

**David W. Britt**  
Biological Engineering, Utah State University  
Logan, Utah, 84322-4105

### (a) PROFESSIONAL PREPARATION

#### Undergraduate Institutions

University of Utah	Salt Lake City, UT	Chemistry / Materials Sci & Eng.	B.S. 1992
University of Puerto Rico	Humacao, PR	Spanish 1-yr Immersion	Minor 1992

#### Graduate Institution

University of Utah	Salt Lake City, UT	Bioengineering	Ph.D. 1998
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#### Postdoctoral Institution

Max Planck Institute for Biophysical Chemistry	Göttingen, Germany	Membrane Biophysics / microscopy	1998 - 2001
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### (b) APPOINTMENTS

2016 – present	Interim Department Head	Utah State University
2008 – present	Associate Professor	Utah State University
2002 – 2008	Assistant Professor	Utah State University
2001 – 2002	Research Assistant Professor	University of Utah

### (c) PRODUCTS

(i) (5 closely related) *italics = graduate student*, **bold = undergrad**; Underline = high school student

1. *Bonebrake, M, Anderson, K*, **Valiente, J**, Jacobson, A, McLean JE, Anderson, A, Britt DW. Biofilms benefiting plants exposed to ZnO and CuO NPs studied with a root-mimetic hollow fiber membrane. J Agric Food Chem. **2018**. 66(26):6619-6627.
2. Jacobson, A., **Doxie, S., Potter, M., Adams, J.**, Britt, DW, McManus, P., McLean, JE, Anderson, AJ. Interactions Between a Plant Probiotic and Nanoparticles on Plant Responses Related to Drought Tolerance. Industrial Biotechnology, **2018**. 14:3, 148-156.
3. Yang, KY, Doxey, S, McLean, JE, Britt, DW, Watson, A, Al Qassy, D, Jacobson, A, Anderson, AJ. Remodeling of root morphology by CuO and ZnO nanoparticles: effects on drought tolerance for plants colonized by a beneficial pseudomonad. Botany, **2018**. 96(3), 175-186.
4. **Adams J, Wright M, Wagner H, Valiente J**, Britt DW, Anderson AJ. Cu from dissolution of CuO nanoparticles signals changes in root morphology. Plant Physiol Biochem. **2017**. 110, 108-117.
5. Anderson AJ, McLean JE, Jacobson AR, Britt DW. CuO and ZnO nanoparticles modify interkingdom cell signaling processes relevant to crop production. J Agric Food Chem. May 12, **2017**.

(ii) (5 other significant products)

1. **Wright M, Adams J**, Yang K, McManus P, Jacobson A, Gade A, McLean JE, Britt DW, Anderson A. A root colonizing pseudomonad lessens stress responses in wheat imposed by CuO nanoparticles. Oct 24, **2016**. PLOS ONE
2. Watson, J-L.; Fang, T; Dimkpa, CO; Britt, DW, McLean, JE, Jacobson, A, Anderson, AJ. The phytotoxicity of ZnO nanoparticles on wheat varies with soil properties. Biometals **2015**. 28, 101-112.
3. Anderson, AJ, McLean, JE, *McManus, P*, Britt, DW. Soil chemistry influences the phytotoxicity of metal oxide nanoparticles. Int. J. Nanotechnology. **2016**. Vol 14, Issues 1-6.

4. Fang, T.; Watson, J-L, Goodman, J, Dimkpa, CO, Martineau, N, Das, S, McLean, JE, Britt, DW, Anderson, AJ. Does doping with aluminum alter the effects of ZnO nanoparticles on the metabolism of soil pseudomonads? *Microbiological Research*. **2013**. 168(2), 91-98.
5. **Stewart, J.; Hansen, T.;** McLean, J. E.; *McManus, P.*; Das, S.; Britt, D. W.; Anderson, A. J.; Dimkpa, C. O.: Salts affect the interaction of ZnO or CuO nanoparticles with wheat. *Environmental Toxicology and Chemistry*. **2015**. 34, 2116-2125.

#### **(d) SYNERGISTIC ACTIVITIES**

##### **1. Education:**

USU Eldon J. Gardner Teacher of the Year for USU (2015)—this is the highest recognition of teaching excellence at USU.

Department Teaching Excellence Award (2007)—this was a USU campus-wide competition awarded to the Biological Engineering Dept. for strong efforts in redefining the core curriculum, creating an interactive learning environment, and continual high teaching evaluations.

##### **2. Curriculum development:**

PI on NSF Department Level Reform grant (#0431824) for Engineering Education (7/15/04 – 7/15/06). Restructured the USU Biological Engineering core curriculum towards a laboratory-based learning approach supplemented with digital learning objects developed in collaboration with the Department of Instructional Technology.

Developed *Introduction to Biological Engineering Research and Design*, BENG 1000 (2007 - present) to involve students in research starting their first semester. This course has grown from 6 students in 2007 to 120 students in 2017, centering around a five-part lab module teaching students how to review literature, develop protocols to synthesize and characterize nanoparticles, and how to effectively communicate results in a poster format.

Biological Engineering Department Undergraduate Curriculum Committee Chair (2005 – 2017). Continued restructuring courses toward student-centric, experiential learning environments.

##### **3. Outreach:**

Native American Summer Mentor Program (NASMP) faculty mentor: Partnership with USU Blanding Campus, a Native American Serving Nontribal Institute: Hosted 2 students in lab each summer 2013-present. The two students in the PI lab from 2015 presented their work at the 2015 SACNAS annual meeting and both are now full-time students in Biological Engineering.

Developed and ran an 8-week *pilot REU Summer Program* in 2017 that hosted 9 underrepresented students from 2-year colleges. Three participants presented their work at the 2017 SACNAS annual meeting and two are full-time students in Biological Engineering.

USU Engineering State: Introduce large groups of high school students to biological engineering through hands-on, 1-hour challenge sessions.

Biotechnology Summer Academy: Host 2 high school students for 1 week each summer (2003 – present).

Co-Vice Chair for Gordon Research Conference on Nanoscale Science and Engineering in Agriculture and Food (2015) – 119 attendees. Co-Chair for same GRC 2018 – 150 attendees.