

2018-  
2019

Walter Maxwell Gibson  
College of Science and Engineering  
Annual Report



SUU

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# EXECUTIVE SUMMARY 2018—2019

## Summer 2019

This executive summary highlights some of the accomplishments, events, and productivity which indicate the level of competence and dedication of the faculty and staff in the Walter Maxwell Gibson College of Science and Engineering (WMG COSE)

1. The following faculty from WMG COSE received significant University honors, announced at this year's commencement. Sangho Bok (Assistant Professor of Engineering) was recognized for Distinguished Scholarly/Creative Activity and Jason Kaiser (Assistant Professor of Geology) was named as a Distinguished Educator. Sam Wells was chosen for the Excellence in Teaching Award from the National Society of Leadership and Success.
2. Our healthcare professional acceptance successes were again strong this year. Data for the 2018-2019 academic year shows that 24 of the 32 WMG COSE applicants were accepted to medical school; 7 of 10 were accepted to PA school; and 11 of the 15 dental school applicants were successful. This success continues to be attributable to a dedicated faculty and student body and a working partnership between the southern Utah Area Health Education Center's (AHEC) Rural Health Scholars program, directed by Ms. Rita Osborn, and the WMG COSE. This partnership is serving the region very well, as attested to by our outstanding success in placing students in graduate healthcare programs.
3. SUU Nursing student's first attempt pass-rate on the national standardized licensure exam (NCLEX-RN) was 30/31≈97% for Fall 2018 and 27/29≈93% for Spring 2019. These numbers compare favorably with the national rate. The success of our students is a great tribute to the patience and determination of our nursing faculty and leadership.
4. The education partnership between SUU and SUCCESS Academy completed its 14<sup>th</sup> year of cooperation. Of 49 seniors, all 49 graduated from SUCCESS with 42 of these receiving their Associate of Science degree from SUU, and 30 of these seniors had GPA of 3.7 or higher. SUCCESS Academy, in partnership with the Iron County School District and SUU, continues to have a lottery based on the number of applications received. This is a successful collaboration and we thank Principal John Tripp and his staff for the opportunity to continue the partnership. Additional information can be found at: <http://successacademyonline.com/>.
5. The Cedar Mountain Science Camp (CMSC) continues to serve the region. This summer, Camp Director Peggy Wittwer and her staff served 456 elementary students from 81 different regional towns across four states. More information is available at: <http://suu.edu/cose/center/>
6. Recent curriculum changes have included a new BA degree in Geosciences, a new BS degree in Mechanical Engineering, a new emphasis in Applied Mathematics, and a new Certificate of Proficiency in Computer Science.
7. The 10<sup>th</sup> Annual WMG COSE Undergraduate Research Symposium was held on November 12, 2018 again in the Hunter Conference Center (supported in part by a donation from Dr. Jacob and Melissa Corry). The keynote speaker was Darin Gifford, Vice President of Casino Game Maker. There were 25 poster and 24 oral presentations at this year's meeting. The abstracts and some photos are available for examination at: <http://suu.edu/cose/symposium/>.
8. The *SUU Valedictorian* for the Class of 2019 was our own Cameron Jay Aston, a Mechanical Engineering graduate with 4.0 cumulative GPA. The new ME degree enrolled 86 majors and produced nine more graduates in addition to Cameron.

9. The College was again successful in obtaining numerous grants. The largest external grants include:
- Ongoing funding from the *Carl D Perkins Career and Technical Education* grant. This is a federal program administered nationally by the *US Department of Education*. This year's award was \$210,762.
  - Ongoing funding from the *Utah STEM Education Center* amounted to \$150,000. Elaine Vickers is the new Director of the *SUU STEM Center*, replacing Bill Heyborne who served effectively for several years.
  - Emma Turner was Principal Investigator (PI) for a \$101,532 grant from the *Utah System of Higher Education* to improve Quantitative Literacy in concurrent enrollment.
  - The *Bureau of Land Management* funded two awards related to native plant conservation, in the amounts of \$45,000 and \$52,000. Jackie Grant was PI for each.
  - A *Public Lands Initiative* grant was awarded to PI Jackie Grant in association with Utah State University. The SUU portion was \$52,000.
  - More external grants are listed in the department summaries of this report.
10. WMG COSE offered numerous high school outreach events during 2018—2019, incorporating student contests, prizes, and special guests.
- CSIS Interactive (<https://www.suu.edu/cose/stem-center/csis-interactive/>)
  - Southern region of the Utah State Math Contest
  - Southern region of the Utah Science Olympiad (<http://www.utahscienceolympiad.utah.edu/>)
  - Southern Utah Science and Engineering Fair (<http://suu.edu/cose/fair/>)
  - Technology Fair (<http://suu.edu/cose/techfair/>)
  - Technology, Engineering, and Computer Science Summer Camp (<http://suu.edu/cose/summercamp.html>)
11. This has been another productive year for College faculty. For the 2018—2019 academic year, the following data were reported:
- Refereed Scholarly Publications – 49
  - Refereed Presentations at Professional Meetings – 34
  - Books, Reports, and other Documents – 6
  - Externally Funded Grants – 23
  - Special Recognitions and Awards – 3
12. Beginning 1 July 2019, Emma Turner, Randall Violett, and Nathan Werner have been awarded tenure with promotion to Associate Professor. Jim Brandt, Fred Govedich, and Jianlong Han each advanced to Full Professor. Matt Adams and Bryan Bradford were both promoted to Assistant Professor, Non-Tenure Track. We note the retirements or resignations of seven WMG COSE faculty/staff and acknowledge their efforts on behalf of the College: Sharon Ford, Cecily Heiner, Paul Larson, Nasser Tadayan, Josh Tymkew, Loni Wright, and Dezhi Wu.



## MESSAGE FROM THE DEAN



It is a surreal experience to write my final annual message in my former role of Dean, Walter Maxwell Gibson College of Science and Engineering. I was privileged to shoulder that responsibility from July 1st, 2008, until May 3, 2019, a period that represents over one third of my SUU professional life. During that time, there have been many opportunities for the College, and some significant successes. We envisioned an annual research symposium in my first year in the Dean's office and made it happen. Fall of 2018 marked the tenth annual faculty/student scholarship event, and it was supported by a generous donation from Doctor Jacob and Mrs. Melissa Corry. I believe we have fostered an environment of academic engagement for our students as a result of our symposium.

The College has been the recipient of many significant gifts that have helped support the mission and direction of its efforts. Although we have many friends, we particularly mention the Gibson family (the College's namesake), the ALSAM foundation, Connie Holbrook, and Mark and Julie Svoboda. Their friendship has led to many significant facilities and program enhancements. In fact, we were honored to participate in a ribbon cutting for the Mark and Julie Svoboda Geosciences building on May 2nd, 2019. The renovation that was wrought on the former business building resulted in an amazing transformation that not only raises the visibility of the Geosciences, but provides them with vibrant facilities in which to grow their programs. We are so grateful to the Svoboda's and all of the College's thoughtful friends.

I am pleased to pass the torch of leadership to Dr. Frank Hall, the newly appointed Dean of the Walter Maxwell Gibson College of Science and Engineering. He comes to us with a wealth of leadership experience, and I am confident in his ability to lead the College, its faculty and programs, to new heights of achievement.

I express thanks to the Dean's office staff, the College's advisory board, faculty and staff, and our wonderful students for a wonderful journey. It has been the highlight of my professional career to fulfill this role. I will watch with interest the continued success of the Walter Maxwell Gibson College of Science and Engineering.

Robert L. Eves  
Interim Executive Vice President and Provost

# WALTER MAXWELL GIBSON COLLEGE OF SCIENCE AND ENGINEERING

## MISSION AND GOALS

### Mission

*The Walter Maxwell Gibson College of Science and Engineering is made up of academic programs in agriculture, biology, chemistry, computer science, engineering and technology, geography, geology, information systems, mathematics, nursing, nutrition, and interdisciplinary studies. These programs are housed in the departments of Agriculture & Nutrition Science, Biology, Computer Science & Information Systems, Engineering & Technology, Mathematics, Nursing, and Physical Science. We operate or participate in the operation of several special learning environments for students that include the Ashcroft Observatory, a GIS lab, a certified water lab, the Nakken Histology Lab, the Stokes Open Chemistry Lab, the Frehner Natural History Museum, the Cedar Mountain Science Center, the Valley Farm, the Networking and Security Lab, the Bowns Herbarium, the Leavitt Nursing Suite and the Mountain Ranch. We serve as the center of learning for the undergraduate STEM programs offered at SUU. We also serve as the resource center of scientific knowledge and expertise for southern Utah. The purpose of the Walter Maxwell Gibson College of Science and Engineering is to provide comprehensive classroom and experiential learning that emphasizes critical thinking, problem solving, decision-making, and communication in STEM. The faculty is committed to providing high-quality education, individual guidance and assistance to students, and helping them grow intellectually, professionally and personally while pursuing their academic goals.*

### Goals and Objectives

The observable, measurable goals of the Walter Maxwell Gibson College of Science & Engineering and the objectives by which they will be accomplished are:

1. GOAL: prepare students for graduate and professional schools.

OBJECTIVE: offer coursework and active learning experiences appropriate to the prerequisites of specified post-baccalaureate programs.

ASSESSMENT: tabulate student reportage on application/acceptance to post-baccalaureate programs.

For this academic year, we note the following:

- 75% acceptance to medical schools
- 73% acceptance to dental schools
- 70% acceptance to PA programs
- 67% acceptance to pharmacy programs

2. GOAL: prepare students for careers using their baccalaureate degree.

OBJECTIVE: offer coursework appropriate for employment related to departmental majors or minors.

ASSESSMENT: require standardized, nationally-normed tests where appropriate and student reportage of employment at baccalaureate level.

For 2018—2019, the following were reported:

- Educational Testing Service (ETS) Major Field Exams
  - Chemistry—82<sup>nd</sup> percentile student average
  - Biology—52<sup>nd</sup> percentile student average
  - Computer Sci—75<sup>th</sup> percentile student average
  - Math—65<sup>th</sup> percentile student average
- American Chemical Society (ACS) end-of-course exams
  - Average for all Summer 2018 sections: 74<sup>th</sup> percentile
  - Average for all Fall 2018 sections: 69<sup>th</sup> percentile
  - Average for all Spring 2019 sections: 73<sup>rd</sup> percentile
- Engineering FE exam—93% pass rate
- NCLEX national standardized nursing licensure exam (on first attempt)
  - 97% pass rate for Fall 2018
  - 93% pass rate for Spring 2019

3. GOAL: develop skills in analysis, critical thinking, problem solving, decision-making and communication.

OBJECTIVE: offer well-planned and pedagogically sound learning exercises in courses and in research projects.

ASSESSMENT: annually examine and evaluate course syllabi, course materials, and student research experiences.

For 2018—2019

- Each syllabus was examined at the department chair level.
- Student research experiences were evaluated during local presentation of the results, including the 7<sup>th</sup> Festival of Excellence and 10<sup>th</sup> Annual WMG COSE Research Symposium.

4. GOAL: provide hands-on experiences with state-of-the-art scientific instruments and equipment

OBJECTIVE: provide coursework and research opportunities that include opportunities to use equipment.

ASSESSMENT: inventory current, and continuously update need for future, equipment.

New for 2018-19:

- Yaskawa Motoman advanced robotics training for Nathan Johnson (EET Program)
- GPS base/rover set and new Garmin receivers for the GIS Certificate program
- A new Biochemistry lab was funded
- A new mass spectrometer (Chemistry)
- New microscopes for the Geology program

5. GOAL: provide highly skilled teachers and professors that are also respected scholars.

OBJECTIVE: recruiting Ph.D. - prepared faculty, reward good teaching, encourage faculty to conduct funded research and publish results, and encourage participation in professional organizations.

ASSESSMENT: annually evaluate faculty performances, teaching, scholarship, service, and collegiality using criteria and performance standards developed by departments and the college.

- All faculty members were formally evaluated by at least their chairs, peers, and/or the dean during 2018—2019.
- All new faculty hires are highly qualified, with all tenure track faculty holding terminal degrees.

6. GOAL: provide special, unique learning opportunities.

OBJECTIVE A: utilize the Valley Farm, Mountain Ranch, Cedar Mountain Science Center, SUU's Ashcroft Observatory, Water Lab, the Garth & Jerri Frehner Natural History Museum, the GIS lab, and the molecular genetics and ecology labs.

ASSESSMENT: annually evaluate the use of our specialized learning environments.

Some particulars include the following.

- The Mark and Julie Svoboda Geosciences Building was completed in May 2019.
- The Valley Farm and its riding arena continue to support the SUU agriculture program.
- Cedar Mountain Science Camp served 456 students from 81 locales and continues to have more applicants than it can accommodate.
- The Ashcroft observatory is utilized as a teaching laboratory each semester and continues to hold community nights each Monday.
- The Water Lab continues to provide a community resource and employment and hands-on experience to SUU chemistry students.
- The Geographic Information Systems (GIS) lab is supporting coursework and completing contract work for local, state and federal agencies.
- The molecular genetics and ecology labs provide undergraduate research support.

7. GOAL: maximize the utilization of our unique community and geographic resources

OBJECTIVE: foster and strengthen community and agency relationships.

ASSESSMENT: annually evaluate community and agency interaction.

- Faculty members from WMG COSE continue to serve on the cooperating association boards of Zion and Bryce Canyon national parks.
- WMG COSE continues to be a partner in the Intergovernmental Internship Cooperative (IIC) effort, which provides internship opportunities for SUU students with public land management agencies.

# WALTER MAXWELL GIBSON COLLEGE OF SCIENCE AND ENGINEERING

## DEPARTMENTS AND THEIR PROGRAMS

### Department of Agriculture and Nutrition Science

#### Mission Statement

##### Agriculture Science

The mission of the Agriculture Program is to involve students in meaningful educational experiences that provide the tools necessary to succeed in a wide range of agriculture/natural resource careers. This is accomplished by providing a strong, hands-on, learning experience, engagement in the agricultural community, and supporting real-life application through coursework. The agriculture program demonstrates teaching excellence by maintaining well-educated and experienced faculty and staff.

##### Human Nutrition

The mission of the nutrition program is to involve students in meaningful educational experiences that provide the tools necessary to succeed as professionals in a wide range of health science careers. This is accomplished by providing opportunities for original research, promoting engagement in the surrounding community, supporting real-life application through coursework, and encouraging the retrieval and dissemination of evidence-based information regarding health and nutrition across the lifespan.

#### Programs and Degrees Offered

##### BACHELOR DEGREES

BIS Agricultural Science & Industry (with emphases in Agribusiness, Animal Science, Plant Science, Natural Resources, and General Agriculture)

BS Human Nutrition/Allied Health

BS Human Nutrition/Pre-Dietetics

##### ASSOCIATE DEGREES

Agriculture: Livestock Farm Management

Agriculture: Equine Studies

##### MINORS

Agriculture

Human Nutrition

##### CERTIFICATE OF PROFICIENCY

Agriculture: Livestock Farm Management

#### Student Learning Outcomes

##### Agriculture Science

1. Students will demonstrate knowledge of scientific principles related to agriculture.
2. Students will demonstrate knowledge of agricultural industries including structure, production practices, and management principles.
3. Students will demonstrate effective application of agricultural knowledge and resources to solve problems and perform relevant activities.
4. Students will demonstrate effective communication appropriate to the discipline.

##### Human Nutrition

1. Students will demonstrate an understanding of nutrition, its language, history, findings, and applications.
2. Students will demonstrate effective and professional oral and written communication and use of current information technologies when communicating with individuals, groups, and the public.
3. Students will synthesize new knowledge from scientific literature; students will demonstrate their knowledge and understanding of the scientific method and reading, understanding, and critiquing peer-reviewed literature
4. Students will use appropriate tools to carry out investigations in nutrition courses.



## Departmental Faculty

Faculty	Rank	Specialty	Year Began at SUU
Elizabeth P. Anderson	Lecturer, Non-Tenure Track	Human Nutrition	2018
Kirt M. Bussio	Professional Staff	Farm & Ranch Manager	1986
Nica Clark	Lecturer, Non-Tenure Track (on leave)	Human Nutrition	2011
Chad L. Gasser	Associate Professor	Animal Science	2005
Artis P. Grady	Associate Professor	Human Nutrition	1990
Andrew Heaton	Professional Staff	Agriculture/Economics	2014
Celesta Lyman	Lecturer, Non-Tenure Track	Human Nutrition	2015
Matthew C. Schmidt	Associate Professor	Human Nutrition	2001
Billie Jean Sessions	Lecturer, Non-Tenure Track	Human Nutrition	2016
Randall D. Violet	Assistant Professor	Range Science	2012
Dean L. Winward	Associate Professor	Agriculture	1990
Lee G. Wood	Associate Professor, Chair	Animal Science	2000



# Productivity Highlights 2018—2019

## Scholarly Presentations at Professional Meetings

**Gasser, C. L.** “Navigating the postpartum period to overcome anestrus and prepare for rebreeding” *The 11<sup>th</sup> Annual Cowman’s Reproduction Workshop*, September 18 2018, Alton UT

**Schmidt, M.C.;** Brinkerhoff, R.; Stocking, C. “The effect of education on hydration status of female collegiate tennis players at Southern Utah University” *National Food & Nutrition Conference & Expo*, Oct 22 2018, Washington DC

**Schmidt, M.C.;** Corser, G.; Nichols, N.; Rackel, H. “Reducing stigma of obesity within the nutrition profession” *National Food & Nutrition Conference & Expo*, Oct 23 2018, Washington DC

**Winward, D. L.;** Wood, L.G; Gasser, C.L.; Violett, R.D. “Using an agriculture club to enhance student learning, engagement and development” *North American Colleges and Teachers of Agriculture Annual Meeting*, June 15 2018, Ames IA

Holt, J.; Yost, M.; Allen, N.; Creech, E.; Reid, C.; **Winward, D.L.;** McAvoy, D. “Increasing soil moisture content using biochar and precision irrigation techniques” *Soil Science Society of America International Soils Meeting*, January 7 2019, San Diego CA

**Winward, D.L.** “Invaders—the old and the new (Common Mullein, Cutleaf Vipergrass and Mile-a-minute weed)” *UT/AZ Invasive Weed Workshop*, December 13 2018, Orderville UT

**Wood, L.G.** “Using peer evaluation to improve awareness in equitation courses” *Annual Conference of the National Association of Equine Affiliated Academics*, June 4 2018, Stephenville, TX

## External Grants

### Randall D. Violett

- NPS Glen Canyon Recreation Area Vegetative Monitoring Project, September 2018—December 2020 (\$10,927)

## Documents, Books, and other Publications

**Violett, R.D.** Toxic Plants of the West, *Rangeland Teaching Clearinghouse*, Range Science Education Council, 2018

<https://rangelandswest.org/teachingclearinghouse/rto/toxic-plants-west>

## Professional Memberships and Community Service

### Chad L. Gasser

- Editor or reviewer for:
  - *Journal of Animal Science*
  - *Animal Reproduction Science*
  - *NACTA Journal*
- Judge or organizer for:
  - FFA events
  - Iron County Farm Field Day
  - Southwest Junior Livestock Show
- Member of:
  - American Society of Animal Science
  - North American Colleges and Teachers of Agriculture
  - Iron County Cattlemen’s Association
  - STech/Smithfield Foods Advisory Board

### Artis P. Grady

- Member of:
  - Academy of Nutrition & Dietetics
  - AAFCS/UAFCS
  - Delta Kappa Gamma Honor Society
  - FPIND
  - Head Start Health Advisory Committee
  - Kappa Omicron Nu Honor Society
  - Phi Kappa Phi Honor Society
  - SCAN
  - Utah Academy of Nutrition & Dietetics
- Beaver County Fair food category judge

### Celesta Lyman

- Member of:
  - Academy of Nutrition & Dietetics
  - Intl Federation of Eating Disorder Dieticians
  - Utah Academy of Nutrition & Dietetics
- Public school outreach

## Memberships & Service (continued)

### **Matt C. Schmidt**

- Member of:
  - *Academy of Nutrition & Dietetics*
  - *Utah Academy of Nutrition & Dietetics*

### **Billie Jean Sessions**

- Member of:
  - *Academy of Nutrition & Dietetics*
  - *Kappa Omicron Nu Honor Society*
- Public school outreach

### **Dean L. Winward**

- Member of:
  - *Iron County Cattlemen's Association*
  - *Iron County Weed Board*
  - *NACTA*
  - *Utah Farm Bureau Federation*
  - *Utah Weed Control Association*
- Judge or organizer for:
  - *Cedar City Livestock & Heritage Festival*
  - *FFA events*
  - *Iron County Farm Field Day*
- Public school outreach

### **Randall D. Violet**

- Member of:
  - *NACTA*
  - *NAAE/UAAE*
  - *Society for Range Management*
  - *Utah Society for Environmental Education*
  - *Western Society of Weed Science*
- Public school outreach

### **Lee G. Wood**

- Member of:
  - *American Quarter Horse Association*
  - *American Society of Animal Science*
  - *Equine Science Society*
  - *Iron County Cattlemen's Association*
  - *NACTA*
  - *NAEAA*
  - *Utah Cattlemen's Association*
- Consultant to:
  - *Grass Valley Cattle Company*
  - *K. Gardner Land & Cattle Company*
  - *Rafter L Cattle Company*



# Department of Biology

## Mission Statement

The mission of the Department of Biology is to provide our students with personalized, participative educational experiences over a broad range of biological disciplines that promote critical thinking, effective communication and lifelong learning skills. We provide learning opportunities where students can gain the knowledge, develop integrity and acquire the empathy needed to become independent researchers in the advancement of science.

## Programs and Degrees Offered

### BACHELOR DEGREES:

BA/BS Biology

BA/BS Biology Education

### MINOR:

Biology



## Student Learning Outcomes

1. All students will demonstrate an understanding of the following core concepts:
  - 1.1. evolution
  - 1.2. structure and function
  - 1.3. information flow, exchange, and storage
  - 1.4. pathways and transformations of energy and matter
  - 1.5. systems
2. Students will demonstrate understanding and ability to apply methodologies of science:
  - 2.1. scientific methodology
  - 2.2. reading, understanding, and critiquing peer-reviewed literature
  - 2.3. integrate and apply concepts from different within and beyond the sciences
3. Students will demonstrate an ability to communicate effectively in a variety of oral and written formats.
4. Students will use appropriate tools to carry out investigations in their intended fields, including:
  - 4.1. demonstrating competency in use of appropriate field and/or laboratory equipment
  - 4.2. successful completion of an SUU-approved experiential learning activity
  - 4.3. acquiring sufficient knowledge and training to successfully enter graduate or professional school or the workforce
  - 4.4. completion of an independent research project
  - 4.5. use appropriate mathematical, modeling, and simulation tools to address scientific questions
5. Students will develop an understanding of the social responsibility that is incumbent on all who obtain a degree in biological sciences, including:
  - 5.1. engagement in public and political conversations to promote learning based on scientific principles and rational thought
  - 5.2. knowledge of ethics in research, communications and reporting
  - 5.3. understanding the importance of environmental stewardship

## Departmental Faculty

<b>Faculty</b>	<b>Rank</b>	<b>Specialty</b>	<b>Year Began at SUU</b>
Angela Patino	Professional Staff	Greenhouse Specialist	2014
Ryan C. Barney	Lecturer, Non-Tenure Track	Criminal Forensics	2016
Rachel T. Bolus	Assistant Professor	Evolutionary Biology	2016
Helen C. Boswell	Associate Professor	Evolutionary Biology	1999
Carrie Jo Bucklin	Assistant Professor	Biology Education	2016
Nathaniel Cannon	Lecturer, Non-Tenure Track	Biology Education	2018
Jay Lance Forshee	Assistant Professor	Anatomy, Physiology	2017
Roger S. Gold	Associate Professor	Microbiology	2016
Fredric R. Govedich	Associate Professor, Chair	Zoology, Entomology	2006
Jacqueline B. Grant	Associate Professor / Museum Curator	Zoology, Botany	2012
Debra A. Hanson	Associate Professor, Non-Tenure Track	Anatomy, Microbiology	2004
William H. Heyborne	Associate Professor	Zoology, Herpetology	2011
Karl J. Jarvis	Lecturer, Non-Tenure Track	Molecular Ecology	2016
Jonathan E. Karpel	Associate Professor	Cellular/Molecular Biology	2010
Dillon J. Monroe	Lecturer, Non-Tenure Track	Biology Education	2018
Jennifer Mraz-Craig	Lecturer, Non-Tenure Track	Anatomy, Physiology	2017
R. Matthew Ogburn	Assistant Professor	Botany	2014
Paul J. Pillitteri	Associate Professor	Anatomy, Physiology	2005
Lindsay K. Roper	Assistant Professor	Cellular/Molecular Biology	2015
John R. Taylor	Associate Professor	Biology Education	2002
Mary Jo Tufte	Assistant Professor, Non-Tenure Track	Anatomy, Physiology	2010
Matthew S. Weeg	Associate Professor	Neurobiology	2011
Samuel Wells	Lecturer, Non-Tenure Track	Entomology	2015

# Productivity Highlights 2018—2019

## Scholarly Presentations at Professional Meetings

Diehl, R.H.; Benson, T.J.; **Bolus, R.T.**; Celis-Murillo, A.; Deppe, J.L.; Moore, F.R.; Schofield, L.N.; Smolinsky, J.; Ward, M.P.; Zenzal, T.J.

“Understanding how migratory birds respond to a geographic feature through automated radio telemetry” *27<sup>th</sup> International Ornithological Congress*, August 2018, Vancouver BC

Adair, S.; Monson, S.; **Forshee, J.L.** “The anatomy of lab: factors affecting, causes of, and student motivations for leaving Anatomy lab courses early” *National Association of Biology Teachers*, November 2018, San Diego CA

**Heyborne, W.H.** “Teaching Introductory Biology as part of an integrated General Education curriculum” *National Association of Biology Teachers Professional Development Conference*, November 2018, San Diego CA

Olson, E.A.; **Heyborne, W.H.** “Jumpstart our national parks: using local resources to teach integrated General Education” *Joint Meeting of the Society for Economic Botany and Society for Ethnobiology*, June 2018, Madison WI

**Ogburn, R.M.**, Edwards, E.J.; Donoghue, M.J. “Linking scaling relationships and ecology” *Integrative Plant Biology Symposium, Society for Integrative and Comparative Biology Annual Meeting*, January 4 2019, Tampa FL

**Taylor, J.R.** “K-12 draft standards review” *Utah Science Teachers Mid-Winter Conference*, February 8 2019, Provo UT

## Honors, Awards and Special Recognition

### Samuel Wells

- 2019 Excellence in Teaching Award, National Society of Leadership and Success-SUU Chapter

## Scholarly Articles

Ward, M.P.; Benson, T.J.; Deppe, J.; Zenzal, T.J.; Diehl, R.H.; Celis-Murillo, A.; **Bolus, R.T.**; Moore, F.R. “Estimating the apparent survival of songbirds crossing the Gulf of Mexico during autumn migration” *Proceedings of the Royal Society B* **285** #1889 (2018), Article 20181747

Schofield, L.N.; Deppe, J.L.; Ward, M.P.; Diehl, R.H.; **Bolus, R.T.**; Moore, F.R. “Using automated radio telemetry to quantify activity patterns of songbirds during stopover” *The Auk: Ornithological Advances* **135** #4 (2018), 949–963

Schaffer-Smith, D.; Tomscha, S.A.; **Jarvis, K.J.**; Maguire, D.Y.; Treglia, M.L.; Liu, J. “Network analysis as a tool for quantifying the dynamics of metacoupled systems: an example using global soybean trade” *Ecology and Society* **23** #4 (2018), Article 3

**Heyborne, W.H.**; Hoekman, C. “Natural History Notes: *Uta stansburiana* (Common Side-blotched Lizard), interspecific agonistic behavior” *Herpetological Review* **49** #3 (2018), 540–541

**Heyborne, W.H.**; Gardner, C.; Shipley, I. “Natural History Notes: *Anaxyrus punctatus* (Red-spotted Toad), cannibalism” *Herpetological Review* **49** #4 (2018), 728

**Heyborne, W.H.**; Clokey, M. “Natural History Notes: *Hypsiglena chlorophaea* (Desert Nightsnake), predation” *Herpetological Review* **50** #1, (2019), 159

**Mraz-Craig, J.A.**; Daniel, K.L.; **Bucklin, C.J.**; Mishra, C.; Ali, L.; Clase, K.L. “Student identities in authentic course-based undergraduate research experience” *Journal of College Science Teaching* **48** #1 (2018), 68–75

## Documents, Books, and other Publications

Moser, W.E.; **Govedich, F.R.**; Nakano, T.; Bielecki, A.; Bain, B.A.; Utevsky, S. "Phylum Annelida: Subclass Hirudinida" in *Thorp and Covich's Freshwater Invertebrates Volume 4: Keys to Palaearctic Fauna*. Thorp and Rogers eds. Academic Press, April 2019, ISBN 9780123850249

**Heyborne, W.H.**; Gardner, C.E. Technical report for BLM Grant L16AS00171 *Amphibians and Reptiles of the Grand Staircase Escalante National Monument: Vegetation Management, Diversity, Abundance, and Geography*, December 2018, 15 pages.

## External Grants

**Fred R. Govedich** (with Dixie State University)

- *Talent Ready* "Biostacks", 2018 (SUU portion includes one student internship)

**Jacqueline B. Grant, et al**

- BLM "Frehner Museum Heritage Resources Partnership" 2018 (\$27,000)
- BLM "Native Plant Materials Partnership", April 2017—April 2022 (\$45,000)
- BLM "Seeds of Success: Native Plant Materials Development Program", September 2018—September 2023 (\$50,000)
- USU "Public Lands Initiative" 2018 (\$52,000)

**Debra A. Hanson**

- *uBiome* "Microbiology Education Enhancement", 2018 (in-kind donation of 225 Explorer kits)

**William H. Heyborne, et al**

- BLM "Utah Reptile and Amphibian Inventory and Monitoring", September 2018—September 2019 (\$30,000)
- National Institute of Food and Agriculture "Pre-Freshmen Engineering Program (PREP)", September 2018—September 2021 (\$92,827)
- *Utah STEM Education Center* ongoing funding, July 2018—June 2019 (\$150,000)

## Professional Memberships and Community Service

**Ryan C. Barney**

- Member of *National Association of Biology Teachers*
- Public school outreach

**Rachel T. Bolus**

- Member and/or reviewer for:
  - *American Ornithological Society*
  - *Journal of the Utah Academy of Arts, Sciences, and Letters*
  - *The American Biology Teacher*
  - *Wilson Ornithological Society*
- Public school outreach

**Carrie Jo Bucklin**

- Member and/or reviewer for:
  - *American Education Research Association*
  - *National Association of Biology Teachers*
  - *National Association for Research in Science Teaching*
  - *The American Biology Teacher*
- Public school outreach

**Jay Lance Forshee**

- Member and/or reviewer for:
  - *Human Anatomy and Physiology Society*
  - *National Association of Biology Teachers*
  - *The American Biology Teacher*
- Public school outreach

**Roger S. Gold**

- Member of:
  - *American Society for Microbiology*
  - *National Association of Biology Teachers*
  - *Society for Freshwater Science*
- Public school outreach
- Water quality analysis for Utah DWQ and NOAA

**Fredric R. Govedich**

- Editor or reviewer for:
  - *Biodiversity Data Journal*
  - *Southwestern Naturalist*
  - *ZooKeys*
- Member of:
  - *National Association of Biology Teachers*
  - *Society for Freshwater Science*
- Volunteer for *Boy Scouts of America*
- Public school outreach

## Memberships & Service (continued)

### Jacqueline A. Grant

- Member of:
  - *Society of Conservation Biology*
  - *Utah Engaged Faculty Development Network*
- Public school outreach

### Debra A. Hanson

- Member of *National Association of Biology Teachers*

### William H. Heyborne

- Member and/or reviewer for:
  - *American Malacological Society*
  - *National Association of Biology Teachers*
  - *National Science Teachers Association*
  - *Society for the Study of Amphibians & Reptiles*
  - *Southwestern Naturalist*
  - *The American Biology Teacher*
  - *Utah Science Teachers Association*
- Public school outreach

### Karl J. Jarvis

- Member of:
  - *International Association for Landscape Ecology*
  - *Society for Conservation Biology*
- Reviewer for:
  - *Journal of Insect Conservation*
  - *Systematic Entomology*
- Public school outreach

### Jonathan E. Karpel

- Member of *Genetics Society of America*

### Jennifer Mraz-Craig

- Member and/or reviewer for:
  - *Human Anatomy and Physiology Society*
  - *National Association of Biology Teachers*
- Public school outreach

### Dillon J. Monroe

- Member of:
  - *Society for Integrative and Comparative Biology*
  - *Society for the Study of Amphibians and Reptiles*

### R. Matthew Ogburn

- Member of:
  - *Ecological Research and Education Network*
  - *Society for Integrative and Comparative Biology*
- Volunteer for *Cedar Breaks National Monument*

### Paul J. Pillitteri

- Member of *Human Anatomy and Physiology Society*

### John R. Taylor

- Board Member of:
  - *National Science Teachers Association*
  - *Utah Science Teachers Association*
  - *Zion Natural Park Forever Association*

### Mary Jo Tufte

- Public school outreach

### Matthew S. Weeg

- Member of:
  - *American Physiological Society*
  - *POD Network*

### Samuel Wells

- Member and/or researcher for:
  - *California State Collection of Arthropods*
  - *Coleopterists Society*
  - *Los Angeles County Museum*
  - *Society of Freshwater Science*
  - *Zootaxa*
- Volunteer for *Utah DNR*





# Department of Computer Science & Information Systems

## Mission Statement

The Department of Computer Science and Information Systems (CSIS) supports the mission of the University and the Walter Maxwell Gibson College of Science and Engineering by providing a high quality graduate and undergraduate education to students through certificate, associate, baccalaureate, and master degree programs.

The mission of the Department is to provide a learning-centered environment that enables students, faculty, and staff to achieve their goals and to empower our students to compete on a global level for careers in government, industry, secondary education, and acceptance to graduate school.

The Department provides programs in computer science and information systems. The curricula are rich with opportunities for students to develop a sound understanding of fundamentals as well as specialized theories, practices, and ethics that enhance their learning.

The CSIS faculty are committed to providing high-quality education, individual guidance and assistance to students, helping them to develop the attributes of critical thinking, effective communication, lifelong learning, and individual integrity while pursuing their academic goals as well as engaging in scholarly activities to enhance our classes, involve students and, to assist in the economic development of the region through partnerships with industry, inventors, and entrepreneurs.

## Programs and Degrees Offered

### BACHELOR DEGREES:

BS Computer Science  
BS Information Systems

### ASSOCIATE of APPLIED SCIENCE

General Technology with IT specialty  
Information Technology  
    Networking/Telecommunications Emphasis  
    Information Technology Emphasis  
    CS and IS Security Emphasis

### CERTIFICATE OF PROFICIENCY

Computer Science

### MINOR:

Computer Science (non-teaching)  
Computer Science Emphasis in Teacher Education  
Information Systems (non-teaching)

## Student Learning Outcomes

### General Criteria

Graduates of the program will have an ability to:

1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
3. Communicate effectively in a variety of professional contexts.
4. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
5. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.

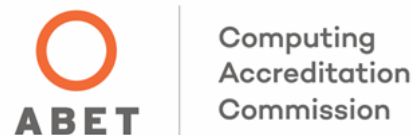
### Computer Science Program Criteria

6. Apply computer science theory and software development fundamentals to produce computing-based solutions.

### Information Systems Program Criteria

6. Support the delivery, use, and management of information systems within an information systems environment.

## Special Accreditation



The CS and IS degrees at Southern Utah University are ABET accredited.

## Departmental Faculty

Faculty	Rank	Specialty	Year Began at SUU
Timothy H. Ball	Assistant Professor	Cyber security	2016
Nathan A. Barker	Associate Professor	Bioinformatics, Data Mining	2007
Gary D. Cantrell	Assistant Professor	Digital Forensics	2018
Laurie L. Harris	Assistant Professor, Non-Tenure Track	Computer Literacy	2010
Cecily Heiner	Assistant Professor	AI, Machine Learning	2011
Shalini Kesar	Associate Professor	E-commerce, Information Security	2007
Joshua Meredith	Lecturer, Non-Tenure Track	Computer Literacy	2018
Nasser Tadayon	Associate Professor	Data Mining, Neural Networks	2005



# Productivity Highlights 2018—2019

## Scholarly Presentations at Professional Meetings

**Barker, N.A.; Harris, L.** “Are Computer Science and Information Systems students more likely to earn a better grade in basic computer literacy courses than their peers: a case study” *International Conference on Computational Science and Computational Intelligence*, December 13-15 2018, Las Vegas NV

**Kesar, S.** “Exploring security and ethical implications of new emerging technologies: case study in USA and India” *EthiComp 2018*, 24-26 September 2018, Tricity Poland

**Kesar, S.;** Pollard, J. “Experiential learning pedagogy: Computing capstone class” *EthiComp 2018*, 24-26 September 2018, Tricity Poland

**Kesar, S.;** Lueman, J. “Bridging the gap between millennials and the Cybersecurity industry” *NICE K12 Cybersecurity Education Conference*, 3-4 December 2018, San Antonio TX

## Scholarly Articles

Ence, C; Runs Through, J; **Cantrell, G.D.** “Chip-off success rate analysis comparing temperature and chip type” *The Journal of Digital Forensics, Security, and Law* **13** #4 (2019), Article 7

**Kesar, S. et al** “Closing the STEM gap: why STEM classes and careers still lack girls and what we can do about it” *Microsoft Whitepaper* (2018)  
<https://query.prod.cms.rt.microsoft.com/cms/api/am/binary/RE1UMWz>

## External Grants

### Cecily Heiner

- ICSD “Cool to Code” Flocks program (\$4,500)

### Shalini Kesar

- ICSD “Bit by Bit” computing outreach (\$5,000)
- NCWIT Aspiration Awards grant (\$3,000)

## Professional Memberships and Community Service

### Nathan A. Barker

- Member of:
  - Alpha Chi Honor Society
  - Association for Computing Machinery
  - Intl Society for Computers and their Apps
  - National Center for Women and IT
  - Utah ACTE
- Public school outreach

### Gary D. Cantrell

- Member of:
  - American Society of Digital Forensic Examiners
  - Association for Computing Machinery

### Laurie Harris

- Member of:
  - Association for Career & Technical Education
  - National Business Education Association
  - National Center for Women and IT
- Public school outreach

### Cecily Heiner

- Member of:
  - Association for Computing Machinery
  - National Center for Women and IT

### Shalini Kesar

- Editor/reviewer for *Journal of Information, Communication and Ethics in Society*
- Member of:
  - Association of Information Systems
  - London School of Economics Alumni Assoc
  - National Center for Women and IT
  - Utah ACTE
- Organizer for *EthiComp 2018*
- NCWIT Aspirations Award program leader
- Steering committee member of *EthiComp 2020*
- Public school outreach

### Nasser Tadayon

- Member of *IEEE*

# Department of Engineering & Technology

## Mission Statement

The Department of Engineering and Technology is made up of undergraduate academic programs in three areas—engineering, technology, and construction management. Our mission is to:

- foster a student-centered learning environment,
- nurture a student-oriented culture of curiosity, creativity, and discovery
- maintain a commitment to continuous improvement
- encourage community engagement,
- establish and maintain high-quality accredited programs
- prepare graduates to be successful in professional careers

## Programs and Degrees Offered

### BACHELOR DEGREES

BA/BS in:

Construction Management

Engineering

Mechanical Engineering

Engineering Technology

•Arch/Civil Design Emphasis

•CAD/CAM Emphasis

•EET Emphasis

### ASSOCIATE OF APPLIED SCIENCE

Construction Technology (CT)

CAD/CAM Technology

Electronics Technology

General Technology with specialty in CT

Pre-Engineering



Engineering  
Accreditation  
Commission

The Engineering Bachelor Degree is ABET accredited

## CERTIFICATES OF PROFICIENCY

Civil Design/CAD

Construction Technology

## MINORS

Construction Technology

CAD/CAM Technology

Electronics Technology

## Engineering Student Learning Outcomes

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. An ability to communicate effectively with a range of audiences
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies



Engineering  
Technology  
Accreditation  
Commission

The Engineering Technology Bachelor Degree with is ABET accredited

## Engineering Technology Student Learning Outcomes

1. An ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve broadly-defined engineering problems appropriate to the discipline
2. An ability to design systems, components, or processes meeting specified needs for broadly-defined engineering problems appropriate to the discipline
3. An ability to apply written, oral, and graphical communication in broadly-defined technical and non-technical environments; and an ability to identify and use appropriate technical literature
4. An ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes
5. An ability to function effectively as a member as well as a leader on technical teams.

## Departmental Faculty

Faculty	Rank	Specialty	Year Began at SUU
Mohamed Askar	Associate Professor	Construction Management	2018
Jared R. Baker	Professional in Residence, Non-Tenure Track	Project Management	2016
Jacob L. Bishop	Assistant Professor	Mechanical Engineering	2018
Sangho Bok	Assistant Professor	Electrical Engineering	2016
Isabella M. Borisova	Assistant Professor, NTT Associate Chair	Electronics and Computer Technology	2011
Richard K. Cozzens	Associate Professor	2D and 3D Design	2001
Roger A. Greener	Professional Staff	Computer Aided Manufacturing (CAM)	1990
L. Scott Hansen	Professor	Technology Education	2007
Nathan L. Johnson	Visiting Professional in Residence	Robotics	2018
Scott E. Munro	Associate Professor	Aerospace Engineering, Acoustics	2015
Matthew W. Roberts	Professor, Department Chair	Civil Engineering	2014
Ali S. Siahpush	Associate Professor	Mechanical Engineering, Thermodynamics	2015
David A. Ward	Visiting Lecturer	Electronics Technology	2018

# Productivity Highlights 2018—2019

## Scholarly Presentations at Professional Meetings

**Askar, M.; Bishop, J.; Lewis, A.** “Rehabilitation of bridges under the umbrella of recent management techniques by using performance-based design model” *Utah Academy of Sciences, Arts & Letters Annual Conference*, March 23 2019, Ogden UT

**Askar, M.; Roberts, M.W.** “Target-based engagement assessment statistical model of faculty members for enhancing performance and engineering education” *3<sup>rd</sup> Annual Teaching for Learning Conference*, March 21-22 2019, Logan UT

**Bok, S.; et al** “Single-molecule imaging of metallic nanostructures on a plasmonic metal grating superlens” *IEEE International Conference on Bioinformatics and Biomedicine*, December 3-6, 2018 Madrid Spain

**Bok, S.; et al** “Plasmonic gratings for applications in biosensors” *2019 Collaborative Conference on Materials Research*, June 4 2019, Seoul South Korea

**Cozzens, R.K.** “Developing pathways from education to industry” *ASEE Conference for Industry and Education Collaboration*, February 1 2019, New Orleans LA

**Cozzens, R.K.** “Developing pathways from education to industry: Southwest Aerospace and Manufacturing Strategic Workforce Initiative” *Mechanical Engineering and Aerospace Engineering*, June 2019 Wuhan China

Lanning, J.; **Roberts, M.W.** “Fighting ‘plug and chug’ structural design through effective and experiential demonstrations” *2019 ASEE Annual Conference*, Tampa FL

## Honors, Awards and Special Recognition

### Sangho Bok

- 2019 SUU Distinguished Scholarly/Creative Activity

## External Grants

### Jared R. Baker (PI)

- *Utah Cluster Acceleration Partnership/USHE* Construction Management Competitions, October 2018—June 2019 (\$9250)

### Ali S. Siahpush (PI)

- *NASA Space Grant Consortium* Meteorite study, Rocketbird competition October 2018—June 2019 (\$6000)

## Scholarly Articles

**Askar, M.; Ali, S.; Asham, M.** “An integrated system for procurement management in construction contracting companies” *Engineering and Scientific Research Journal of the Faculty of Engineering, Shoubra* **2** #37, October 2018

**Bok, S.; et al** “Ultrasensitive detection of lipoarabinomannan with plasmonic grating biosensors in clinical samples of HIV negative patients with tuberculosis” *PLOS One* **14** #3 (2019), e0214161, <https://doi.org/10.1371/journal.pone.0214161>

Wang, A.; **Bok, S.**; Thiruvengadathan, R.; Gangopadhyay, K.; McFarland, J.A.; Maschmann, M.R.; Gangopadhyay, S. “Reactive nanoenergetic graphene aerogel synthesized by one-step chemical reduction” *Combustion and Flame* **196** (2018), 400–406  
<https://doi.org/10.1016/j.combustflame.2018.06.034>

**Bok, S.; et al** “Enhanced fluorescence for in situ temperature mapping of photothermally heated aluminum nanoparticles enabled by a plasmonic grating substrate” *Nanotechnology* **29** #39 2018, 395501  
<https://doi.org/10.1088/1361-6528/aad017>

Ahmed, N.S.; Azizi, O.; El-Boher, A.; Gahl, J.; **Bok, S.**; “Facile synthesis and characterization of reduced graphene oxide produced with green and conventional reductants” *ECS Journal of Solid State Science and Technology* **7** #11 (2018), M173–M179  
<https://doi.org/10.1149/2.0181811jss>

## Documents, Books, and other Publications

Gorse, C.; **Cozzens, R.K.**; Scott, L.; Dickinson, I.  
“Higher education in the professions: illustrations of quality practice in teaching and learning” in *Ensuring Quality in Professional Education* Volume 1 Trimmer, Newman, Padro editors, Palgrave Macmillan, January 2019, ISBN: 978-3030010959

**Hansen, L.S.** Autodesk Inventor 2020—A Tutorial Introduction, *SDC Publications* July 2019 ISBN 978-1630572525

**Roberts, M.W.** *et al* Civil Engineering Body of Knowledge: Preparing the Future Civil Engineer *American Society of Civil Engineers*, June 2019, ISBN 978-0784415221

## Professional Memberships and Community Service

### Mohamed Askar

- Member of:
  - *Egyptian Engineering Society*
  - *Egyptian Engineers Syndicate*
  - *German-Egyptian Commercial Chamber*
  - *World Bank, International Projects*
- Public school outreach
- Reviewer for *The International Academic Forum*

### Jared R. Baker

- External reviewer for *Snow College CM Program*

### Jacob L. Bishop

- Member of:
  - *ASEE*
  - *Epsilon Pi Tau Honor Society*
- Public school outreach

### Sangho Bok

- Member of:
  - *ASEE*
  - *IEEE*
  - *Sigma Xi Honor Society*
- Public school outreach
- Reviewer for
  - *Journal of the Electrochemical Society*

## Memberships & Service (continued)

### Isabella M. Borisova

- Member of:
  - *ASEE*
  - *Utah Women in Higher Education Network*
- Public school outreach

### Richard K. Cozzens

- External reviewer for *Snow College CM Program*
- Member and/or reviewer for:
  - *ASEE*
  - *Made in Southern Utah*
  - *SEEDS Scientific Committee*
- Public school outreach

### L. Scott Hansen

- Public school outreach

### Nathan L. Johnson

- Member of *NEA*
- Public school outreach

### Scott E. Munro

- Member of *AIAA*
- Public school outreach

### Matthew Roberts

- Member/reviewer for:
  - *ASCE*
  - *Fundamentals of Engineering exam*
- Associate Editor for *Journal of Professional Issues in Engineering Education and Practice*

### Ali S. Siahpush

- Editor/reviewer for:
  - *ASME Heat Transfer*
  - *ASME Thermal Engineering*
  - *Experimental Thermal and Fluid Science*
  - *Journal of Energy Storage*
  - *Progress in Nuclear Energy*
  - *Solar Energy*
  - *SPA*
- Board member of:
  - *Utah NASA Space Grant Consortia*
  - *Idaho NASA Space Grant Consortia*

# Department of Mathematics

## Mission Statement

The Department of Mathematics is committed to helping students and faculty increase their knowledge of mathematics, its applications, and its pedagogy. Our faculty are devoted to supporting student learning through innovative quality educational experiences in general education courses, service courses, and major courses. We provide opportunities for students to develop their problem solving, quantitative reasoning, and logical reasoning skills in a supportive and rigorous learning environment. Our curriculum is designed to help individuals grow intellectually, professionally, and personally while pursuing their academic goals.

## Student Learning Outcomes

1. Use standard mathematical techniques to solve computational problems.
2. Demonstrate knowledge of fundamental mathematical concepts and results in the core content areas.
3. Use content knowledge to solve applied and real-world mathematical problems.
4. Communicate mathematics effectively using proper notation and terminology.
5. Use logical reasoning to construct clear and concise mathematical proofs

## Programs and Degrees Offered

### BACHELOR DEGREES

BS Mathematics:

Applied Mathematics Emphasis

Actuarial Science Emphasis

Pure Math Emphasis

BS Mathematics Education

### MINORS

Mathematics:

Actuarial Science Emphasis

Pure Math Emphasis

Mathematics Education





## Departmental Faculty

Faculty	Rank	Specialty	Year Began at SUU
Matthew C. Adams	Lecturer, Non-Tenure Track	Math Literacy	2012
Seth G. Armstrong	Professor	Partial Differential Equations	2001
Said Bahi	Professor	Operations Research	2001
Bryan L. Bradford	Lecturer, Non-Tenure Track	Math Literacy	2013
James P. Brandt	Associate Professor, Department Chair	History of Math, Math Education	2006
Tenille Cannon	Assistant Professor	Math Education	2018
Sarah M. Duffin	Associate Professor	Partial Differential Equations	2004
Eric M. Freden	Associate Professor, Associate Dean	Geometric Group Theory	1997
Jianlong Han	Associate Professor	Partial Differential Equations	2005
Derek W. Hein	Associate Professor	Combinatorial Design Theory	2004
Jana R. Lunt	Associate Professor	Math Education	2010
Gretchen R. Meilstrup	Associate Professor	Algebraic Geometry	2008
Mark H. Meilstrup	Associate Professor	Geometric Group Theory	2011
Andrew F. Misseldine	Assistant Professor	Representation Theory	2014
Benjamin Schoonmaker	Lecturer, Non-Tenure Track	Ring Theory	2017
Emma L. Turner	Assistant Professor	Finite Group Theory	2012
Joshua Tymkew	Lecturer, Non-Tenure Track	Algebraic Geometry	2017
Andreas J. Weingartner	Professor	Number Theory, Actuarial Science	1999
Cecilia L. Weingartner	Lecturer, Non-Tenure Track	Numerical Methods	2008

# Productivity Highlights 2018—2019

## Scholarly Presentations at Professional Meetings

**Armstrong, S.** “A counterexample to a theorem of T. Pradhan regarding nonexistence of limit cycles in a prey–predator fish species with Beddington–DeAngelis functional response” *MAA Section Meeting*; April 12 2019, Cedar City UT

**Bahi, S.** “An analysis of the underlying structure of students and faculty perceptions of service quality in higher education” *MAA Section Meeting*, April 12 2019, Cedar City UT

**Brandt, J.; Meilstrup, G.R.** “Faculty feedback on student proofs” *MAA MathFest*, August 2 2018, Denver CO

**Brandt, J.; Meilstrup, G.R.** “Student proofs, faculty feedback, and communication issues” *MAA Section Meeting*, April 12 2019, Cedar City UT

**Cannon, T.** “The use of task templates to guide design activity” *National Council of Teachers of Mathematics Research Session*, April 3 2019, San Diego CA

**Duffin, S.** “An iterative method of determining outliers” *MAA Section Meeting*, April 12 2019, Cedar City UT

**Freden, E.** “From EDT0L grammars to generating functions” *36<sup>th</sup> Annual Workshop in Geometric Topology*, May 31 2019, Milwaukee WI

**Han, J.** “Long term behavior of the numerical scheme for a competing reaction diffusion system” *MAA Section Meeting*, April 12 2019, Cedar City UT

**Misseldine, A.** “The mathematics of Mario Party 10” *MAA Section Meeting*, April 12 2019, Cedar City UT

## Scholarly Articles

**Han, J.; Armstrong, S.; Duffin, S.** “A counterexample to a theorem of Tarun Pradhan” *International Journal of Scientific & Engineering Research* **10** #3 (2019), 1107–1108

**Hein, D.** “Decompositions of  $\lambda K_n$  into LOW and OLW graphs” *Journal of Combinatorial Mathematics and Combinatorial Computing* **109** (2019), 15–36

Bastian, N.; Brewer, J.; Humphries, S.; **Misseldine, A.**; Thompson, C. “On Schur rings over infinite groups” *Algebras and Representation Theory* <https://doi.org/10.1007/s10468-019-09859-7> February 2019

**Misseldine, A.** “Counting Schur rings over cyclic groups,” *Journal of Algebraic Combinatorics* <https://doi.org/10.1007/s10801-019-00870-1> January 2019

**Misseldine, A.** “The mathematics of Mario Party 10,” *Journal of the Utah Academy of Science, Arts, and Letters* **95** (2019), 215–234

**Rode, E.L.** “On a generalized centralizer ring of a finite group that determines the group” *Algebra Colloquium* **26** #1 (2019), 31–50

Guo, V.Z.; **Weingartner, A.** “The practicality of shifted primes” *Integers* **18** (2018), Paper No. A93.

**Weingartner, A.** “On the constant factor in several related asymptotic estimates” *Mathematics of Computation* **88** #318 (2019), 1883–1902

## External Grants

**Eric M. Freden (PI)**

- *Carl D. Perkins Career and Technical Education* July 2018—June 2019 (\$210,762)

**Emma L. Turner (PI)**

- *USHE Concurrent Enrollment Quantitative Literacy* July 2018—June 2019 (\$101,532)

## Professional Memberships and Community Service

### Bryan L. Bradford

- Public school outreach

### James P. Brandt

- Member of:
  - *Mathematical Association of America*
  - *UAMTE* (President for 2018-19)

### Tenille Cannon

- Member of:
  - *National Council of Teachers of Mathematics*
  - *UAMTE*

### Eric M. Freden

- Member of:
  - *American Mathematical Society*
  - *Phi Beta Kappa Honor Society*
- Reviewer for *MathSciNet*

### Derek W. Hein

- Member of:
  - *The Institute of Combinatorics & Applications*
  - *Mathematical Association of America*

### Jana R. Lunt

- Member of:
  - *National Council of Teachers of Mathematics*
  - *Utah Council of Teachers of Mathematics*
- Public school outreach

### Gretchen R. Meilstrup

- Member of *Mathematical Association of America*

### Mark H. Meilstrup

- Member of *American Mathematical Society*

### Andrew F. Misseldine

- Reviewer for:
  - *Cogent Mathematics*
  - *Mathematics Magazine*

### Emma L. Turner

- Member of *Mathematical Association of America*
- Public school outreach

### Andreas J. Weingartner

- Reviewer for *Annales de la Faculté des Sciences de Toulouse*

## Professional Consulting

### Derek W. Hein

- Math content production for *Red Gate Education Services LLC* (\$14,000)

### Jana R. Lunt

- Professional development for elementary school teachers (\$2500)

### Andrew F. Misseldine

- Reviewer and/or writer for:
  - *Albert.io* \$(234)
  - *Open CHOICE* (\$800)
  - *zbMath.org* (\$75)
- Judge for *CLEP College Algebra* (\$400)



# Department of Nursing

## Mission Statement

The Department of Nursing is made up of academic programs that prepare individuals for professional nursing practice. A Bachelor of Science in Nursing is recommended for students preparing for entry into nursing practice. We offer a learning-centered education that meets the requirements for a baccalaureate degree at SUU and ensures that graduates have the abilities to be successful professional nurses. The purpose of the Department of Nursing is to provide learning opportunities that engage students in a comprehensive program of classroom and experiential learning that emphasizes caring, critical thinking, problem solving, ethical decision making, and communication.

## Student Learning Outcomes

1. Students will provide quality professional nursing care based on a synthesis of theoretical and empirical knowledge from nursing, physical and social sciences, arts and humanities, and life experiences.
2. Students will use evidence as the basis for clinically competent contemporary nursing care.
3. Students will communicate effectively using various means in a variety of roles and settings.
4. Students will optimize health care to diverse individuals, families, groups and communities through collaboration with interdisciplinary health care teams.
5. Students will demonstrate intellectual curiosity, critical thinking, and motivation toward life-long learning.
6. Students will influence the quality of nursing and health care using leadership skills, management concepts, and a knowledge of the political system.
7. Students will be legally and ethically accountable for clinical nursing practice.
8. Students will assume the role of generalist nurse and become responsible members of the profession

## Special Accreditation



The baccalaureate program at Southern Utah University is accredited by the Commission on Collegiate Nursing Education.

## Programs and Degrees Offered

### BACHELOR DEGREES

- BS Nursing:  
Pre-Licensure Emphasis  
RN to BSN Emphasis



## Departmental Faculty

Faculty	Rank	Specialty	Year Began at SUU
Donna De Silva	Assistant Professor, Non-Tenure Track	Pediatric Care	2015
Sharon L. Ford	Lecturer, Non-Tenure Track	Medical/Surgical Nursing	2017
Cristeen Kunz	Assistant Professor, Non-Tenure Track	Medical Surgery	2018
Elizabeth A. Hatfield	Professional Staff	Nursing Lab Specialist	2002
Selwyn Layton	Assistant Professor, Non-Tenure Track	Nursing Education	2009
Donna J. A. Lister	Associate Professor, Chair	Clinical Nursing	2005
SheriDawn Neilson	Assistant Professor, Non-Tenure Track	Critical/Trauma Care	2015
Bree Rayburn	Assistant Professor, Non-Tenure Track	Maternal & Newborn Nursing	2016
Kevin D. Tipton	Assistant Professor, Non-Tenure Track	Geriatric Nursing	2006
Lauren Traveller	Assistant Professor	Forensics, Mental Health	2017
Loni Wright	Assistant Professor, Non-Tenure Track	Medical Surgery	2018

## Productivity Highlights 2018—2019

### Scholarly Presentations at Professional Meetings

**Lister, D. J. A.; Traveller, L.**, “An example of incorporating nonacademic factors into pre-licensure nursing program admission criteria” *AACN 2018 Baccalaureate Education Conference*, November 15 2018, New Orleans LA

Ekroos, R.A.; **Traveller, L.** “Forensic nursing representation in online news reports: an exploration of public image” *International Conference on Forensic Nursing Science and Practice*, October 24-27 Reno NV

**Layton, S.** “Trauma in the ER: critical care nursing” *67<sup>th</sup> Annual UtSNA Convention*, February 9 2019, Provo, UT

**Layton, S.** “Traumatic brain injury: critical care nursing” *67<sup>th</sup> Annual UtSNA Convention*, February 9 2019, Provo, UT

**Neilson, S.** “Flight nursing as a career” *67<sup>th</sup> Annual UtSNA Convention*, February 9 2019, Provo, UT

## Professional Memberships and Community Service

### Donna De Silva

- Medical volunteer for *Iron County School District*
- Member of:
  - *Cedar City Sexual Assault Response Team*
  - *STECH Practical Nursing Advisory Board*
- Volunteer for *Canyon Creek Services*

### Sharon L. Ford

- Member of *National League of Nursing*

### Cristeen Kunz

- Member of:
  - *Association of Nurses in Professional Development*
  - *National League of Nursing*
- Volunteer for community CPR training

### Selwyn Layton

- Member of:
  - *American Association of Critical Care Nursing*
  - *American Nurses Association*
  - *Cedar City Hospital Leadership Council*
  - *Cedar City Hospital Practice Council*
  - *Emergency Nurses Association*
  - *National League of Nursing*
  - *Sigma Theta Tau International Honor Society*
  - *Utah Nurses Association*
- Medical volunteer for *Utah Summer Games*

### Donna J. A. Lister

- BSA medical volunteer
- Member of:
  - *Academic Leadership Committee*
  - *American Association of Nurse Practitioners*
  - *National League of Nursing*
  - *Utah Nurses Association*
  - *Utah Organization of Nurse Leaders*

### SheriDawn Neilson

- Member of:
  - *National League of Nursing*
  - *Quality Assurance Team for Classic Air Medical*
  - *Utah Nurses Association*

### Bree Rayburn

- Member of:
  - *American Nurses Association*
  - *National League of Nursing*
- Medical volunteer for *Utah Summer Games*

### Kevin D. Tipton

- Member of:
  - *American Nurses Association*
  - *Emergency Nurses Association*
  - *Mothers Against Drunk Driving*
  - *National League of Nursing*
  - *Utah Nurses Association*
  - *Utah Organization of Nurse Leaders*
  - *Cedar City Hospital ER Council*

### Lauren Traveller

- Member of:
  - *Academy of Forensic Nurses*
  - *American Academy of Forensic Sciences*
  - *American Academy of Nurse Practitioners*
  - *Cedar City Hospital Board of Trustees*
  - *Cedar City Hospital Patient Safety Committee*
  - *International Association of Forensic Nurses*
  - *National League of Nursing*
  - *Nevada Advanced Practice Nurse Association*
- Reviewer for *Journal of Forensic Nursing*



# Department of Physical Science

## Mission Statement

The mission of the Department of Physical Science is to provide an environment that fosters academic excellence in physical science disciplines. The Department of Physical Science at Southern Utah University offers undergraduate programs in Chemistry, Geosciences, Geographic Information Systems, and Physics. We operate several special learning environments for students that include a nationally certified environmental water laboratory, a GIS lab, the Ashcroft Observatory, the Edward & Shirley Stokes open chemistry lab, and a thin section preparation laboratory. We provide comprehensive classroom and experiential learning environments that accentuate critical thinking, problem solving, decision making, and communication in the physical sciences. We also serve as the center of physical science knowledge and expertise for southern Utah.

## Programs and Degrees Offered

### BACHELOR DEGREES

BA/BS Physical Science:  
Teacher Education Emphasis

BS Chemistry:  
Professional Emphasis  
Health Care Emphasis  
Forensic Emphasis  
Teacher Education Emphasis

BS Geology:  
BA Geosciences

### MINORS

Chemistry  
Chemistry Teacher Education  
Geography  
Geography Teacher Education  
Geology Teacher Education  
Physics  
Physics Teacher Education

### CERTIFICATE OF PROFICIENCY

Geographic Information System

## Student Learning Outcomes

### Chemistry

1. Students should be able to define problems clearly, develop testable hypotheses, design and execute experiments, analyze data using appropriate statistical methods, and draw appropriate conclusions.
2. Students should be able to use the peer-reviewed scientific literature effectively and evaluate technical articles critically.
3. Students should understand responsible disposal techniques, understand and comply with safety regulations, understand and use material safety data sheets (MSDS), recognize and minimize potential chemical and physical hazards in the laboratory, and know how to handle laboratory emergencies effectively
4. Students should be able to present information in a clear and organized manner, write well-organized and concise reports in a scientifically appropriate style.

### Geology

Students will demonstrate mastery of the following outcomes:

1. Knowledge of the physical and natural world
2. Integrative learning through teamwork, problem solving, inquiry, and analysis
3. Introduction and development of geological field and lab skills
4. Written and oral scientific communication

## Special Accreditation



Although not a formal accrediting body, the American Chemical Society's Committee on Professional Training establishes guidelines and procedures for the approval of bachelor's degrees in programs in chemistry. The Chemistry Professional Emphasis degree at Southern Utah University is approved by the ACS.

## Departmental Faculty

<b>Faculty</b>	<b>Rank</b>	<b>Specialty</b>	<b>Year Began at SUU</b>
Kristina B. Bronsema	Professional Staff	Lab Specialist	1997
Jacob C. Dean	Assistant Professor	Physical Chemistry	2018
Ganesh Ethiraj	Lecturer, Non-Tenure Track	Theoretical Chemistry	2018
Daniel J. Eves	Associate Professor	Bio-analytical Chemistry	2009
Robert L. Eves	Professor, Dean	Geochemistry	1988
Bruce R. Howard	Associate Professor	Biochemistry	2002
Jason Kaiser	Assistant Professor	Mineralogy	2014
Rebekah Karpel	Lecturer, Non-Tenure Track	Biochemistry	2018
Paul R. Larson	Professor	Geography	1994
David J. Maxwell	Lecturer, Non-Tenure Track	GIS	1997
Christopher F. Monson	Associate Professor	Analytical Chemistry	2011
Cameron Pace	Assistant Professor	Physics/Astronomy	2015
Elizabeth Pierce	Assistant Professor	Biochemistry	2015
J. Ty Redd	Professor	Organic Chemistry	1990
Matthew Rowley	Assistant Professor	Organic Chemistry	2016
Hussein A. Samha	Professor	Inorganic Chemistry	2001
Grant T. Shimer	Assistant Professor	Sedimentology	2016
Mackay B. Steffensen	Associate Professor, Chair	Organic Chemistry	2006
Elaine Vickers	Lecturer, Non-Tenure Track	Inorganic Chemistry	2014
Kim H. Weaver	Professor	Analytical Chemistry	2000
Casey A. Webb	Lecturer, Non-Tenure Track	Geology	2018
Nathan S. Werner	Assistant Professor	Organic Chemistry	2012
Brandon K. Wiggins	Assistant Professor	Computational Astrophysics	2016
Rhett R. Zollinger	Assistant Professor	Physics/Astronomy	2015



# Productivity Highlights 2018—2019

## Scholarly Presentations at Professional Meetings

Jeppesen, B.; Staheli, C.; **Dean, J.C.** “Light harvesting properties of bio-conjugate pigment protein complexes” *Utah Conference on Undergraduate Research*, February 22 2019, Ogden UT

Jeppesen, B.; Staheli, C.; **Dean, J.C.** “Investigating the light-absorbing properties of dipyrroles common to bilins” *Conference of the Utah Academy of Sciences, Arts, and Letters*, March 23 2019, Ogden UT

Hunter, R.; Ornstead, M.; **Monson, C.F.** “Supported lipid bilayer removal by buffer flow” *Conference of the Utah Academy of Sciences, Arts, and Letters*, March 23 2019, Ogden UT

Hansen, Z.; **Roper, L.K.**; **Pierce, E.** “The effects of housing and feed on nutritional content of eggs” *Conference of the Utah Academy of Sciences, Arts, and Letters*, March 23 2019, Ogden UT

Harmon, M.; Junyun, H.; **Pierce, E.**; **Weaver, K.H.** “Distribution and microbial use of molybdenum in soils west of Milford, UT” *Conference of the Utah Academy of Sciences, Arts, and Letters*, March 23 2019, Ogden UT

**Samha, H.A.**; Byers, J.; **Bahi, S.** “Demonstration in classroom, effect on learning” *Conference of the Utah Academy of Sciences, Arts, and Letters*, March 23 2019, Ogden UT

Smidt, J.; Jones, S.; **Wiggins, B.K.**; Gagliano, A. “Water formation from the first supernovae” 223<sup>rd</sup> *Meeting of the American Astronomical Society*, January 8 2019, Seattle WA

Smith, Z.D.; **Kaiser, J.F.**; Rowley, P.D.; Biek, R.F.; **Maxwell, D.J.** “Geologic mapping of the Fivemile Ridge 7.5-minute quadrangle, southwest Utah: structural Characterization and geochronological constraints of Oligocene-Miocene gravity slides of the Marysvale volcanic field” *American Geophysical Union Fall Meeting*, December 12 2018, Washington DC

## Scholarly Presentations (continued)

McCarthy, P.J.; Fiorillo, A.R.; **Shimer, G.T.**; Suarez, M.B.; Orphys, E. “Reconstructing sedimentary environments, biota, and paleoclimate within the Nanushuk Formation, Kukpowruk River, western North Slope, Alaska” *Geological Society of America, Annual Meeting*, November 6 2018, Indianapolis IN

Marcus M.C.; **Werner, N.S.** “9-BBN catalyzed hydroboration of enynes” *Conference of the Utah Academy of Sciences, Arts, and Letters*, March 23 2019, Ogden UT

Ruesch, G.L.; **Werner, N.S.** “Caffeine derived ligands in the Sonogashira cross-coupling reaction” *Conference of the Utah Academy of Sciences, Arts, and Letters*, March 23 2019, Ogden UT

## Honors, Awards and Special Recognition

### Jason Kaiser

- 2019 SUU Distinguished Educator

## Professional Consulting

### David J. Maxwell

- *Utah Geologic Survey* cartographic mapping (*gratis*)
- Diverse thermal mappings for wildfires (*gratis*)

### Mackay B. Steffensen

- Review of *MacMillan* molecular drawing tool (\$200)
- *Hanover Research* survey “Shape the future of teaching Organic Chemistry” (\$40)

### Rhett R. Zollinger

- *SUU Planetarium for Local Outreach* (\$150)

## Scholarly Publications

Maiuri, M.; Oviedo, M.B.; **Dean, J.C.**; *et al* "High magnetic field detunes vibronic resonances in photosynthetic light harvesting" *Journal of Physical Chemistry Letters* **9** #18 (2018), 5548–5554

Toa, Z.S.D.; **Dean, J.C.**; Scholes, G.D. "Revealing structural involvement of chromophores in algal light harvesting complexes using symmetry-adapted perturbation theory" *Journal of Photochemistry and Photobiology B* **190** (2019) 110–117

**Kaiser, J.F.; Maxwell, D.J.**; *et al* "Geologic map of the western half of the Fivemile Ridge 7.5-minute quadrangle, Iron and Garfield Counties, Utah" *United States Geological Survey USGS EdMap Report/Map* (2019)

**Maxwell, D.J.**; *et al* "Interim geologic map of the southwestern quarter of the Beaver 30'x60' Quadrangle, Beaver, Iron, and Garfield Counties, Utah" *Utah Geological Survey* 18 p., 1 pl., scale 1:100,000, OFR-686DM (2019)

Barney, J.; Torgersen, T.; **Monson, C.F.** "A diffusion limited titration using microfluidics" *Journal of the Utah Academy of Arts, Sciences, and Letters* **95** (2018), 235–249

**Pace, C.**; *et al* "The effects of radio jet feedback on star formation in satellite galaxies" *Journal of the Utah Academy of Arts, Sciences, and Letters* **95** (2018), 251–261

Samha, H.; Ginouves, J.; Clark, T.; LeBaron S.; Tapia, J.; Jackson, M.; **Pace C.** "CCD and GAIA observations indicate that WDS 022222+2437 is not gravitationally bound" *Journal of Double Star Observations* **15** #2 (2019), 228–231

Gu W.; Sardar, D.; **Pierce. E.**; Schmidt, E.W. "Roads to Rome: role of multiple cassettes In Cyanobactin Ripp biosynthesis" *Journal of the American Chemical Society* **140** #47 (2018), 16213–16221

Rau, H.H.; **Werner, N.S.** "Stereocontrolled synthesis of (E)-stilbene derivatives by palladium-catalyzed Suzuki-Miyaura cross-coupling reaction" *Bioorganic & Medicinal Chemistry Letters* **28** #16 (2018), 2693–2696

## Scholarly Publications (continued)

**Wiggins, B.K.**; Fryer, C.L.; Smidt, J.M.; Hartmann, D. H.; Lloyd-Ronning, N.; Belcynski, C. "The location and environments of neutron star mergers in an evolving universe" *Astrophysical Journal* **865** #1 (2018), Article 27

Zerkle, W.; Anselmo, D.; Hammack, T.; Johnson, G.; Taylor, M.; Young, S.; **Zollinger, R.** "CCD measurements of AB and AC components of WDS 20023+6438" *Journal of Double Star Observations* **15** #1 (2019), 193–196

Wilcox, K.; **Zollinger, R.R.** "Using exoplanet transits to characterize the Great Basin Observatory" *Journal of the Utah Academy of Arts, Sciences, and Letters* **95** (2018), 263–269

## External Grants

### David J. Maxwell

- *Forest Service (USDA)* DATIM Project GIS software support, concluding Spring 2019 (\$1250)

### Jason F. Kaiser, *et al*

- *NSF* "GP-Extra RiGs: Roadmaps into the Geosciences", ( SUU amount \$14,846)
- *USGS* "Mapping the Fivemile Ridge Quadrangle" (\$9897)

### Brandon K. Wiggins, *et al*

- *Los Alamos National Security* "Massive Black Hole Formation", Summer 2018 (\$32,648)

### Nathan S. Werner

- *Organic Syntheses Inc.* "Synthesis of beta-Lactams by Formal [2+2] Cycloaddition Reaction", January 2019 (\$8000)

### Rhett R. Zollinger, *et al*

- *NASA Space Consortium* "Physics Teacher Training Workshop", September 2018 (\$2500)

## Professional Memberships and Community Service

### Jacob C. Dean

- Member of:
  - *American Chemical Society*
  - *American Physical Society*
- Reviewer for:
  - *Journal of Physical Chemistry A*
  - *Dutch Research Council (NWO)*
- Public school outreach

### Daniel J. Eves

- Public school outreach
- Reviewer for *Utah Academy*

### Jason Kaiser

- Member of:
  - *American Association of Petroleum Geologists*
  - *American Geophysical Union*
  - *Association for Women Geoscientists*
  - *Geological Society of America*
  - *National Association of Geoscience Teachers*
  - *Utah Geological Association*
- Public school outreach

### Paul R. Larson

- Member of:
  - *American Association of Geographers*
  - *Iron County Historical Society*
  - *National Council for Geographic Education*
  - *Phi Kappa Phi Honor Society*

### David J. Maxwell

- Member of:
  - *ESRI Utah License Modernization Committee*
  - *Five Counties GIS User Group*
  - *Utah Geographic Information Council*
- Mapping of LDS ward boundaries

### Christopher F. Monson

- Member of:
  - *American Chemical Society*
  - *Utah Academy of Sciences, Arts, and Letters*
- Public school outreach

### Cameron Pace

- Member of *Great Basin Observatory Consortium*
- Public school outreach

### J. Ty Redd

- Member of *American Chemical Society*

### Hussein A. Samha

- Public school outreach

### Grant T. Shimer

- Member of:
  - *American Association of Petroleum Geologists*
  - *Association of Women Geoscientists*
  - *Geological Society of America*
  - *Sigma Gamma Epsilon Honor Society*
  - *Society for Sedimentary Geology*
- Public school outreach

### Mackay B. Steffensen

- Member of *American Chemical Society*
- Public school outreach
- Reviewer for *Tetrahedron Letters*

### Elaine A. Vickers

- Member of National Advisory Committee of *Chemical Education Foundation*
- Public school outreach

### Nathan S. Werner

- Member of *American Chemical Society*
- Public school outreach
- Reviewer for:
  - *European Journal of Medicinal Chemistry*
  - *Journal of Nanomaterials*

### Brandon K. Wiggins

- Member of:
  - *American Astronomical Society*
  - *Utah Academy*
- Public school outreach
- Reviewer for *Astrophysical Journal*

### Rhett R. Zollinger

- Member of:
  - *American Astronomical Society*
  - *American Association of Physics Teachers*
  - *Great Basin Observatory Consortium*
  - *Sigma Pi Sigma Honor Society*
  - *Starfest 2018 Planning Committee*
- Public school outreach



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