

# Brian Bill

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## EDUCATION

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### **Ph. D. Microbiology**

April 2019

University of Oklahoma, Norman, OK

### **B.S. Microbiology (minor Chemistry)**

April 2012

Weber State University, Ogden, UT

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## TEACHING EXPERIENCE

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### **Instructor, Mississippi State University, Department of Biological Sciences, Starkville, MS**

- BIO 3304- General Microbiology Lecture
- BIO 4405/6405- Pathogenic Microbiology Laboratory

Fall 2019 - Present

### **Instructor, Duke TIP at Georgia Tech**

- Summer Studies- Biomedical Engineering

Summer 2019

### **Graduate Teaching Assistant, University of Oklahoma, Norman, OK**

- MBIO 2815- Introduction to Microbiology Laboratory
- MBIO 4883- Water Microbiology
- MBIO 4873- Molecular and Physiology Laboratory
- MBIO 3812- Fundamentals of Microbiology Laboratory

Fall 2013 – Spring 2019

### **Software Carpentry Instructor Helper, University of Oklahoma, Norman, OK**

Assisted with the Software Carpentry workshop series at the University of Oklahoma

March 2016

### **Private Tutor in Microbiology**

October 2010 - August 2013

Weber State University, Ogden, UT

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## RESEARCH EXPERIENCE

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### Graduate Research Assistant

- Biogeography, physiology, chemical ecology, and predator-prey interactions of the order Myxococcales.
- Molecular studies on the impact of disturbances on microbial communities
- Discovery of novel secondary metabolites
- Corrosion and fuel fouling in diesel/biodiesel storage systems
- Cultivation of novel microorganisms

January 2014 – April 2019

University of Oklahoma, Norman, OK

### Undergraduate Research Assistant

- Developed research methods and gathered data on reducing human exposure when preparing toxic pharmaceuticals

April 2013 – August 2013

Weber State University, Ogden, UT

### Lead Research Technician

- Lead a team of research technicians and engineers for the development and testing of medical support devices
- Managed budgets and testing schedules
- Designed experiments for product comparison and development
- Wrote, reviewed, and delivered product reports to customers
- Facilitated communication between our team and the customers

April 2013 – August 2013

EC-Service, Centerville, UT

### Research Technician

- Designed and conducted testing of medical support devices, such as beds, boots, wheelchairs, and wound dressings
- Conducted microbial screens and testing
- Aided in product design and standards testing
- Wrote and reviewed product testing reports

October 2010 – April 2013

EC-Service, Centerville, UT

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## PEER REVIEWED PUBLICATIONS

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Call, E., **Bill, B.**, McLean, C., Call, N., Bernkopf, A., and Oberg, C. (2017). Hazardous Drug Contamination of Drug Preparation Devices and Staff: A Contamination Study Simulating the Use of Chemotherapy Drugs in a Clinical Setting. *Hospital Pharmacy*, 52(8), 551–558.

Lucas, J., **Bill, B.**, Stevenson, B., and Kaspari, M. (2017). The microbiome of the ant-built home: the microbial communities of a tropical arboreal ant and its nest. *Ecosphere*, 8(2), e01639.

Call, E., Pedersen, J., **Bill, B.**, Black, J., Alves, P., Brindle, C. T., ... & Clark, M. (2015). Enhancing pressure ulcer prevention using wound dressings: what are the modes of action?. *International wound journal*, 12(4), 408-413.

Call, E., Pedersen, J., **Bill, B.**, Oberg, C., & Ferguson-Pell, M. (2013). Microclimate impact of prophylactic dressings using in vitro body analog method. *Wounds: a compendium of clinical research and practice*, 25(4), 94-103.

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## MANUSCRIPTS IN PREPARATION

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**Bill, B.**, Khan, M. and Stevenson, B. "The effect of prey on secondary metabolite production by *Myxococcus fulvus*."

**Bill, B.** and Stevenson, B. "Cultivation-independent measures of the diversity and distribution of the Myxobacteria."

**Bill, B.**, Junkins, E., and Stevenson, B. "Comparison of genomic and functional traits among families in the Myxococcales"

**Bill, B.**, Sandu, Z., Matthews, C., and Stevenson, B. "Improved isolation of Myxobacteria using inhibitory dyes."

**Bill, B.**, Lucas, J., Kaspari, M., and Stevenson, B. "Microbiomes of wild mice in the Chihuahuan desert."

**Bill, B.**, Kaspari, M., and Stevenson, B. "Effects of NPK fertilization on leaf-litter microbial communities in a low-land tropical rainforest."

**Bill, B.**, Lucas, J., Weiser, M., Kaspari, M., and Stevenson, B. "The effect of rodent populations on the richness and structure of soil microbial communities in a desert ecosystem."

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## MENTORING EXPERIENCE

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### Undergraduate Researchers in Microbiology

University of Oklahoma, Norman, OK

- David Soto (August 2017 - present)
  - Screening of secondary metabolites produced by myxobacteria on a variety of media
- Zainab Sandhu (January 2017 - present)
  - Cultivation of novel myxobacteria
  - predator-prey interactions
- Quyet-Thang Van (January 2017 – May 2017)
  - Cultivation of myxobacteria
  - Screening of secondary metabolites produced by myxobacteria on a variety of media
- Kacey Rice (November 2016 – May 2017)
  - Cultivation of novel myxobacteria
  - Predator-prey interactions
- Alec Thompson (August 2016 – May 2017)
  - Cultivation of myxobacteria

- The effects of antibiotic stress on secondary metabolite production in *Myxococcus fulvus*
- Clayton Matthews (April 2016 – May 2017)
  - Cultivation of myxobacteria
  - Strategies to purify myxobacteria
- Shilpa Mathew (May 2016 – October 2016)
  - Cultivation of myxobacteria
- Maaz Khan (January 2016 – May 2018)
  - Cultivation of myxobacteria
  - Predator-prey interactions
  - Screening of secondary metabolites produced by myxobacteria in the presence of different prey
- Benjamin Hickerson (December 2014 – August 2015)
  - Cultivation of myxobacteria
  - Chemotaxis of myxobacteria
- Caitlin Roberts (August 2014 – May 2015)
  - Cultivation of myxobacteria
  - Screening of secondary metabolites produced by myxobacteria on a variety of media
- Raaji Hirani (August 2014 – May 2015)
  - Cultivation of myxobacteria
  - Cultivation of micro-organisms from contaminated fuel systems

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## UNIVERSITY SERVICE

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### **Vice-chair, Academic Affairs Committee**

August 2016 – May 2017

Graduate Student Senate, University of Oklahoma, Norman, OK

### **President, Microbiology and Plant Biology Graduate Student Association**

February 2016 – August 2016

University of Oklahoma, Norman, OK

### **Founder, Microbiology and Plant Biology Graduate Student Association**

February 2016

University of Oklahoma, Norman, OK

### **Chair, Academic Affairs Committee**

January 2015 – May 2016

Graduate Student Senate, University of Oklahoma, Norman, OK

### **Cox Speaker Series Committee**

August 2014 – April 2015

University of Oklahoma, Norman, OK

### **President, Microbiology Club**

August 2011 – April 2012

Weber State University, Ogden, UT

### **Undergraduate Research Journal Student Reviewer**

- Reviewed submissions to the Weber State University undergraduate research journal, Ergo. Made publication recommendations based on quality of research

February 2011 – February 2012

Ergo, Weber State University, Ogden, UT

### **College of Science Student Liaison**

- Communicated with the College of Science faculty and student reviewers for Weber State University's undergraduate journal, Ergo.

February 2011 – February 2012

Ergo, Weber State University, Ogden, UT

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## **MEDIA AND SOCIAL IMPACT**

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### **Blog: BillBriTheScienceGuy.com**

BillBriTheScienceGuy.com is a blog in which I discuss the incorporation of gaming principles into STEM education to facilitate student engagement and learning. I give advice about course design, provide sample assignments/lab protocols, and quick tips and tricks to improve the quality of courses. My target audience are educators in undergraduate STEM major programs.

April 2018 – present

Articles include:

- Bill, B. "Game-based Learning Guide Episode I: Games in Microbiology." May 4, 2018. <http://billbrithescienceguy.com/game-based-learning/game-based-learning-guide-episode-i-games-in-microbiology/>.
- Bill, B. "A Simple Taxonomy to Identify and Engage Different Types of STEM Students." Apr 23, 2018. <http://billbrithescienceguy.com/course-design/a-simple-taxonomy-to-identify-and-engage-different-types-of-stem-students/>
- Bill, B. "Engaging STEM Students with "Elective" Assignments." Apr 19, 2018. <http://billbrithescienceguy.com/course-design/engaging-students-by-giving-them-a-choice-of-assignments/>
- Bill, Brian E. "Science Communication Using Memes." Apr 19, 2018. <http://billbrithescienceguy.com/instructor-resources/science-communication-using-memes/>
- Bill, B. "Ted Talk Review Assignment." Apr 19, 2018. <http://billbrithescienceguy.com/instructor-resources/ted-talk-review/>

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## **PROFESSIONAL DEVELOPMENT: CERTIFICATES, SEMINARS, AND WORKSHOPS ATTENDED**

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### **Building with backward design: How to create course goals and learning outcomes that inspire lifelong learning**

April 2019

University of Oklahoma, Norman, OK

### **Passing inspection: Assessment strategies that help students learn and make you a better teacher**

March 2019

University of Oklahoma, Norman, OK

**Knocking Down Walls: Teaching and Learning Activities that Increase Classroom Engagement**

March 2019

University of Oklahoma, Norman, OK

**Location, Location, Location: Situational factors that can make or break course development and instruction**

February 2019

University of Oklahoma, Norman, OK

**Voice and Voices Series: Teaching Efficiency**

January 2019

University of Oklahoma, Norman, OK

**LGBTQ Ally Training**

October 2018

University of Oklahoma, Norman, OK

**Mentoring Undergraduate Research Workshop**

September 2018

University of Oklahoma, Norman, OK

**Problem-based Learning in Engineering Education**

September 2018

University of Oklahoma, Norman, OK

**Writing a Teaching Philosophy Statement: Documenting Your Perspective on Teaching and Learning**

August 2018

American Society for Microbiology, Webinar

**Tiny Earth Network/Small World Initiative Antibiotic Discovery Course Instructor Training**

July 2018

University of Connecticut, Storrs, CT

**Camp Completion**

May 2018

University of Oklahoma, Norman, OK

**Teaching without Powerpoint**

May 2018

University of Oklahoma, Norman, OK

**Creative Brainstorming for Your Classroom**

May 2018

University of Oklahoma, Norman, OK

**Blended Teaching Design 101**

May 2018

University of Oklahoma, Norman, OK

**Creating a Course Flyer and Invitation Card**

May 2018

University of Oklahoma, Norman, OK

**Broadening your Audience and Perspective: Best Practices and Strategies for Effective Science Communication**

April 2018

University of Oklahoma, Norman, OK

**Writing NSF Proposal**

April 2018

University of Oklahoma, Norman, OK

**Teaching Creatively in STEM**

April 2018

University of Oklahoma, Norman, OK

**Inclusive Teaching Workshop for STEM Graduate Teaching Assistants**

April 2018

University of Oklahoma, Norman, OK

**Small Teaching Strategies: Large Classes**

February 2018

University of Oklahoma, Norman, OK

**Gamification and Behavioral Design: The Octalysis Framework**

January 2018

Udemy, webinar

**Research Bazaar**

October 2017

University of Oklahoma, Norman, OK

**Promoting a Learning Mindset**

October 2017

University of Oklahoma, Norman, OK

**Reaching Students in their First Year**

September 2017

University of Oklahoma, Norman, OK

**Digital Storytelling, Game Design, and Learning**

August 2017

University of Oklahoma, Norman, OK

**GOBLIN: Game Offer Bold Learning Insights Nowadays**

February 2017

University of Oklahoma, Norman, OK

**Software Carpentry Instructor Training**

October 2016

University of Oklahoma, Norman, OK

**Developing Your One-Page Specific Aims**

September 2016

University of Oklahoma, Norman, OK

**Software Carpentry**

May 2014

University of Oklahoma, Norman, OK

**Fellow, Graduate Teaching Academy**

April 2014

Center for Teaching Excellence, University of Oklahoma Graduate College, Norman, OK

**Professional Ethics Training and Responsible Conduct of Research Training**

November 2013

University of Oklahoma, Norman, OK

**Protecting Human Research Participants**

July 2012

National Institutes of Health, online course

**PreDOE: Basic Statistics for Experimenters**

November 2012

Stat-ease, Inc., online course

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**AWARDS AND HONORS**

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**Provost's Certificate of Distinction in Teaching**

October 2019

University of Oklahoma, Norman, OK

**Provost's Certificate of Distinction in Teaching**

February 2019

University of Oklahoma, Norman, OK

**Graduate Student Senate Travel Grant**

October 2018

University of Oklahoma, Norman, OK

**Robberson Conference Presentation Creative Exhibition Travel Grant**

October 2018

University of Oklahoma, Norman, OK



**Robberson and Wethington Prestigious Course Scholarship**

October 2018

University of Oklahoma, Norman, OK

**2016 Provost's Outstanding Graduate Teaching Assistant**

March 2017

University of Oklahoma, Norman, OK

**George and Cleo Cross Graduate Student Endowed Scholarship**

March 2017

University of Oklahoma, Norman, OK

**Outstanding Service Award in Microbiology**

April 2012

Weber State University, Ogden, UT

**College of Science Activity Scholarship**

August 2011

Weber State University, Ogden, UT

**College of Performing Arts Activity Scholarship**

August 2006

Weber State University, Ogden, UT

**High Honors at Entrance Scholarship**

August 2006

Weber State University

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**PROFESSIONAL MEMBERSHIPS**

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Tiny Earth Network

Small World Initiative

International Society for Microbial Ecology

National Science Teachers Association

American Society for Microbiology

Global Soil Biodiversity Initiative

Ecological Society of America

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**POSTERS AND PRESENTATIONS**

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**Bill, B.\*** and Stevenson, B. "Cultivation-independent measures of global diversity and distribution within the order Myxococcales." Poster presentation at: 17th International Symposium on Microbial Ecology, Leipzig, Germany. 12-17 August 2018.

Khan, M.\*, **Bill, B.**, Stevenson, B. "Just like Hannibal Lecter, *Myxococcus fulvus* is a Picky Eater." Poster presentation at: Biochemistry Senior Research Symposium, University of Oklahoma, Norman, OK. 02 May 2018.

Sandhu, Z.\*, **Bill, B.**, Stevenson, B. “Isolation of a Novel Myxobacterium using Molecular Screening Techniques.” Oral presentation at: Undergraduate Research Day, University of Oklahoma, Norman, OK. 07 April 2018.

**Bill, B.\***, Stevenson, B. “Cultivation-independent measures of Myxobacteria global diversity and distribution.” Oral presentation at: Oklahoma Academy of Science, Rogers State University, Claremore, OK. 03 November 2017.

**Bill, B.\***, Stevenson, B. “Cultivation-independent measures of global diversity and distribution reveal over-dispersion in Myxobacteria.” Oral presentation at: 44th International Conference on the Biology of Myxobacteria, Arlington, VA. 16-19 June 2017.

Khan, M.\*, **Bill, B.**, Stevenson, B. “Antibiotic production from bacterial predator-prey interactions.” Oral presentation at: Undergraduate Research Day, University of Oklahoma, Norman, OK. 08 April 2017.

Thompson, A.\*, **Bill, B.**, Cichewicz, R., Stevenson, B. “The effects of sub-inhibitory concentrations of antibiotics on the secondary metabolite production of *Myxococcus fulvus*.” Poster presentation at: Undergraduate Research Day, University of Oklahoma, Norman, OK. 08 April 2017.

Matthews, C.\*, **Bill, B.**, Stevenson, B. “Improved isolation of Myxobacteria using inhibitory dyes.” Poster presentation at: Undergraduate Research Day, University of Oklahoma, Norman, OK. 08 April 2017.

Sandhu, Z.\*, **Bill, B.**, Stevenson, B. “*Archangium* sp. predation varies by *E. coli* isolate.” Poster presentation at: 2017 FYRE Poster Session, University of Oklahoma, Norman, OK. 03 May 2017.

Van, Q.\*, Thompson, T., **Bill, B.**, Stevenson, B. “The secondary metabolite production of *Archangium* sp. Varies with carbon source.” Poster presentation at: 2017 FYRE Poster Session, University of Oklahoma, Norman, OK. 03 May 2017.

Matthews, C.\*, **Bill, B.**, Stevenson, B. “Improved Isolation of Myxobacteria using Inhibitory Dyes.” The Curiosity to Creativity Symposium, University of Oklahoma, Spring 2017.

Khan, M.\*, **Bill, B.**, Stevenson, B. “The Bacterial Predator *Myxococcus fulvus* Exhibits Prey Preferences.” Poster presentation at: 2016 FYRE Poster Session, University of Oklahoma, Norman, OK. 04 May 2016.

**Bill, B.\***, Kaspari, M., and Stevenson, B. “Effects of nutrient treatments on leaf-litter microbial communities in a lowland tropical rainforest.” Oral presentation at: Annal Meeting of the Missouri Valley Branch and the Missouri Branch of the American Society of Microbiology, University of Kansas Medical Center, Kansas City, KS. 04-05 March 2016.

Pedersen, J.\*, **Bill, B.**, Call, E. “In-vitro Measurement of the Impact of a Turn and Positioning Device on Microclimate When Left in Place Following Use.” Poster presentation at: The Symposium on Advanced Wound Care. 2013.

Call, E.\*, Pedersen, J., **Bill, B.**, McCausland, D., Tsuber, V., Grieng, M., Davis, K. “Recent improvements in methods of measuring pressure and shear offer increased accuracy, repeatability, and clinical applicability and future ISO standards application.” Oral presentation at: 4<sup>th</sup> Congress of the World Union of Wound Healing Societies. 2012.

**Bill, B.\***, Pedersen, J., Call, E. “In vitro comparison of the prophylactic properties of two leading commercially available wound dressings.” Poster presentation at: The Symposium on Advanced Wound Care. 2012.

Pedersen, J.\*, **Bill, B.**, Call, E. “Friction and Cross-Sectional Shear Properties of Pressure Ulcer Preventing Boots.” Poster presentation at: The Symposium on Advanced Wound Care. 2012.

**Bill, B.\***, Pedersen, J., Call, E. “Human Cadaver Testing to Determine the Reliability of Heel Boot Positioning or ‘Grip’ of Eight Commercially Available Pressure Relieving Heel Protector Boots.” Poster presentation at: The Symposium on Advanced Wound Care. 2012.

**Bill, B.**, Mora, E.\*, Oberg, C., Culumber, M. “Screening and Isolation of Cellulytic Microorganisms from the Great Salt Lake, UT.” Oral presentation at: National Conference on Undergraduate Research. 2012.

Call, E.\*, Pedersen, J., **Bill, B.** “Wheelchair cushions and ISO testing.” Oral presentation at: Western Australian Allied Health Group. 2011.

Call, E.\*, Pedersen, J., **Bill, B.**, Oberg, C. “Dressings in Prophylaxis.” Oral presentation at: Inaugural Pan Pacific Pressure Ulcer and Venous Leg Ulcer Forum. 2011.

Call, E.\*, McCausland, D., Greg, M., Pedersen, J., **Bill, B.** “An Instrumented Indenter for Measurement of Pressure Distribution in Wheelchair Cushions.” Oral presentation at: Fourteenth Annual European Pressure Ulcer Advisory Panel Meeting. 2011.

Call, E.\*, Pedersen, J., **Bill, B.**, Oberg, C. “Wound Dressing Shear Test Method (Bench) Providing Results Equivalent to Humans.” Poster presentation at: Fourteenth Annual European Pressure Ulcer Advisory Panel Meeting. 2011. Pg 143.

Call, E.\*, Pedersen, J., **Bill, B.**, Oberg, C., Ferguson-Pell, M. “Wound Dressings: Measuring the Microclimate they Create.” Fourteenth Annual European Pressure Ulcer Advisory Panel Meeting. 2011.

Call, E.\*, Pedersen, J., **Bill, B.** “Microclimate Measurements with Human Subjects on Custom Carved Cushions.” Oral presentation at: 27th International Seating Symposium. 2011.

Call, N., **Bill, B.\***, Call, E. “Antimicrobial Properties of Four Hospital Mattress Cover Fabrics.” Poster presentation at: American Society for Microbiology Intermountain Branch Annual Meeting. 2011.

**Bill, B.\***, Mora, E., Oberg, C., Culumber, M. “Screening and Isolation of Cellulytic Microorganisms from the Great Salt Lake, UT.” Poster presentation at: American Society for Microbiology Intermountain Branch Annual Meeting. 2011.

\*denotes presenting author

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## REFERENCES

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Available upon request.