

## BRENT D. GILLES

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University of West Georgia

Education Annex Room 126

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### Education

Ph.D. in Curriculum and Instruction, Science and Environmental Education	2017
Minor in Environmental Studies	
Indiana University, Bloomington, IN	
Dissertation: Preservice Teachers' Discursive Approaches to Constructing Scientific Arguments from Evidence to Claim	
Advisor: Dr. Gayle Buck	
Master of Education, Secondary Education	2010
Valparaiso University, Valparaiso, IN	
Bachelor of Science, Meteorology	2007
Minors in Mathematics and Television-Radio Communications	
Valparaiso University, Valparaiso, IN	

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### Academic Experience

<b>Assistant Chair of Secondary Programs</b> , University of West Georgia	<i>2023-Current</i>
<ul style="list-style-type: none"><li>• Coordinate faculty advising and mentoring for students</li><li>• Coordinate comprehensive exam administration</li><li>• Assist students in enrolling</li><li>• Problem-solve student issues</li><li>• Lead recruitment and retention of students</li><li>• Assist with curriculum development</li><li>• Lead accreditation activities for graduate programs</li><li>• Coordinate schedule each semester</li><li>• Assist in identifying and hiring part time faculty</li></ul>	
<b>Associate Professor</b> , University of West Georgia, Carrollton, GA	<i>2022-Current</i>
<ul style="list-style-type: none"><li>• Teach elementary and secondary science methods courses</li><li>• Teach secondary STEM-based courses</li><li>• Teach a variety of other pedagogy and education leadership courses for k-12</li><li>• Supervise students in the field</li><li>• Advise students through graduate programs</li></ul>	

#### Courses Taught

Teaching Content and Process: Science Education  
Project Based Instruction (STEM)  
Environmental Education for Teachers  
Instructional Strategies for Science Education in Secondary  
Instructional Strategies in Secondary Science Lab  
Technology in the Math and Science Classroom  
Knowing & Learning in Math & Science Education  
Classroom Interactions (STEM)  
Classroom Instruction and Management  
Teaching Internship  
Advanced Instructional Strategies for 21st Century  
Research for Doctoral Dissertation  
Contemporary Issues in Education  
Culminating Project SEED Ed.S.

Culminating Experience SEED Ed.S.

Curriculum and Trends in Education

**Director of Graduate Program Coordination**, University of West Georgia 2022-2023

- Coordinate faculty advising and mentoring for students
- Coordinate comprehensive exam administration
- Assist students in enrolling
- Problem-solve student issues
- Lead recruitment and retention of students
- Assist with curriculum development
- Lead accreditation activities for graduate programs

**Assistant Professor**, University of West Georgia, Carrollton, GA 2017-2022

- Teach elementary and secondary science methods courses
- Teach STEM-based courses
- Teach a variety of other pedagogy and education leadership courses
- Supervise students in the field
- Advise students through graduate programs

**Program Coordinator**, University of West Georgia UTeach Program 2018-2019

- Develop curriculum
- Create schedule for courses
- Place students in field experiences
- Advise students

**Associate Instructor**, Indiana University, Bloomington, IN 2013-2017

- Taught elementary and secondary science methods
- Taught content-focused science course
- Supervise students in the field
- Deliver and evaluate classroom activities
- Support preservice teachers in developing best practices for their future classroom

Courses Taught

Science in the Elementary School

Science and Mathematics Elementary Laboratory-Field Experience

Methods of Teaching Middle/High School Science

Classroom Management in Science

Introduction to Scientific Inquiry

**Instructor, Saturday Science**, Indiana University, Bloomington, IN Spring 2014

- Design weather unit appropriate for 3<sup>rd</sup> and 4<sup>th</sup> grade students
- Deliver lessons

**Science Teacher**, Whiteland Community High School, Whiteland, IN 2010-2013

- Taught Earth and Space Science and Physical Science
- Sponsor of the Help the Homeless Club
- Served on school discipline committee

**Science and Math Teacher**, Luther High School North, Chicago, IL 2008-2010

- Taught Physics, Chemistry, and Algebra
- Dodgeball Club sponsor

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**Professional Development Experience**

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<b>Coordinator</b> , Lit-ing the STEM: Engaging Students in Math and Science Literacy Central High School	2020-2021
<ul style="list-style-type: none"> <li>• Coordinate professional development logistics</li> <li>• Design curriculum</li> <li>• Collaborate on lessons with participants</li> </ul>	
<b>Coordinator</b> , What are the Eco-Educational Resources for Water Carrollton City Schools	2018-2020
<ul style="list-style-type: none"> <li>• Coordinate professional development logistics</li> <li>• Oversee grant budget</li> <li>• Design curriculum for K-12 teachers and students</li> <li>• Foster community resources</li> </ul>	
<b>Instructor</b> , Natural Wonderers: Enhancing Southern Indiana's Teachers' Efforts to Integrate Scientific Practices and Educational Technologies into the Life and Earth Sciences	2016- 2017
<ul style="list-style-type: none"> <li>• Coordinate professional development logistics</li> <li>• Design activities</li> <li>• Develop curriculum used by teachers in their classrooms</li> <li>• Conduct training</li> </ul>	
<b>Instructor</b> , SMAPP STEM Grant	2015-2016
<ul style="list-style-type: none"> <li>• Design activities</li> <li>• Provide teacher support</li> <li>• Conduct training</li> </ul>	
<b>Instructor</b> , Science of Sustainability: Preparing Teachers to Enhance Students' Scientific Practices Associated with Sustainability Issues.	2014-2015
<ul style="list-style-type: none"> <li>• Coordinate professional development logistics</li> <li>• Design activities</li> <li>• Develop curriculum used by teachers in their classrooms</li> <li>• Conduct training</li> </ul>	
<b>Certification &amp; Licensure</b>	
Teaching Certification <ul style="list-style-type: none"> <li>• Indiana Professional Educator's License</li> <li>• Earth and Space Science</li> <li>• Chemistry</li> </ul>	2010-2027
<b>Research Statement</b>	
His research interests include scientific argumentation and examining how preservice teachers use discourse while constructing arguments. He is also interested in researching scientific practices and how they contribute to students using observations to construct scientific explanations or arguments.	
<b>Publications</b>	
Gilles, B. (2023). Engaging Teacher Candidates in Globally-Focused Teaching Through the Development of Scientific Arguments for Climate Change in Secondary Science. In: Buck, G.A., Dimitrieska, V., Akerson, V.L. (eds) <i>Internationalizing Rural Science Teacher Preparation</i> . Contemporary Trends and Issues in Science Education, vol 58. Springer, Cham. <a href="https://doi.org/10.1007/978-3-031-46073-9_11">https://doi.org/10.1007/978-3-031-46073-9_11</a> Gilles, B., & Britton, S.A. (2020). Moving Online: Creating a Relevant Learning Experience for Students in the Time of Covid-19. <i>The Electronic Journal for Research in Science &amp; Mathematics Education</i> , 24(3), 19-28.	

Gilles, B., & Buck, G. (2020). Preservice Teachers' use of Discourse to Shape the Construction of Scientific Arguments. *Journal of Science Teacher Education*, 31(3), 291-310.

Gilles, B., Gault, R., Britton, S. (2019). Education outside the classroom: Engaging teachers in their own environment through professional development. *GATEways to Teacher Education*, 30(9), 1-9.

Gilles, B., & Buck, G. (2019). Considering pedagogical practices in higher education: How science methods instructors influence scientific argumentation construction. *International Journal of Research in Education and Science (IJRES)*, 5(2), 744-757.

Gilles, B., Hawig, T., Sutton, A., & Britton, S. (2019). STEMing the flow for all. *Connected Science Learning* (10). <http://csl.nsta.org/2019/04/steming-the-flow-for-all/>

Gilles, B., & Buck, G. (2016). Exploring our theoretical and practical understandings of enthusiasm in science teaching: A self-study of elementary teacher preparation. In G. Buck & V. Akerson (Eds). *Allowing our Professional Knowledge of Pre-Service Science Teacher Education to be Enhanced by Self-Study Research: Turning a Critical Eye on Our Practice*. Springer.

Buck, G., Akerson, V.L., & Gilles, B. (2016). Garnering the experiences and understandings emerging from self-studies in science teacher education. In G. Buck & V. Akerson (Eds). *Allowing our Professional Knowledge of Pre-Service Science Teacher Education to be Enhanced by Self-Study Research: Turning a Critical Eye on Our Practice*. Springer.

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## Presentations

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### Research Paper Presentations

Gilles, B. (2023). Fostering globalization teaching skills in secondary science teacher candidates using scientific argumentation. *Association for Science Teacher Education, Salt Lake City, UT*.

Gilles, B. (2021). Spontaneous adoption of online text-based collaborative tools shaped scientific argumentation discourse. *Association for Science Teacher Education, Virtual*.

Gilles, B. and Gault, R. (2020). Supporting literacy in science and math. *Southeastern Association for Science Teacher Education, Virtual*.

Gilles, B., Gault, R., and Britton, S. (2019). Lessons learned: First year report on implementing a K-12 teacher environmental focused professional development. *Southeastern Association for Science Teacher Education, Carrollton, GA*.

Butler, J., Arrington, L., Gilles, B., Ponder, T., Gault, R. (2019). Finding your way to the 4Cs through technology. *Association for Teacher Educators, Atlanta, GA*.

Gilles, B. and Buck, G. (2019). Spontaneous adoption of online text-based collaborative tools shaped scientific argumentation discourse. *Association for Science Teacher Education, Savannah, GA*.

Britton, S., Gilles, B., and Gault, R. (2018). Current partnership with local urban school district to learn about watersheds. *Southeastern Association for Science Teacher Education, Birmingham, AL*.

Gilles, B. and Buck, G. (2018). Preservice teachers' use of discourse to control the construction of scientific arguments. *National Association for Research in Science Teaching, Atlanta, GA*.

Gilles, B. and Buck, G. (2018). The role of institutional talk in shaping preservice teacher construction of scientific arguments. *Association for Science Teacher Education, Baltimore, MD*.

Gilles, B. (2017). Debunking 'Fake News': Preparing preservice teachers to engage students in reasoning through argumentation across disciplines. *Georgia Association for Teacher Educators, Cordele, GA*.

Gilles, B. and Buck, G. (2017). Comparing the Classroom Experiences of Two Urban High School Teachers Implementing Scientific Argumentation Activities for the First Time. *Association for Science Teacher Education, Des Moines, IA*.

Gilles, B. and Buck, G. (2016). An Urban High School Biology Teacher's Initial Experience Implementing Scientific Argumentation. *National Association for Research in Science Teaching, Baltimore, MD*

Gilles, B. and Buck, G. (2016). Examining the Challenges an Urban High School Biology Teacher has Implementing Scientific Argumentation for the First Time. *Association for Science Teacher Education, Reno, NV*.

Akerson, V., Galindo, E., Gilles, B. (2016). Teachers' Changing Conceptions of STEM over the course of long-term professional development. *Association for Science Teacher Education, Reno, NV*.

#### Poster Paper Presentations

Gilles, B. and Buck, G. (2016). Understanding Enthusiasm in Teaching: A Self-Study of Teaching Science at the Undergraduate Level. *National Association for Research in Teaching, Baltimore, MD*.

#### Symposium

Gilles, Brent (2022). Assessing Attempts to incorporate Globalization into Scientific argumentation Curriculum. Globalizing Rural Science Teacher Preparation Symposium. *Globalizing Rural Science Teacher Preparation Across the U.S., Bloomington, IN*.

Gilles, B. and Buck, G. (2017). Allowing our professional knowledge of pre-service teacher education to be enhanced by self-study research: Turning a critical eye on our practice. *Association for Science Teacher Education, Des Moines, IA*.

Gilles, B. and Buck, G. (2016). Allowing our professional knowledge of teacher education to be enhanced by self-study research. *National Association for Research in Teaching, Baltimore, MD*.

Gilles, B. (2016). Comparing the Beliefs and Pedagogy of Two Urban High School Science Teachers while Implementing Argumentation. *Indiana University Science Education Symposium, Bloomington, IN*.

Gilles, B. (2015). Promoting Scientific Argumentation in a Secondary Setting. *Indiana University Science Education Symposium, Bloomington, IN*.

#### Teacher Presentations

Gilles, B., Britton, S., & Hawig, T. (2023). Increasing Career Awareness in STEM. *National Science Teaching Association, Atlanta, GA*.

Britton, S., Gilles, B., Cox, A., & Hawig, T. (2023). How to use your schoolyard utilizing community partnerships. *National Science Teaching Association, Atlanta, GA*.

Britton, S., Gilles, B., & Cox, A. (2023). Using streams to increase scientific "literacy." *National Science Teaching Association, Atlanta, GA*.

Gilles, B., Hawig, T., & Scasny, K. (2020). Promoting literacy through argumentation. *Georgia Science Teacher Association, Columbus, GA*.

Shade, J.A., & Gilles, B. (2020). 3D teaching + steam= 21<sup>st</sup> century science classroom. *Georgia Science Teacher Association, Columbus, GA*.

Hawig, T., Gilles, B., Britton, S. (2019). Engaging stream engineering, STEM, and more. *Georgia Science Teacher Association, Columbus, GA*.

McCormack, S., Allen, J., and Gilles, B. (2015). A Comparison of National and State Secondary Science Graduation Trends. *Hoosier Association of Science Teachers, Inc., Indianapolis, IN*.

Gilles, B. and Buck, G. (2015). Using Scientific Argumentation in your Classroom. *Hoosier Association of Science Teachers, Inc., Indianapolis, IN*.

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#### **Grants**

Buck, G.A., Akerson, V., Gilles, B., Fouad, K. (not funded, 2021). Preparing rural educators to teach locally-tailored and globally-focused science, subcontract, \$347,047, National Science Foundation.

Arrington, L., Gilles, B., Branyon, A., Cao, L., Chen, Y., Grant, P., Lee, S. (not funded, 2020). Using failure to advance instruction and learning (UFAIL) in middle school STEM, \$440,400, funded by the National Science Foundation.

Gilles, B., & Gault, R. (not funded, 2020). Lit-ing the STEM: Engaging Students in Math and Science Literacy, \$10,000, funded by Ida Alice Ryan Charitable Trust.

Hoff, D., Gaquere, A., Gilles, B., & COE team (2019). MAT impact fellows: A Robert Noyce scholarship program for developing teachers and emerging teacher leaders in science and mathematics, \$1,373,831, Funded by the National Science Foundation, May 2019-May 2025.

Gilles, B., Britton, S., Gault, R. (2018). What are the eco-educational resources for water, \$12,227, Funded by C.S. Britton Inc., October 2018-May 2019.

Britton, S., Gilles, B., & Gault, R. (Not funded, 2018). STREAM initiative, \$10,000, Community Foundation.

Britton, S., Gilles, B., Scasny, K. (Not funded, 2017). Experiential Learning through Aquatic Environments, \$93,212, funded by the Cedar Tree Foundation.

Gilles, B. (2015), Investigating Scientific Argumentation Professional Development Outcomes in the Classroom, \$3,125.00, Funded by E. Wayne Gross Fellowship Program, August 2015-May 2016.

Gilles, B. (2014), Fostering Scientific Argumentation in a High School Classroom, \$2,150.00, Funded by E. Wayne Gross Fellowship Program, August 2014-May 2015.

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### **Service to University of West Georgia**

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Personnel Committee (College, 2022-present)

- Chair (AY 2023-2024)

Graduate Program Committee (University, 2021-2023)

Rules Committee (University, 2018-2020)

Engage West Survey Committee (University, 2018-2019)

Innovations Lab Advisory Board (College, 2018-2022)

Dissertation Committee Chair (College, 2018-2020)

Dag Folgers Speaker Committee (College, 2018-2020)

MAT Comprehensive Exam Evaluator (Department, 2017-present)

Search Committee (Department, 2019; 2021; 2022)

Advisor for Ed.S. program (Department, 2018-present)

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### **Service to Organizations**

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Reviewer for The Electronic Journal in Science and Mathematics Education (2019-Current)

Reviewer for Connected Science Learning (2020-Current)

ASTE membership committee (2019-2022)

Review proposals for ASTE International Conference (2017-2023)

Review proposals for NARST International Conference (2016-2018)

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### **Memberships & Affiliations**

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Association for Science Teacher Education (ASTE)

Southeastern Association for Science Teacher Education (SASTE)

National Science Teachers Association (NSTA)

Georgia Science Teachers Association (GSTA)