

## CURRICULUM VITAE

# Heather J. Johnson

Assistant Professor of the Practice of Science Education  
Peabody College of Education  
Vanderbilt University

Box 230, 230 Appleton Pl  
Nashville, TN 37203  
heather.j.johnson@vanderbilt.edu  
(615) 626-4414

## EDUCATION

- 2012 Northwestern University, Evanston, IL  
*Doctorate in the Learning Sciences*
- Dissertation: "Project-Based Teaching: Helping Students Make Project Connections"
- Committee Members: Brian Reiser (Chair), Daniel Edelson, Miriam Sherin, Steven McGee
- 2000 Elmhurst College, Elmhurst, IL  
*Middle school endorsement*
- 1998 University of Virginia, Charlottesville, VA  
*Master of Teaching in Elementary Education*
- 1998 University of Virginia, Charlottesville, VA  
*B. A. in Environmental Science with Distinction*

## AREAS OF SPECIALIZATION

My research interests involve looking at supports for teacher learning and how these supports affect teacher practice and ultimately student learning. Supports include everything from curriculum materials to professional development, coaching, and university courses. Specifically, I am interested in developing and using supports to help teachers attend and respond to student ideas about science and then identifying how teachers differentially adjust their practice in response to these supports. Through my role as university instructor, the supports I intend to develop include coursework, video clubs, and educative project-based curriculum materials that explicitly direct preservice and inservice teachers to notice and respond to student thinking in the science classroom.

## PROFESSIONAL EXPERIENCE

**Assistant Professor of the Practice of Science Education**  
2012-present

*Vanderbilt University, Nashville, TN*

**Instructor of the Practice of Science Education**

*January 2011-2012*

*Vanderbilt University, Nashville, TN*

**Science Education Consultant**

*January 2014-present*

*National Geographic Society, Washington, D.C.*

Design project-based curriculum lessons and teacher support materials for National Geographic:

- British Columbia Project (2016):
  - Making a Decision about the Construction of an Oil Pipeline through British Columbia. <http://nationalgeographic.org/lesson/making-decision-about-construction-oil-pipeline-th/> This lesson, for students in grades 9-12, consists of four activities in which students analyze a real-world environmental case of building an oil pipeline through British Columbia. Students investigate the benefits the pipeline could offer to various stakeholders and weigh this against the potential threats to the ecosystem and First Nations communities near the proposed route. After considering the consequences of the decision and its impact on different stakeholders, students construct a decision statement about whether the pipeline should be constructed or not that considers land use planning, ocean planning and First Nations values.
- Amazon Project (2015):
  - Making a Decision about Building a Road in the Amazon. <http://education.nationalgeographic.com/lesson/making-decision-about-building-road-amazon/> To support the lesson materials, I also wrote a case study about the proposed Pucallpa-Cruzeiro do Sul Road <http://education.nationalgeographic.com/news/amazonian-road-decision/>.
  - 3 activities designed using an Amazon map insert in the November issue of National Geographic magazine. In addition to English, these activities were translated into Portuguese and Spanish for use in classrooms in Central and South America.
    - [Exploring the Relationship between Human Activity and Habitat Loss in the Amazon](#)
    - [Exploring the Tradeoffs between Accessing Resources and Protecting the Amazon Rain Forest](#)
    - [Local and Global Effects of Deforestation in the Amazon Rain Forest](#)
  - 2 middle school activities using MapMaker Interactive
    - [Protecting Biodiversity in the Amazon Rain Forest.](#)
    - [Taking a Position on Human Activity in the Amazon Rain Forest.](#)
- Chesapeake Watershed Education Project (2014):  
[http://education.nationalgeographic.com/education/lesson/using-fieldscope-make-informed-decision/?ar\\_a=1](http://education.nationalgeographic.com/education/lesson/using-fieldscope-make-informed-decision/?ar_a=1).

*Fall 2015*

*National Board for Professional Teaching Standards, Washington, D.C.*

- ATLAS Supplemental Materials: Designed user guides and supplemental materials to help teacher educators (both pre-service and in-service) facilitate student engagement with high school biology cases to help them learn more about biology content and instructional strategies for teaching biology while also exploring components of the edTPA (pre-service) or NGSS (pre-service and in-service) frameworks to analyze teaching.
- ATLAS Tagging: Analyzed the overlap of framework tags in ATLAS in collaboration with others to help determine implications of those findings on future ATLAS development.

**Professional Development Consultant**

*Fall 2008-Fall 2010*

*It's About Time, NY*

Developed webinars for technology support and provided facilitation support for technology components of reform-based curriculum materials published by *It's About Time Herff Jones Education Division*. Such technology includes My World GIS, and Netlogo.

### **Curriculum Specialist**

*January 2007 – June 2007*

*Northwestern University, Evanston, IL*

Co-facilitated work circle consisting of high school physics and chemistry teachers with the goal of selecting activities from a curriculum to teach the following year as part of the *Meaningful Science Consortium*. Synthesized teacher input including alignment of activities to PSAC standards, types of data involved in the activities, and locations where literacy and data supports would be needed. Developed pacing guide for teachers, data supports and probe activities for students, participated in assessment meetings, and helped select items for formative and summative assessments. Continued to write and edit online workshops as part of the *Investigating Online Professional Development* project.

### **Professional Development Design and Facilitation:**

*2006-2009 Northwestern University, Evanston, IL & University of Michigan, Ann Arbor, MI*

Co-designer and lead facilitator for face-to-face and online professional development workshops around the *Investigation in Environmental Science* curriculum for *The Impact of Online Professional Development* project, a grant funded by NSF.

### **Science Teacher**

*August 1999 – June 2004*

*Stanley Field Middle School, Northbrook, IL*

Developed and taught the eighth grade physical science curriculum to all eighth grade students in the district. Co-developed and taught the eighth grade advisory curriculum to eighth grade advisees.

### **Technology Intern**

*July 1998 – July 1999*

*Munich International School, Starnberg, Germany*

Developed the technology curriculum for the junior school to align with the Inter-Baccalaureate Primary Years Program of Inquiry. Taught the curriculum to all junior school students (grades PK-4) and assessed student progress related to learning goals. Developed a curriculum for and ran a computer club for interested third and fourth grade students.

## **HONORS AND AWARDS**

2012

*American Institute of Aeronautics and Astronautics (AIAA) Tennessee Section Special Award*

Recognizes the collaborative outreach effort between Peabody's preservice secondary science students and the Vanderbilt Aerospace club.

2012

*NASA University Student Launch Initiative Educational Engagement Award*

A prestigious outreach award from NASA for inspiring school students in the study of rocketry and other science, technology, engineering, and mathematics (STEM) related topics.

2009-2010

*Dissertation Year Fellowship*

- 2004-2009            *Center for Curriculum Studies in Science Graduate Fellowship from Northwestern University*
- 1993-1996           *Paul Douglas Teaching Scholarship*

## PUBLICATIONS AND PAPERS

### Chapters in Books:

- Kubitskey, B.K., Fishman, B. M., **Johnson, H. J.**, Mawyer, K. M., & Edelson, D. C. (2014). Curriculum aligned professional development for geospatial education. In J. G. MaKinster, N. M. Trautmann, & M. Barnett (Eds.), *Teaching science and investigating environmental issues with geospatial technology: Designing effective professional development for teachers*.

### Journal Articles:

- Hougan, E., **Johnson, H. J.**, Novak, D., Foote, C., & Palmeri, A. (under review). Going beyond teacher videos: Exploring the influence of NBCTs video and commentary on teacher candidates' thinking about practice. *Action in Teacher Education*.
- Cotterman, M., & **Johnson, H. J.** (accepted). What to see, what to say: Tips for participating in teacher video clubs. *Tools for Learning Schools*.
- Mawyer, K. M., & **Johnson, H. J.** (2017). Read like a scientist. *The Science Teacher*, 84(1), 43-48.
- Johnson, H. J.**, & Cotterman, M. (2015). Developing preservice teachers' knowledge of science teaching through video clubs. *Journal of Science Teacher Education*, 26(4), 393-417.
- Fishman, B.M., Konstantopoulos, S., Kubitskey, B. W., Vath, R., **Johnson, H.**, Park, G., & Edelson, D. (2014). The future of professional development will be designed, not discovered: Response to Moon, Passmore, Reiser, & Michaels, "Beyond Comparisons of Online Versus Face-to-Face PD." *Journal of Teacher Education*, 65(3), 261-264.
- Johnson, H.J.**, & Cotterman, M. (2013). Collaborative efforts to put the 'E' back in STEM. *NSTA Reports*, 25(4), p. 3.
- Fishman, B. M., Vath, R. J., Konstantopoulos, S., **Johnson, H. J.**, & Park, G. (2013). Comparing the impact of online and face-to-face professional development in the context of curriculum implementation. *Journal of Teacher Education*.
- Park, G., **Johnson, H. J.**, Vath, R. J., Kubitskey, B. W., & Fishman, B. J. (2013). Examining the roles of the facilitator in online and face-to-face PD contexts. *Journal of Technology and Teacher Education*, 21(2), 225-245.

Kubitskey, B.W., Vath, R. J., **Johnson, H.J.**, Fishman, B.J., Konstantopoulos, S., & Park, G. (2012). Examining study attrition: Implications for experimental studies of professional development. *Teaching and Teacher Education*, 28(3), 418-427.

### Conference Proceedings:

**Johnson, H. J.** (accepted and forthcoming). Connection-making challenges in AST implementation. Paper to present at the annual meeting of Science Education at the Crossroads, San Antonio, TX, April 2017.

**Johnson, H.** (2013). *Middle school math and science teachers reflecting on practice through video club*. Presentation at Society for Information Technology and Teacher Education (SITE). New Orleans, LA.

### Working Papers:

Johnson, H. J., & Luna, M. (in progress). *Clip, tag, and note: Exploring secondary science preservice teachers' participation and noticing in video club*.

Johnson, H. J., & Forsythe, M. (in progress). *Is that a model? Preservice and inservice teachers' interpretations of scientific practices during video club*.

### INVITED PRESENTATIONS

**Johnson, H. J.** & Barron, L. (2016). ATLAS and the edTPA. Webinar prepared for the Science Teacher Preparation ATLAS Project with the National Board for Professional Teaching Standards.

**Johnson, H. J.** & Hougan, E. J. (2016). ATLAS and research. Webinar prepared for the Science Teacher Preparation ATLAS Project with the National Board for Professional Teaching Standards.

**Johnson, H. J.** (2016). Using ATLAS in pre-service teacher education. Invited presentation at KyNT3 IHE Conference. Lexington, KY.

### LOCAL & NATIONAL CONFERENCE PRESENTATIONS

**Johnson, H. J.**, Dunleavy, T. K., & Hundley, M. (accepted and forthcoming). Notice and note: Exploring pre-service teachers' instruction through video analysis. Submitted to NARST. San Antonio, TX, April 2017.

**Johnson, H. J.**, Hougan, E., Foote, C., & Palmeri, A. (2017). Using video and commentary of accomplished teachers to shape the thinking of preservice teachers. Presentation at the Association of Teacher Educators Conference (ATE), Orlando, FL, February, 2017.

Henrie, A., **Johnson, H. J.**, & Palmeri, A. (2016). Learning from expert teachers: Force and motion. Presentation at Tennessee Science Teacher's Association (TSTA). Murfreesboro,

TN, December, 2016.

- Johnson, H. J.** (2016). Mobilizing STEM talent for STEM teaching: Recruiting STEM talent and designing pathways for STEM teaching. Poster presented at the annual Noyce Summit, Washington D. C.
- Hajek, A., Le, D., & **Johnson, H. J.**, (2016). Enhancing STEM education through partnerships to prepare students for NGSS. NSTA Science Forum, Denver, CO.
- Mawyer, K.K. N., & **Johnson, H. J.** (2016). Uncovering preservice science teachers' tacit reading strategies. Presentation at National Association for Research in Science Teaching (NARST). Baltimore, MD, April, 2016.
- Daniels, S., **Johnson, H. J.**, Hostetler, A. L., Hundley, M., Palmeri, A., & Pray, L. (2016). Video analysis for pedagogical sense-making among teacher learners across disciplines. Presentation at the Annual Conference of the American Educational Research Association (AERA), Washington DC, April, 2016.
- Ufnar, J., & **Johnson, H. J.** (2016). The Vanderbilt scientist-teacher collaborative apprenticeship: Enhancing science teaching and learning in middle schools. Presentation at the National Science Teachers' Association (NSTA) conference in Nashville, TN, April, 2016.
- Johnson, H. J.**, Ufnar, J., & Thompson, I. (2016). Recruiting STEM talent and designing pathways for STEM teaching. Presentation at the National Science Teachers' Association (NSTA) conference in Nashville, TN, April, 2016.
- Foote, C., Hogan, E., **Johnson, H. J.**, Palmeri, A., Murley, R., & Barron, L. (2016). Shaping pre-service visions of accomplished teaching: Innovative approaches utilizing ATLAS and edTPA. Presentation at the Annual Conference of the American Association of Colleges of Teacher Education (AACTE), Las Vegas, NV, February, 2016.
- Foote, C., Hogan, E., **Johnson, H. J.**, Palmeri, A., Murley, R., & Barron, L. (2016). Introducing ATLAS: Accomplished teaching, learning, and schools. Presentation at the Annual Conference of the American Association of Colleges of Teacher Education (AACTE), Las Vegas, NV, February, 2016.
- Hundley, M., **Johnson, H. J.**, Stengel, B., Hostetler, A. L., & Dunleavy, T. (2016). The challenge of language: Framing academic and disciplinary language practices for pre-service teachers. Presentation at the Annual Conference of the American Association of Colleges of Teacher Education (AACTE), Las Vegas, NV, February, 2016.
- Johnson, H. J.**, Henrie, A., & Palmeri, A. (2015). Course by course: Using ATLAS to prepare teacher candidates for edTPA success. Tennessee edTPA Conference, Cookeville, TN, November, 2015.
- Helgeson, S., **Johnson, H.**, Hamilton, K., & Middleton, R. (2015). Re-visioning the profession: Using ATLAS in teacher preparation. Presentation at Council of Academic Deans from Research Education Institutions (CADREI). Stowe, VT.
- Johnson, H.** (2015). Project-based teaching: A window into *real* practice. Invited presentation for Biological Sciences Curriculum Study (BSCS). Colorado Springs, CO.

- Johnson, H., & Smith, B. (2015).** Write your roadmap... Seriously! Presentation at STEM Think Tank and Conference. Harpeth Hall, Nashville, TN.
- Ko, M., **Johnson, H.**, Mawyer, K., & Luna, M. (2015). Working toward change: Supporting in-service teachers' enactment of NGSS. Presentation at National Association for Research in Science Teaching (NARST). Chicago, IL.
- Stengel, B., River, A., Koscielski, S., Basile, C. Stanton, R., **Johnson, H.**, Pendergrass, E., & Smith, B. (2015). Team/Design PDS: Critical common commitments for teacher development. Presentation at American Educational Research Association (AERA). Chicago, IL.
- Johnson, H. (2015).** Using video clubs to reflect on scientific practices during real-time enactment. Presentation at the National Science Teachers Association (NSTA), Chicago, IL, March, 2015.
- Johnson, H.**, Hostetler, A. L., Stengel, B., Brantlinger, A., Walkoe, J., Beatriz, Q., Taylor, A., Basile, C., & Singer, N. (2015). Learning in and through practice: Three practice-rich models. Presentation at the Annual Conference of the American Association of Colleges of Teacher Education (AACTE), Atlanta, GA., March, 2015.
- Johnson, H., & Hostetler, A. L. (2014).** The case of Henrietta Lacks: A problem-based approach that integrates science and social studies. Presentation at the Tennessee Science Teachers Association (TSTA), Murfreesboro, TN, November, 2014.
- Henrie, A., Palmeri, A., & **Johnson, H. (2014).** ATLAS: Helping educators improve their practice. Presentation at the Tennessee Science Teachers Association (TSTA), Murfreesboro, TN, November, 2014.
- Waddell, L. R., **Johnson, H. J.**, & Pendergrass, E. (2014). *Positive relational coaching: Developing and retaining effective and equitable urban middle school teachers.* Presentation at American Educational Research Association (AERA). Philadelphia, PA.
- Johnson, H. J., & Cotterman, M. E. (2014).** *"Is that a model?": Preservice and inservice teachers' interpretations of scientific practices during video club.* Poster Presentation at National Association for Research in Science Teaching (NARST). Pittsburgh, PA.
- Kubitskey, B. W., Fishman, B., Park, G., **Johnson, H.**, Vath, R., & Konstantopoulos. (2014). *An experiment comparing face-to-face and online professional development effects on teacher learning, practice, and student learning.* Presentation at National Association for Research in Science Teaching (NARST). Pittsburgh, PA.
- Johnson, H. J., Stengel, B., & Hostetler, A. (2014).** *Envisioning learning in practice schools (LPS): University-school partnerships to recenter teacher learning in practice.* Presentation at the Annual Conference of the American Association of Colleges of Teacher Education (AACTE). Indianapolis, IN.
- Park, G., **Johnson, H.**, Vath, R., Kubitskey, B., & Fishman, B. (2013). *Examining the roles of the facilitator in online and face-to-face PD contexts.* Poster Presentation at American Educational Research Association (AERA). San Francisco, CA.
- Fishman, B. J., Konstantopoulos, S., Kubitskey, B. W., Vath, R., Park, G., **Johnson, H.**, & Edelson, D. (2013). *Environments for teacher learning: An experimental comparison of*

- face-to-face and online professional development to support new curriculum materials.* Presentation at American Educational Research Association (AERA). San Francisco, CA.
- Hawtin, K., & **Johnson, H.** (2013). *Does evidence-based inquiry improve logical reasoning?* Presentation at National Science Teachers Association (NSTA). San Antonio, TX.
- Cotterman, M. E., & **Johnson, H. J.** (2013). *Take "ME" to School: An award winning collaboration.* Presentation at National Science Teachers Association (NSTA). San Antonio, TX.
- Johnson, H. J.**, & Cotterman, M. E. (2013). *Developing preservice teachers' knowledge of teaching through video clubs.* Presentation at National Association for Research in Science Teaching (NARST). San Juan, Puerto Rico.
- Cotterman, M. E., & **Johnson, H. J.** (2013). *Video clubs as productive sites for preservice science teachers to interrogate instructional representations.* Presentation at National Association for Research in Science Teaching (NARST). San Juan, Puerto Rico.
- Singer-Gabella, M., Stengel, B., Hostetler, A., **Johnson, H.**, Hundley, M., & Palmeri, A. (2013). *Finding the sweet spot: Prepping candidates for the Teacher Performance Assessment.* Presentation at the Annual Conference of the American Association of Colleges of Teacher Education (AACTE). Orlando, FL.
- Stengel, B., Singer-Gabella, M., Peterson, R., **Johnson, H. J.**, Shahan, E., Hostetler, A. L., & Hundley, M. (2013). *Teacher education: Filter or pump.* Presentation at the Annual Conference of the American Association of Colleges of Teacher Education (AACTE). Orlando, FL.
- Johnson, H. J.**, Pendergrass, E., & Waddell, L. (2012). *The power of individualized coaching on urban teacher leadership: The positive relational coaching framework.* Presentation at Learning Forward. Boston, MA.
- Johnson, H. J.** (2012). *Project-based teaching: Supporting students in making project connections.* Presentation at National Association for Research in Science Teaching (NARST). Indianapolis, IN.
- Waddell, L., **Johnson, H. J.**, King, R., & Anderson, L. (2011). *Up close and personal: The power of coaching in a university/school collaborative.* Presentation at the NMSA/Association for Middle Level Education's 38<sup>th</sup> Annual Conference in Louisville, KY.
- Kubitskey, B.W., **Johnson, H.J.**, Vath, R.J., Fishman, B.J., & Konstantopoulos. (2011). *Examining study attrition: Implications for experimental studies of professional development.* Presentation at the American Educational Research Association (AERA) in New Orleans, LA.
- Johnson, H. J.** (2009). *Making connections: Strategies for sustaining the project context in a project-based curriculum.* Presentation at the National Science Teachers Association (NSTA) in New Orleans, LA.
- Johnson, H. J.** (2009). *Making connections: Exploring the influence of teachers' cognitive resources on the enactment of a project-based curriculum.* Presentation at the American Educational Research Association (AERA) in San Diego, CA.



**Johnson, H.J.,** Mawyer, K.K.N. & Edelson, D.C. (2008). Practice-Based Professional Development: Design Considerations for New and Experienced Users of Curriculum Materials. Paper presented at National Association for Research in Science Teaching (NARST). Baltimore, MD.

## RESEARCH GRANTS

### Grant Submitted:

Submitted, under review. Co-PI for “Improving STEM Teacher Preparation through Multimedia Case Analysis” We have applied for NSF funding via the DRK-12 call. The proposed three-year iterative research and development project will study a) the facilitation practices used to scaffold ATLAS case analysis for pre-service teachers’ learning and b) how and why ATLAS case analysis is embedded into educator preparation programs. Principal Investigator: Lisa Stooksberry, Ed.D; Co-PIs: David Manzeske, Ph.D., Shazia Miller, Ph.D; Project Director: Kristin Hamilton, NBCT.

### Funded Grants:

2016-2017 PI, “Notice and Note: Exploring secondary education pre-service teachers’ instruction through video analysis,” Peabody Small Research Grant. \$8,520.

2015-2018 PI, “Mobilizing STEM Talent for STEM Teaching,” NSF Robert Noyce Teacher Scholarship Program. Co-PIs: Mark Ellingham and David Weintraub. \$1,184,043.

2013-2017 Co-PI, Vanderbilt subcontract to “Building a Pipeline of Teaching Excellence,” Department of Education Investment in Innovation (I3) Grant to the National Board for Professional Teaching Standards. Principal Investigators: Linda Darling-Hammond, Lisa Stooksberry, Marcy Singer-Gabella. \$3,000,000 (contract to NBPTS).

(2015). Co-presenter for *Seeing Teaching Anew: Revisioning the Profession through the Practice of Accomplished Teachers*. Presented by the National Board for Professional Teaching Standards at AACTE, Atlanta, GA.

(2014) Panelist for *Seeing Teaching Anew: Revisioning the Profession through the Practices of Accomplished Teachers* at the Teaching & Learning Conference presented by the National Board for Professional Teaching Standards, Washington, D.C.

## TEACHING

### **COURSES TAUGHT**

Spring 2017

#### **Professor, Video Analysis**

This course aims to provide students with conceptual and methodological tools for both (a) examining educational research that makes use of video and (b) designing and conducting video-based research.

Fall 2016

#### **co-Professor, Earth Science Pedagogy Seminar**

As part of the Noyce grant, pedagogy seminars were conceived to be

jointly instructed by a STEM faculty member of a core content class and an education faculty member to uncover the process of teaching and learning of that course content. This seminar examines Lily Claiborne's EES 1510: The Dynamic Earth course.

Spring 2016

**co-Professor, Astronomy Pedagogy Seminar**

This pedagogy seminar examined Erika Grundstrom's ASTR 2110: The Solar System course.

2015-2016

**Professor, Noyce Seminar I: Understanding Differences in Language, Learning and Development**

As part of the Noyce grant, this seminar was developed to enhance students' abilities to *see and interpret* the features of the urban context, the school environment, and the lives of young people so that they are able to make instructional decisions that are in the best education interests of their students. The monthly seminar sessions combine with fieldwork in urban schools that I also coach on a monthly basis.

Summer 2014-2016

**Instructor, ISL Theme 1 – B: Teachers and Teaching in Independent Schools**

I taught the Teachers and Teaching in Independent Schools module for the Teachers, Leaders and Learning in Independent Schools theme of the Independent School Leadership Masters program. The goal of this module was to help students develop conceptions of ambitious teaching by exploring visions of good teaching and reviewing important considerations in evaluating teachers.

Summer 2014

**Professor, Instructional Planning in Urban Schools (EDUC 3900)**

This is the introductory course to the Teaching and Learning in Urban Schools (TLUS) program. The course was designed around the themes of teacher leadership, student advocacy, community building, and reflection with an emphasis on teaching effectiveness through culturally-responsive instructional planning.

2014

**Professor, Analysis of Teaching (EDUC 3170)**

As a core course in the Learning and Instruction masters program, this course asks students to learn, develop, modify, and use analytic procedures and methodologies to systematically explore teaching.

2014

**Professor, Elementary Math/Science Practicum (EDUC 2250)**

Through coursework and field experiences, I worked with students to develop their pedagogies in math and science education at the elementary level.

2013-2014

**Professor, Science Literacies (SCED 2690/3900)**

Students delve into practices of inquiry, representation and justification in scientific domains, considering the relationships to the development of student understanding. Students explore questions such as: what does it mean to *know* in scientific domains? What does it mean to “leverage student thinking” in science? In what ways can students' informal experiences with science connect with more schooled learning experiences?

2012-Present

**Professor, Practicum in Secondary Education II (EDUC 2350)**

This redesigned practicum focuses on assessment in secondary schools. Fieldwork in two schools sites allows students to bring attention to what multiple assessments can tell about one student, and what one assessment can tell about many students.

- 2012-Present      **Professor, Student Teaching Seminar in Science Education (SCED 2292/3007)**  
This seminar is designed to support secondary science teacher candidates to learn from their student teaching and develop into intentional, responsive teachers who provide all students access to meaningful science.
- 2011-Present      **Professor, Advanced Teaching of Science in Secondary Schools (SCED 3370/6370)**  
This methods course in secondary science education explores the question, *How can we teach science to make it meaningful for learners?* Students examine the interrelationships between theory and practice in teaching science.
- 2011-Present      **Professor, Practicum in Secondary Education III (SCED 3371/6371)**  
This field-based course is a co-requisite of the methods course (SCED 2370/3370). Students plan lessons, devise instructional strategies, and assess student learning in two secondary science classrooms.
- 2011-2014      **Professor, TLUS Inquiry II (SCED 3900)**  
This course provides instruction in science content, research-based theory, and best practices in science teaching with the goal of improving middle school student science literacy and learning.
- 2011-Spring 2016      **TLUS Coach**  
Coaching is a co-requisite of the TLUS Inquiry II course. I provided in-class coaching support of both science content and practices through careful analysis of unit and lesson design, weekly classroom observations, and pre- and post-teaching conferences.

## ***ADVISING***

### **Undergraduate and Graduate Advisor (2011-present)**

I currently have 13 undergraduate students (two freshman, two sophomores, seven juniors, two seniors) and seven graduate students on my advising load. They are all preservice secondary science licensure students.

## **SERVICE**

### ***PROFESSIONAL FIELD***

#### **Journal Reviewer**

Review articles for *The Elementary School Journal*, *Science Education*, *Teaching and Teacher Education*, and *Journal of Teacher Education*.

#### **National Geographic Grant Proposal Reviewer**

Reviewed proposals for new education grants in Spring 2017.

#### **edTPA Scorer**

Scored edTPA portfolios for preservice middle level science students in Winter 2013-2014.

### **Building a Capacity of Tennessee Science Education**

As a member of this subcommittee of the Tennessee Science Teacher Association, we are working toward promoting and advocating readiness for research-based best practices in science teaching and learning to support student success in this state.

### **NSF Reviewer**

Reviewed EHR Core Research proposals in Summer 2013.

### **TLUS Redesign Team Member**

Collaborate with other team members to reconceptualize the TLUS program to include a larger emphasis on teacher leadership.

### **Tennessee Higher Education Commission**

Provided feedback on the e-learning TVAAS course for the *TVAAS e-Learning Instructor's Guide for University Faculty* in summer 2012.

### **Conference Reviewer**

I regularly review proposals for the Environmental Education Strand for the National Association for Research in Science Teaching annual conference and the American Educational Research Association annual conference.

### **Professional Memberships:**

- American Educational Research Association
- National Association for Research in Science Teaching
- National Science Teachers Association
- Tennessee Science Teachers Association

## ***COMMUNITY***

### **TSTA TN STEM Leadership Cadre**

**2017-Present**

Member of the Advisory Team to support the Leadership Cadre in developing and providing professional development for science teachers on the new science standards in the state of TN.

### **Training events will occur throughout the school year and during summer months.**

#### **Professional Development Workshop**

Goodlettsville Middle School, 2016

Facilitated a workshop titled, *What do we mean by rigor?* for all faculty during a professional development day.

### **Governor's School Leadership Academy**

Instructed a module on ambitious teaching for over 20 assistant principals from across Tennessee who were participating in the one-year leadership development experience aimed at increasing school leadership capacity and supporting individual growth toward becoming highly effective building principals in the state.

### **Science Fair Judge**

Judge for Isaac Litton Middle School's science fair in February 2013.

### **Instructional Coach**

My role in the TLUS program includes both instructor and coach. The coaching responsibilities include weekly visits to participating Metro Nashville schools where I observe and support

classroom instruction and reflect on planning and instruction with the classroom teachers. Being involved in the school community on a weekly basis, I regularly consult and collaborate with the administration to make sure my coaching support aligns with the needs and vision for the school (especially given the new evaluation system). I also discuss planning and management issues with other TLUS and non-TLUS teachers in the building during my visits.

## ***INTERNATIONAL***

### **Instructor/Presenter for the World Leading Schools Association Gathering (Nashville, TN and Beijing, China 2016)**

Led multiple sessions on ambitious teaching for visiting teachers and administrators from China. Helped frame their school visits by introducing an ambitious teaching observation tool that they could use to analyze their site visits. Traveled to Beijing to introduce a new cohort to ambitious teaching in Fall 2016.

## ***UNIVERSITY, COLLEGE, DEPARTMENT***

### **Vanderbilt University's Department of Teaching and Learning Elementary Education Steering Committee Member (2017)**

### **Vanderbilt University's Effectiveness of Educational Technologies Committee Member 2016-present**

### **Vanderbilt Graduation Marshall**

**May, 2016**

### **Instructor/Presenter for Excellence in Educating the Gifted: Materials that Promote Gifted Student Achievement (2016)**

Led a workshop on *Modeling in the Science Classroom*. In the session, participants engaged in the scientific practice of modeling by exploring one specific scientific phenomenon. Participants reflected on how modeling helped engage them in thinking about the science ideas at play and consider implications for designing scientific learning environments for gifted learners that include modeling as a central practice.

### **Co-Mentor for an NSF-funded Bioengineering Research Experiences for Undergraduates (REU) Site grant (2012-2013)**

As part of this grant, engineering faculty members around the country identify undergraduate students to do some engineering educational research. Along with Dr. Stacy Klein-Gardner, I co-mentored the three students at Vanderbilt as they worked through their summer projects that integrated engineering with science/engineering education research and pedagogy. These projects included lesson plans for a new activity for VSVS, a lab for the Aspinaut program, and lecture support materials for an undergraduate chemistry course.

### **Abu Dhabi Program Development Team Member (2011-2013)**

I provided support in the area of science for the development of curriculum, coaching, and professional development for teachers in the demonstration schools in Abu Dhabi. Specifically, I created educative curriculum matrices for teachers to use in grades 1-4 that supported the Pearson curricular resources available to the teachers and extended student involvement and scientific thinking in science lessons. These materials unpacked the identified learning outcomes into specific knowledge and skills that could be supported by instructional strategies and approaches, identified related and grade-level appropriate science trade books, and provided

suggestions for formative and summative assessment opportunities. Professional resources were included to point teachers to where they could look to develop their content and pedagogical knowledge. I developed four matrices for each grade level: Life Systems, Matter, Earth and Space, and Energy Systems.

Following the matrix project, I created a list of activities including descriptions, extensions, available online resources, and materials needed to support the implementation of more active science opportunities for teachers to use with their students in grades 1-4.

**Faculty Advisor (2011-2014)**

I acted as a Faculty Advisor for "Take ME (Mechanical Engineering) to School," a collaborative educational outreach project of the Vanderbilt University secondary science practicum teachers and the Vanderbilt Aerospace Club USLI. I helped draft a proposal to secure an additional \$5000 from the Tennessee Space Grant Consortium to support the outreach component of the project. This past fall we designed and facilitated outreach events at three Metro Nashville Public schools. Nearly 350 students participated in the outreach across these schools:

- November 17, 2011: Cora Howe Elementary School
- December 1, 2011: Wright Middle School
- December 12<sup>th</sup>-16<sup>th</sup>, 2011: Bailey Middle School
- Five sessions between September and October, 2012: Wright Middle School