A. T., & Correll, S. J. (2018). Puncturing the pipeline: Do technology companies alienate women in recruiting sessions? *Social Studies of Science*, *48*(1), 149–164, doi:10.1177/0306312718756766

[31] Madsen, S., et al. (2016, December 2).

Authors: Dr. Cheryl Hanewicz (Assistant Professor of Technology Management, Utah Valley University), Dr. Susan Thackeray (Assistant Professor of Technology Management, Utah Valley University), and Dr. Susan R. Madsen (Orin R. Woodbury Professor of Leadership & Ethics, Utah Valley University). For questions and information: uwlp@usu.edu or www.utwomen.org

APPENDIX

2012 and 2017 Comparison Data for STEM Degree Award Levels at Utah State Higher Education (USHE) Institutions

Note: The following information was obtained from the Integrated Postsecondary Education Data System (IPEDS) DataCenter by Shannen Robson, Senior Research Analysis of Institutional Research & Information at Utah Valley University.

Dixie State University

	2012				2017			
	No. Men	% Men	No. Women	% Women	No. Men	% Men	No. Women	% Women
Less than 1 academic year award level								
Computer and Information Sciences	10	56%	8	44%	0	0%	0	0%
Health Professions	121	32%	257	68%	76	29%	186	71%
At least 1 but less than 2 years award								
Computer and Information Sciences	--	--	--	--	1	33%	2	67%
Health Professions	12	55%	10	45%	5	71%	2	29%
Associate degree								
Engineering	2	100%	0	0%	1	100%	0	0%
Health Professions	47	32%	101	68%	31	24%	98	76%
Bachelor's degree								
Biological and Biomedical Sciences	12	86%	2	14%	33	70%	14	30%
Computer and Information Sciences	24	67%	12	33%	32	74%	11	26%
Health Professions	4	7%	54	93%	19	15%	108	85%
Mathematics and Statistics	3	60%	2	40%	3	100%	0	0%
Physical Sciences	--	--	--	--	2	100%	0	0%
Total	**235**	**35%**	**446**	**65%**	**203**	**33%**	**421**	**67%**

Salt Lake Community College

	2012				2017			
	No. Men	% Men	No. Women	% Women	No. Men	% Men	No. Women	% Women
Less than 1 academic year award level								
Computer and Information Sciences	21	84%	4	16%	541	88%	72	12%
Engineering Tech and Related Fields	--	--	--	--	12	100%	0	0%
Health Professions	39	17%	190	83%	18	19%	76	81%
At least 1 but less than 2 years award								
Computer and Information Sciences	13	81%	3	19%	2	100%	0	0%
Engineering Tech & Related Fields	12	100%	0	0%	15	88%	2	12%
Health Professions	15	13%	98	87%	8	14%	51	86%
Science Technologies/Technicians	--	--	--	--	16	100%	0	0%
Associate degree								
Biological and Biomedical Sciences	9	60%	6	40%	10	53%	9	47%
Computer and Information Sciences	42	84%	8	16%	116	87%	18	13%
Engineering	42	98%	1	2%	48	89%	6	11%
Engineering Tech and Related Fields	76	86%	12	14%	37	86%	6	14%
Health Professions	70	18%	321	82%	73	19%	308	81%
Mathematics and Statistics	5	71%	2	29%	10	67%	5	33%
Physical Sciences	10	63%	6	38%	16	55%	13	45%
Science Technologies/Technicians	13	65%	7	35%	14	70%	6	30%
Total	**367**	**36%**	**658**	**64%**	**936**	**62%**	**572**	**38%**

Snow College

	2012				2017			
	No. Men	% Men	No. Women	% Women	No. Men	% Men	No. Women	% Women
Less than 1 academic year award level								
Health Professions	37	17%	185	83%	0	0%	0	0%
At least 1 but less than 2 years award								
Computer and Information Sciences	--	--	--	--	8	100%	0	0%
Engineering Tech and Related Fields	--	--	--	--	1	100%	0	0%
Health Professions	7	19%	29	81%	6	19%	25	81%
Associate degree								
Agriculture and Agriculture Operations	1	20%	4	80%	4	40%	6	60%
Biological and Biomedical Sciences	3	33%	6	67%	4	67%	2	33%
Computer and Information Sciences	12	92%	1	8%	16	100%	0	0%
Engineering	20	83%	4	17%	27	84%	5	16%
Engineering Tech and Related Fields	4	80%	1	20%	0	0%	0	0%
Health Professions	30	29%	72	71%	13	18%	58	82%
Mathematics and Statistics	0	0%	2	100%	1	20%	4	80%
Physical Sciences	1	25%	3	75%	5	83%	1	17%
Total	**115**	**27%**	**307**	**73%**	**85**	**46%**	**101**	**54%**

Southern Utah University

	2012				2017			
	No. Men	% Men	No. Women	% Women	No. Men	% Men	No. Women	% Women
Less than 1 academic year award level								
Engineering Tech and Related Fields	2	50%	2	50%	1	100%	0	0%
Associate degree								
Agriculture and Agriculture Operations	1	25%	3	75%	2	50%	2	50%
Computer and Information Sciences	2	67%	1	33%	11	100%	0	0%
Engineering	1	100%	0	0%	13	93%	1	7%
Engineering Tech and Related Fields	3	60%	2	40%	3	60%	2	40%
Bachelor's degree								
Agriculture and Agriculture Operations	16	80%	4	20%	16	57%	12	43%
Biological and Biomedical Sciences	39	65%	21	35%	37	52%	34	48%
Computer and Information Sciences	14	93%	1	7%	27	93%	2	7%
Engineering	2	67%	1	33%	10	91%	1	9%
Engineering Tech and Related Fields	17	77%	5	23%	18	100%	0	0%
Health Professions	26	33%	52	67%	18	24%	56	76%
Mathematics and Statistics	4	80%	1	20%	2	100%	0	0%
Physical Sciences	9	56%	7	44%	9	45%	11	55%
Total	**136**	**58%**	**100**	**42%**	**167**	**58%**	**121**	**42%**

University of Utah

	2012				2017			
	No. Men	% Men	No. Women	% Women	No. Men	% Men	No. Women	% Women
Bachelor's degree								
Biological and Biomedical Sciences	101	58%	74	42%	102	54%	87	46%
Computer and Information Sciences	76	97%	2	3%	185	87%	27	13%
Engineering	342	90%	38	10%	417	80%	103	20%
Health Professions	94	25%	281	75%	135	31%	306	69%

Mathematics and Statistics	43	72%	17	28%	56	64%	31	36%
Physical Sciences	78	63%	46	37%	80	59%	55	41%
Postbaccalaureate certificate								
Engineering	--	--	--	--	1	100%	0	0%
Health Professions	1	17%	5	83%	0	0%	0	0%
Master's degree								
Biological and Biomedical Sciences	9	56%	7	44%	11	48%	12	52%
Computer and Information Sciences	42	88%	6	13%	197	74%	69	26%
Engineering	140	86%	22	14%	160	75%	52	25%
Health Professions	87	38%	139	62%	94	33%	192	67%
Mathematics and Statistics	11	69%	5	31%	9	39%	14	61%
Physical Sciences	34	60%	23	40%	35	60%	23	40%
Post-master's certificate								
Computer and Information Sciences	--	--	--	--	5	100%	0	0%
Engineering	1	50%	1	50%	0	0%	0	0%
Engineering Tech and Related Fields	--	--	--	--	2	50%	2	50%
Health Professions	5	26%	14	74%	9	38%	15	63%
Doctoral degree								
Biological/Biomedical Sci. Research/Scholarship	24	55%	20	45%	31	69%	14	31%
Computer & Info Sciences Research/Scholarship	14	93%	1	7%	16	80%	4	20%
Engineering Research/Scholarship	55	82%	12	18%	59	86%	10	14%
Health Professions Research/Scholarship	20	50%	20	50%	9	38%	15	63%
Health Professions Professional Practice	129	52%	120	48%	141	42%	194	58%
Mathematics and Statistics Research/Scholarship	6	60%	4	40%	15	88%	2	12%
Physical Sciences Research/Scholarship	29	74%	10	26%	30	81%	7	19%
Total	**1,341**	**61%**	**867**	**39%**	**1,799**	**59%**	**1,234**	**41%**

Utah State University **2012** **2017**

	No. Men	% Men	No. Women	% Women	No. Men	% Men	No. Women	% Women
At least 1 but less than 2 years award								
Agriculture and Operations	8	50%	8	50%	2	20%	8	80%
Computer and Information Sciences	--	--	--	--	6	100%	0	0%
Engineering Tech and Related Fields	2	100%	0	0%	3	100%	0	0%
Health Professions	9	18%	42	82%	5	13%	34	87%
Associate degree								
Agriculture and Operations	13	65%	7	35%	9	41%	13	59%
Computer and Information Sciences	--	--	--	--	2	100%	0	0%
Engineering	15	100%	0	0%	2	100%	0	0%
Health Professions	17	31%	37	69%	4	8%	46	92%
Bachelor's degree								
Agriculture and Operations	53	59%	37	41%	63	59%	44	41%
Biological and Biomedical Sciences	73	68%	34	32%	75	59%	53	41%
Computer and Information Sciences	72	95%	4	5%	127	90%	14	10%
Engineering	179	85%	31	15%	260	87%	40	13%
Health Professions	45	14%	273	86%	37	12%	277	88%
Mathematics and Statistics	11	61%	7	39%	26	68%	12	32%
Physical Sciences	23	82%	5	18%	26	67%	13	33%
Postbaccalaureate certificate								
Health Professions	--	--	--	--	5	12%	38	88%

Master's degree								
Agriculture and Operations	9	43%	12	57%	6	46%	7	54%
Biological and Biomedical Sciences	10	50%	10	50%	14	70%	6	30%
Computer and Information Sciences	47	80%	12	20%	46	73%	17	27%
Engineering	89	88%	12	12%	87	92%	8	8%
Health Professions	20	30%	46	70%	10	11%	85	89%
Mathematics and Statistics	4	40%	6	60%	7	70%	3	30%
Physical Sciences	6	67%	3	33%	10	71%	4	29%
Doctoral degree								
Agriculture/Ops Research/Scholarship	2	33%	4	67%	3	60%	2	40%
Biological/Biomedical Sci. Research/Scholarship	6	60%	4	40%	11	61%	7	39%
Computer & Info Sciences Research/Scholarship	3	75%	1	25%	3	75%	1	25%
Engineering Research/Scholarship	14	82%	3	18%	15	83%	3	17%
Health Professions Professional Practice	3	60%	2	40%	0	0%	2	100%
Mathematics and Statistics Research/Scholarship	1	100%	0	0%	3	60%	2	40%
Physical Sciences Research/Scholarship	1	25%	3	75%	4	57%	3	43%
Total	**735**	**55%**	**603**	**45%**	**871**	**54%**	**742**	**46%**

Utah Valley University **2012** **2017**

	No. Men	% Men	No. Women	% Women	No. Men	% Men	No. Women	% Women
Less than 1 academic year award level								
Computer and Information Sciences	--	--	--	--	40	93%	3	7%
Engineering Tech and Related Fields	--	--	--	--	9	90%	1	10%
Health Professions	--	--	--	--	2	50%	2	50%
At least 1 but less than 2 years award								
Computer and Information Sciences	1	100%	0	0%	30	100%	0	0%
Engineering Tech and Related Fields	--	--	--	--	0	0%	1	100%
Health Professions	20	91%	2	9%	6	75%	2	25%
Associate degree								
Biological and Biomedical Sciences	4	67%	2	33%	5	42%	7	58%
Computer and Information Sciences	19	90%	2	10%	78	91%	8	9%
Engineering	21	91%	2	9%	25	100%	0	0%
Engineering Tech and Related Fields	56	95%	3	5%	38	90%	4	10%
Health Professions	24	20%	98	80%	20	22%	71	78%
Mathematics and Statistics	5	50%	5	50%	5	63%	3	38%
Bachelor's degree								
Biological and Biomedical Sciences	56	68%	26	32%	80	74%	28	26%
Computer and Information Sciences	114	85%	20	15%	185	87%	28	13%
Engineering	8	100%	0	0%	29	91%	3	9%
Engineering Tech and Related Fields	--	--	--	--	47	92%	4	8%
Health Professions	34	20%	136	80%	38	19%	160	81%
Mathematics and Statistics	7	70%	3	30%	10	77%	3	23%
Physical Sciences	22	85%	4	15%	23	79%	6	21%
Postbaccalaureate certificate								
Computer and Information Sciences	--	--	--	--	4	80%	1	20%
Master's degree								
Health Professions	1	33%	2	67%	1	100%	0	0%
Total	**392**	**56%**	**305**	**44%**	**675**	**67%**	**335**	**33%**

Authors: Dr. Cheryl Hanewicz (Assistant Professor of Technology Management, Utah Valley University), and Dr. Susan Thackeray (Assistant Professor of Technology Management, Utah Valley University), and Dr. Susan R. Madsen (Orin R. Woodbury Professor of Leadership & Ethics, Utah Valley University). For questions and information: uwlp@usu.edu or www.utwomen.org

Weber State University **2012** **2017**

	No. Men	% Men	No. Women	% Women	No. Men	% Men	No. Women	% Women
Less than 1 academic year award level								
Computer and Information Sciences	2	100%	0	0%	5	100%	0	0%
Engineering Tech and Related Fields	--	--	--	--	14	78%	4	22%
Health Professions	21	51%	20	49%	16	36%	28	64%
Associate degree								
Computer and Information Sciences	58	89%	7	11%	107	89%	13	11%
Engineering	17	94%	1	6%	13	93%	1	7%
Engineering Tech and Related Fields	32	94%	2	6%	44	92%	4	8%
Health Professions	162	25%	482	75%	123	18%	552	82%
Mathematics and Statistics	--	--	--	--	0	0%	1	100%
Science Technologies/Technicians	7	54%	6	46%	27	59%	19	41%
Bachelor's degree								
Biological and Biomedical Sciences	31	62%	19	38%	54	55%	44	45%
Computer and Information Sciences	89	97%	3	3%	111	90%	13	10%
Engineering	7	88%	1	13%	28	88%	4	13%
Engineering Tech and Related Fields	84	92%	7	8%	97	94%	6	6%
Health Professions	154	31%	339	69%	177	22%	626	78%
Mathematics and Statistics	3	50%	3	50%	10	77%	3	23%
Physical Sciences	15	83%	3	17%	20	74%	7	26%
Master's degree								
Engineering	--	--	--	--	2	100%	0	0%
Health Professions	42	49%	44	51%	39	41%	57	59%
Total	**724**	**44%**	**937**	**56%**	**887**	**39%**	**1,382**	**61%**