

Georgia Wood Hodges

1. ACADEMIC HISTORY

Rank: Associate Research Scientist

Proportion Time Assigned: .500 instruction, .500 research

Graduate Faculty Status: Graduate Faculty, (2013-present)

Education

2010 Ph.D., Secondary Science Education, University of Georgia
2003 M.Ed., Secondary Science Education, University of Georgia
1999 B.S., Microbiology, University of Georgia

Academic Positions

2019- present Associate Research Scientist, University of Georgia, Athens,
Department of Mathematics and Science Education
2012-present Assistant Research Scientist, University of Georgia, Athens
Department of Mathematics and Science Education
2010-2012 Temporary Assistant Professor, University of Georgia, Athens
Department of Mathematics and Science Education

Other Professional Employment

2006-2005 Biology Teacher, Gwinnett County Public Schools
South Gwinnett High School, Snellville, Georgia
2005-2001 Biology Teacher, Rockdale County Public Schools
Salem High School, Conyers, Georgia

2. RESIDENT INSTRUCTION AND ADVISING

a. Teaching

ESCI 4100, Laboratory Teaching in Science
ESCI 3450, Practicum in Science Education
ESCI 4450/6450, Secondary Science Teaching Curriculum
ESCI 4460/6460, Secondary Science Teaching Methods
ESCI 5460/7460, School Based Internship
ESCI 5480/7480, Classroom Practice
ESCI 6250E, SocioScientific Issues in Science Education
ESCI 7040, Teaching Strategies
ESCI 7080, Advanced Curriculum and Instruction
ESCI 8990, Research Seminar

b. Advising

Ph.D. Committee Chair or Co-chair: 2 in progress, 2 complete
Ed.D. Committee Chair or Co-chair: 4 in progress
Ed.S. Committee Chair or Co-chair: 5 complete
Ph.D. Committee Member: 5 in progress, 8 complete

3. SCHOLARLY ACTIVITIES

a. Grants Funded

- PI: *Stimulating Immersive Science Through Engaging Motivating and Authentic Scenarios (SISTEMAS)* \$1,300,000 funded by the National Institutes of Health, Department of Health and Human Services(1R25GM146272-01 award number) May 2022- 2027
- Co-PI: *Recruiting, Preparing and Inducting Secondary Mathematics and Science Teachers in Northeast Georgia*, PI: Julie Luft, CoPIs: Paula Lemons, Nathaniel Hunsu, Georgia Hodges, Kelly Edenfield; Agency: NSF 17-541 Robert Noyce Teacher Scholarship Program; Amount: \$1,199,978; July 1, 2020-June 30, 2025.
- PI: *Stimulating Young Scientists to Engage, Motivate, and Synthesize-BK2K Supplement*, \$108,000 funded by the National Institutes of Health, Department of Health and Human Services(award number 3R25OD016519-03S1).
- PI: *Blending Real and Virtual Worlds to Improve Science Learning during Hands-on Experiments Phase I-* \$27,708.00 funded by the National Science Foundation, Small Business Innovation Research, July 2015 (award number 1021RR246081)
- PI: *Bee Tees: Leveling up in Obesity and Diabetes Education Phase I-*\$22,821.00, funded by the National Institutes of Health, Small Business Innovation Research, 2015-2017 (award # 1021RR246084)
- PI: *Stimulating Young Scientists to Engage, Motivate and Synthesize (SYSTEMS)*. (Scott Brown, Allen Cohen, Jim Moore, Cynthia Ward Co-PIs) \$1,300,000 funded by the National Institutes of Health, Science Education Partnership Award, 2014-2019 (award #1021RR246069)
- PI: *Stimulating Young Neuroscientists and Physiologists in Science Education (SYNPASE) Phase II* \$213, 165.00 funded by the National Institutes of Health, Small Business Innovation Research, 2013-2016 (award # 1021RR246062)
- PI: *Skills and Assessment Based Learning Environment (SABLE)Phase II-* \$49,967.00, funded by the National Science Foundation, Small Business Innovation Research, 2015 (award # 1021RR246076)
- PI: *Skills and Assessment Based Learning Environment (SABLE)Participant Support*, \$10,000.00- funded by the National Science Foundation, Small Business Innovation Research, 2015 (award # 1021RR246077)
- PI: *Nurbits: Playing for Success in Neuroscience Phase II-*\$129,791.00 funded by the National Institutes of Health, Small Business Innovation Research, 2015-2017 (award # 1021RR246080)
- PI: *Skills and Assessments Based-Learning Environments (SABLE) SBIR Phase I-*\$30,532.00, funded by the National Science Foundation, Small Business Innovation Research, 2013 (award # 1021RR246080)
- PI: *Nurbits: Playing for success in neuroscience NIH (SBIR) Phase I-*\$16,333.00, funded by the National Institutes of Health, Small Business Innovation Research, 2011-2012 (award # 1021RR246080)
- PI: *Stimulating Young Neuroscientists and Physiologists in Science Education SYNPASE-* \$5,629.00 funded by the National Institutes of Health, Small Business Innovation Research, 2012 (award #1021RR246080)
- Research associate: September, 2008. Amount \$1,296,673. Oliver, J. S. (Principal Investigator), Moore, J. N., Brown, S., Ward, C., & Robertson, T. (Co-PIs). *Learning Biological Process through*

Animations and Inquiry: A new approach. Funded by the Science Education Partnership Award program of the National Institutes of Health (NIH).

b. Publications (* indicates stringent editorial review)

Manuscripts currently under review

Hodges, G. & Flanagan, K. *Establishing a Model for Serious Science Game Design for Elementary Learners: A Longitudinal, Mixed Methods Study of Serious Game Design Mechanics that Facilitate Learning* submitted to Journal of the Learning Sciences.

Cardozo-Gaibisso, L., **Hodges, G.**, et al. *Multidimensional Assessment Performance Analysis: A framework to advance multilingual learners' scientific equity in K-12 Contexts* submitted to the Journal of Education Sciences

Published

*Wang, L., **Hodges, G.**, & Lee, J. (2022). Connecting macroscopic, molecular, and symbolic representations with immersive technologies in high school chemistry: The case of redox reaction. *Education Sciences*, 12(7), 428.

*Tran, H. Capps, D., & **Hodges, G.** (2022). Preservice science teachers' perspectives on and practices related to self-regulated learning after a brief learning opportunity. *Sustainability*14(10), 5923. <https://doi.org/10.3390/su14105923>

***Hodges, G.**, Oliver, S., Jang, Y., Cohen, A., Ducrest, D., & Robertson, T. (2021). Pedagogy, partnership, and collaboration: A longitudinal, empirical study of serious educational gameplay in secondary biology classrooms. *Journal of Science Education and Technology*, 30, 341-346. <https://doi.org/10.1007/s10956-020-09868-y>

***Hodges, G.**, Flanagan, K., Lee, J., Cohen, A., Ward, C. (2020). A quasi experimental study comparing learning gains associated with serious educational gameplay and hands-on science in elementary classrooms. *Journal of Research in Science Teaching*,57(9),146-1489 <https://doi.org/10.1002/tea.21661>

*Jang, Y. & **Hodges, G.** (2018). Mixture IRT model for detecting aberrant responses under low-stake testing. *교육평가연구*, 31, 707-728.

***Hodges, G.**, Wang,L., Lee, J., Cohen, A., & Jang, Y. (2018). An Exploratory Study of Blending the Virtual World and the Laboratory Experience in Secondary Chemistry Classrooms *Computers & Education* (2018), doi:10.1016/j.compedu.2018.03003.

* Oliver, J., **Hodges, G.**, Moore, J., Cohen, A., Jang, Y., Brown,S., Kown,K., Jeong, S., Raven, S., Jurkiewics,J., & Robertson, (2017). Supporting high school student accomplishment of biology content using interactive computer-based curricular case studies. *Research in Science Education*,48,1-26. <https://doi.org/10.1007/s11165-017-9675-6>.

***Hodges, G.W.**, Jeong, S., McKay, P., Ducrest, D. (2016). Opening Access to I-STEM Experiences One Day at a Time: Successful Implementation of a School-wide I-STEM Day. *American Biology Teacher*, 78(3),200-207. 2016 <https://doi.org/10.1525/abt.2016.78.3.200>

Oliver, J.S. & **Hodges, G.W. (2014). Rural science education. In N. G. Lederman & S.K. Abell (Eds). *Handbook of Research on Science Education: Volume II* (pp 266-283). New York: Routledge Press.

- ***Hodges, G. W.**, Tippins, D., & Oliver, J. S. (2013). A Study of Highly Qualified Science Teachers' Career Trajectory in the Deep, Rural South: Examining a Link Between Deprofessionalization and Teacher Dissatisfaction. *School Science and Mathematics, 113*(6), 263-274.
- ***Hodges, G.** & Tippins, D. (2009). Using an ecojustice perspective to inform science teacher recruitment and retention in the rural black belt region of georgia. *The Rural Educator, 30*(3), 1-3.
- *Wilson, R., **Hodges, G.**, Haddox, A., Arrington, A. & Tippins, D.(2009). Going bananas over fruit: Using habits of mind to foster nutritional literacies in middle school students. *Science Scope, 33*(1), 28-32.
- *Johnson, A., Rezak, A., **Hodges, G.**, Lawrence, M., Tippins, D. & Bongkotphet, T. (2008). Textual encounters of three kinds: Engaging in reading through community astronomy night. *The Reading Teacher 62*(1), 54-64.

c. Recognitions and Awards

- 2019 Recipient of the Gold Medal Award by the International Serious Play for *Virtual Vet* Serious Educational Game
- 2018 Recipient of the Bronze Medal Award by the International Serious Play for *Virtual Vet* Serious Educational Game
- Present- 2011 Career Center Development Award, University of Georgia ('11, '12,'13, '14, '15, '16)
- 2010 Certificate in Qualitative Methodologies, University of Georgia, 2010
- 2009 Emerging Leader, University of Georgia, 2009
- 2009 Dissertation Completion Award, University of Georgia, 2009
- 2005-2003 Outstanding teacher in Rockdale County, 2003-2005

d. Research Focus

- Creating, assessing, and refining technology enhanced learning environments
- Assessing science practice in the science classroom
- Integrating science, mathematics, and literacy in 3-D space
- Preparing preservice and in-service teachers to implement and assess three-dimensional teaching

e. Editorial Responsibilities

- Present-2022 Co-editor, *Journal of STEM Outreach*
- Present- 2023 Manuscript Reviewer, *Review of Educational Research*
- Present- 2020 Manuscript Reviewer, *Journal of Research in Science Teaching*
- Present- 2012 Manuscript Reviewer, *School Science, and Mathematics*
- Present – 2012 Manuscript Reviewer, *American Biology Teacher,*

f. Conference Papers and Presentations

- Tran, H., Capps, D., & **Hodges, G.** (2024). *Coaching during Student Teaching: Using Self-Regulated Learning to Optimize Questioning Skills for Preservice Science Teachers*. A paper presentation for the annual meeting of the American Educational Research Association, Philadelphia, Pennsylvania.
- Eldridge, S. & **Hodges, G.** (2022). *Supporting Secondary Science Teachers' Awareness of Gender Variance and Creation of Gender-Inclusive Lesson Plan*. A paper presentation for the annual meeting of the National Association of Research and Science Teaching Conference, Vancouver, British Columbia.
- Tran, H., **Hodges, G.**, & Capps, D., (2022). *Preservice science teachers' perspective and practice after self-regulated learning professional development*. A paper presentation for the annual meeting of the American Educational Research Association, San Diego, CA.

- Tran, H., Capps, D., & **Hodges, G.**, (2022). *How preservice science teachers use self-regulated learning when planning questions*. A paper presentation for the annual meeting of the Association for Science Teacher Education, Greenville, SC.
- Hodges, G.**, Flanagan, K., Lee, J., Cohen, A., Krishnan, S., & Eldridge, S. (2021). *A Mixed Methods Study of Serious Game Design Heuristics that Support Elementary Science Learners*. A paper presentation for the annual meeting of the National Association of Research and Science Teaching Conference, Vancouver, British Columbia.
- Tran, H., Capps, D., & **Hodges, G.**, (2021). *Preservice science teachers' perspectives on teacher questions and the types of questions they ask*. A paper presentation for the annual meeting of the Southeastern Association for Science Teacher Education, Hybrid.
- Hodges, G.**, Flanagan, K., Lee, J., Cohen, A., Krishnan, S., & Eldridge, S. (2021). *A Mixed Methods Study of Serious Game Design Heuristics to Support Elementary Students in 3-D Science*. A paper presentation for the annual meeting of the American Educational Research Association, *Virtual*.
- Hodges, G.**, Flanagan, K., Lee, J., Cohen, A., Krishnan, S., & Eldridge, S. (2019). *A Mixed Methods Study that Compares Learning Gains Associated with Serious Gameplay and Hands-on Science*. Paper presented at the Paper presented at the National Association of Research and Science Teaching in Baltimore, Maryland.
- Hodges, G.**, Flanagan, K., Lee, J., Cohen, A., Krishnan, S., & Eldridge, S. (2019). *Leveraging Technology to Create Ambitious Science Learning Environments for Elementary Learners: Convergent Mixed Methods Study*. Paper accepted for presentation at the American Educational Research Association, Toronto, Canada.
- Hodges, G.**, Flanagan, K., Krishnan, S. (2019). *A Mixed Methods Study Comparing Learning Gains Associated With Serious Gameplay And Hands-on Science In Elementary Classrooms*. Paper accepted for presentation at the European Science Education Research Association, Bologna, Italy.
- Hodges, G.**, Flanagan, K., Krishnan, S. (2018). *Integrating Serious Educational Gameplay in Primary STEM Classrooms to Improve and Assess Science Practice*. Paper accepted for presentation at the American Educational Research Association, NewYork, NY.
- Flanagan, K. & **Hodges, G.** (2018). *Examining Play in a Serious Educational STEM Game*. Paper accepted for presentation at the American Educational Research Association, NewYork, NY.
- Hodges, G.**, Flanagan, K., Krishnan, S. (2018). *A Mixed Methods Study of Learning Gains Associated with Serious Educational Gameplay by Primary Learners*. Paper presented at the National Association of Research and Science Teaching in Atlanta, Georgia.
- Flanagan, K. & **Hodges, G.** (2018). *Learning Science through Practice and Play*. Paper presented at the National Association of Research and Science Teaching in Atlanta, GA.
- Wang, L. & **Hodges, G.** (2018). *What do Teachers Say? Exploring Teachers Experience in Computer-Based Science Instruction*. Paper presented at the National Association of Research and Science Teaching in Atlanta, GA.

- Wang, L. & **Hodges, G.** (2017). *The Impact of a Blended Learning Environment on Students Understanding: The Case of Redox Reaction*. Paper presented at the National Association of Research and Science Teaching in San Antonio, Texas.
- Hodges, G.**, Oliver, S. & Cohen, A. (2017). *A Mixed Methods Study of Learning Gains Associated with Serious Educational Gameplay*. Paper presented at the European Science Education Research Association in Dublin, Ireland.
- Hodges, G.** (2015). *Using Case Studies with Elementary Students to Learn the Body Systems*. Presented at the National Association of Biology Teachers in Providence, Rhode Island on November 12, 2015.
- Jeong, S. & **Hodges, G.** (2015). *Teaching Fundamental Concepts of Neuroscience for Meaningful Learning: Lessons Learned from Teachers in the Field*. Presented at the National Association of Biology Teachers in Providence, Rhode Island on November 12, 2015.
- Hodges, G.**, Oliver, S., Robertson, T., Jeong, S., Ducrest, D. (2015). *Leveraging Technology to Measure Student Learning during Inquiry Based Virtual Case Studies in Introductory Biology*. Presented at the National Association of Research and Science Teaching, Chicago, Illinois on April 13, 2015.
- Oliver, S., **Hodges, G.**, Robertson, T., & Moore, J. (2013). *Partnership, Pedagogy, and Performance*. Presented at the Second Annual Georgia Scholarship of STEM Teaching and Learning Conference on March 8, 2013.
- Hodges, G.**, Oliver, S., Robertson, T., & Moore, J. (2013). *The implementation and evaluation of technology based learning experiences: Leveraging technology to individualize learning experiences*. Presented at the International meeting of the Association of Science Teacher Educators in Charleston, South Carolina on January, 12, 2013.
- Hodges, G.**, Oliver, S., Robertson, T., & Moore, J. (2012). *Creating and evaluating novel instructional materials to assess higher order thinking in science*. Accepted for Presentation at The School Science and Mathematics Conference, (Birmingham, AL).
- Hodges, G.**, Oliver, S., Robertson, T., & Moore, J. (March, 2012). *Evaluating the Assessment of Student Learning related to Novel Instructional Materials*. Paper presented at the National Association of Research and Science Teaching, Indianapolis, Indiana.
- Oliver, S. & **Hodges, G.** (March, 2012). *Creating and assessing novel instructional materials*. Invited speaker at the First Annual Scholarship of STEM Teaching and Learning, Statesboro, GA.
- Oliver, S., **Hodges, G.**, Robertson, T., Brown, S., & Moore, J. (2012). *Using inquiry and animation to create and assess novel curricular modules*. Accepted for NSTA regional presentations in Georgia, Arizona, and Kentucky.
- Oliver, J., Kwon, K., **Hodges, G.** (March, 2011). *Making innovative curricula that teachers want to use: Animations, inquiry, and interactivity*. Paper presented at the annual meeting of the National Science Teachers Association, San Francisco, CA.
- Hodges, G.** (January, 2011). *Science teacher retention in the Rural, Black Belt region of Georgia: Examining teacher turnover of highly qualified science teachers*. Paper accepted for presentation at the annual meeting of the Association of Science Teacher Educators, Minneapolis, MN.

- Hodges, G.** (April, 2011). *Science teacher retention: Examining a link between deprofessionalization and dissatisfaction for teachers*. Paper accepted for presentation at the National Association for Research in Science Teaching in Orlando, FL.
- Hodges, G.** (January, 2010). *School and community tensions related to the retention of secondary science teachers in rural school districts of Middle Georgia*. Paper presented at the annual meeting of the Association of Science Teacher Educators, Sacramento, CA.
- Hodges, G.** (March, 2010). *From the trenches: Understanding the impact of policy on science education in rural schools in the Black Belt Region of Georgia from the teachers' perspective*. Paper presented at the National Association for Research in Science Teaching, Philadelphia, PA.
- Hodges, G.** (March, 2010). *Informing science teacher retention and attrition in the rural Black Belt Region of Georgia*. Paper presented at the National Association for Research in Science Teaching, Philadelphia, PA.
- Hodges, G.** (October, 2009). *From the trenches: Teachers' perspectives on science teacher recruitment, retention and attrition in rural Georgia*. Presented at the annual meeting of the Southern Association for Science Teacher Education, Kennesaw, GA.
- Hodges, G.** (April, 2009). *Leaving science behind: A case study of teaching science in a rural school amid high stakes testing*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Garden Grove, CA.
- Mueller, M.P., Tippins, D.J., Pagan, T.W., Cajigal, A.R.V., **Hodges, G.W.**, Britton, S.A., & Wilson, R.E. (October, 2008). *Beyond an education of nowhere: Advocacy, ecojustice, and uncertainty*. Panel session presented at the annual meeting of the American Educational Studies Association, Savannah, GA.
- Hodges, G.** (2008, October). *Cultural plurality and No Child Left Behind: The voice of the teachers*. Paper presented at the annual meeting of the Southern Association of Science Teachers, Columbia, SC.
- Tippins, D., Thomson, N., **Hodges, G.**, et. al (2008, October). *Towards the development of an International science teacher education course: Some strategies, issues and experiences*. Paper presented at the Southern Association of Science Teachers, Columbia, SC.
- Tippins, D., **Hodges, G.**, & Johnson, A. (2008, January). *Pathways to science education in rural Georgia*. Paper presented at the annual meeting of the Association of Science Teacher Educators, St. Louis, MO.
- Hodges, G.** & Atwater, M. (April, 2008). *A new era: The future of science education in the United States*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Baltimore, MD.
- Tippins, D., **Hodges, G.** et. al (2007, February). *Infusing inquiry science into the elementary school: Hands-on approaches*. Workshop led at the annual meeting of the Georgia Science Teachers Association, Athens, GA.
- Tippins, D., O'Dell, S., & **Hodges, G.** (2007, February). *Integrating science across the curricula: Engaging activities for active learners*. Presented at the annual meeting of the Georgia Science Teachers Association, Athens, GA.

Susarla,S.,**Wood,G.L.**,Wolfe,N.L. McCutcheon,S.C(1999). *Adsorption of perchlorate in soils*. Paper presented at the 20thannual meeting of society for environmental toxicology and chemistry conference, Philadelphia, PA.

Lewis, S.L.,Susarla,S.,**Wood,G.L.**, &McCutcheon,S.C.,(1999). Perchlorate exposure in crops via contaminated irrigation water. Paper presented at the 20thAnnual meeting of society for environmental toxicology and chemistry conference, Philadelphia,PA,

Susarla,S.,**Wood,G.**,Wolfe, N.L. and McCutcheon, S.C.(2000). *Adsorption characteristics of perchlorate in soils*, Paper presented at The Tenth Annual West Coast Conference on Contaminated Soils and Groundwater: Analysis, Fate, Environmental and Public Health Effects, Remediation and Regulation, San Diego, CA.

Lewis, S.L.,Susarla,S.,Wolfe L.,**Wood, G.L.**&McCutcheon, S.C.,(2000). *Perchlorate accumulation from fertilizer in leafy vegetation*. The Tenth Annual West Coast Conference on Contaminated Soils and Groundwater: Analysis, Fate, Environmental and Public Health Effects, Remediation and Regulation, San Diego, CA.

4. PUBLIC SERVICE

Present – 2013 District Science Fair Judge, Clarke County School District
Present – 2013 Clarke County School District Professional Learning
2015 Makers Fair, Gwinnett County
2015-2013 New Teacher Orientation Presentation, Walton, 2012-present
2013 Selected and served as Gamechanger for the state of Georgia

5. OTHER SERVICES

a. Service to Professional Organizations

Present - 2009 Reviewer for the National Association of Research in Science Teaching
Present – 2009 Reviewer for the Association of Science Teacher Educators
2017-2015 Georgia Science Teacher Association College Representative
2016-2014 Assisted in the development of assessment items for state licensure through Pearson
2015-2014 Georgia Department of Education Science Standards Rewrite 2015
Present -2009 Association of Science Teachers Educators Member
Present-2001 National Science Teachers Association Member

b. Institutional Service

Present- 2022 Research Initiatives and Evaluation Advisory Committee.
Present – 2014 Undergraduate Biology Education Research (UBER) mentor for two students,
Present- 2015 Secondary Committee Chair, Science Education Department, University of Georgia
Present- 2014 Secondary Committee Member, Science Education Department, University of Georgia
2017-2015 Faculty Representative for NSTA and GSTA student chapters, University of Georgia
2014 Teacher Keys (TKES) credentialing completed, Department of Education, Georgia
2015-2014 COE edTPA Advisory Committee, College of Education, University of Georgia
2015-2014 COE Assessment Advisory Committee, College of Education, University of Georgia
2014-2012 COE, Obesity Initiative Member, University of Georgia
2014 COE Innovation in Teaching Conference, Committee Member, University of Georgia