

# Vashti Sawtelle

Lyman Briggs College & Department of Physics & Astronomy  
Michigan State University  
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517-884-5177

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## EDUCATION

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Ph.D., Physics: *Physics Education Research*, December, 2011  
Florida International University, Miami, Florida. Advisor: Dr. Eric Brewster  
*Dissertation: A Gender Study Investigating Physics Self-Efficacy*

B.A., Physics, 2006  
Grinnell College, Grinnell, Iowa

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## ACADEMIC EXPERIENCE

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Michigan State University, (07/20 – Present), Associate Professor of Physics  
Michigan State University, (08/14 – 07/20), Assistant Professor of Physics  
University of Maryland, (1/12 – 08/14), Post-doctoral research associate  
Florida International University, (08/07 – 12/11), Research assistant

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## NON-ACADEMIC EXPERIENCE

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Battelle Memorial Institute, Columbus, OH (5/06 – 7/07), Researcher

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## POST DOCTORAL RESEARCHERS MENTORED

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Dashika (Missy) Cosby (Spring 2020 – Present)  
Rachel Henderson (Spring 2019 – Fall 2020)  
Angela Little (Fall 2014 – Fall 2020)  
Emily Scott (Spring 2016 – Fall 2017)  
Mashood K.K. (Spring 2016 – Spring 2017)

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## GRADUATE STUDENTS MENTORED

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### PhD Students - Lead Advisor

*Degree Completed*

Abhilash Nair (Advisor, PhD 2018, Physics)  
Kelsey Funkhouser (co-Advisor, PhD 2019, Physics)  
Laura Wood, (Advisor, PhD 2022, Physics)

*Degree In-Progress*

Camila Monsalve (Advisor, PhD Intended, Physics)

### PhD Students – Served on Committee

Alanna Pawlak (Physics Education Research, PhD 2018, Physics)  
Kathryn Paris (Chemistry Education Research, PhD 2018, Chemistry)  
Michael Obsniuk (Physics Education Research, PhD 2019, Physics)

Paul Hamerski (Physics Education Research, PhD 2021, Physics)  
Carissa Myers (Physics Education Research, PhD Intended, Physics)  
Alyssa Waterson (Physics Education Research, PhD Intended, Physics)

### **Teaching as Research Fellowship Mentees**

#### *SUTL Fellows*

*A 12 month program for a diverse group of graduate students to collaborate with an LBC faculty member on a Scholarship of Teaching & Learning Project*

Dan Weller (SUTL Fellow, 5/17-5/18)

Luke Tunstall (SUTL Fellow, 8/16-8/17)

#### *FAST Fellows*

*A 12 month program for graduate students in the College of Natural Sciences to have mentored teaching experiences and gain familiarity with teaching and assessment techniques.*

Kelsey Funkhouser (FAST Fellow, 8/15-5/16)

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## **UNDERGRADUATE STUDENTS MENTORED**

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### **Research Experiences for Undergraduates (REUs)**

John Byrd (Summer 2021, MSU)

Meghan Kinnischtzke (Summer 2020, MSU)

Carissa Meyers (Summer 2018, MSU)

Camila Monsalve (Summer 2017, MSU)

Aaron Eichelberger (Summer 2013, UMD)

Nadia Lustig (Summer 2009, FIU)

Sheidyn Ng (Summer 2008, FIU)

### **Independent Study in Physics Education Research**

Hady Omar (Spring 2021 – Present, MSU)

D'Mario Northington (Spring 2019 – Fall 2020, MSU)

Stephanie Taylor (Spring 2019 – Summer 2019, MSU)

Sarah (Darcy) Maestres (Spring 2018 – Spring 2019 MSU)

Devin Lake (Fall 2017 – Summer 2018 MSU)

Abigail Green (Summer 2017 – Spring 2018 MSU)

Alec Shrode (Summer 2017 MSU)

Bridget Humphrey (Spring 2016 - Fall 2017 MSU)

Justin Gambrell (Fall 2015 - Spring 2017 MSU)

Nikita Kumar (Fall 2015 - Spring 2016, MSU)

Aubrey Chartier (Spring 2014, MSU)

Anna Turnbull (Fall 2014, Fall 2015, MSU)

Zachary Krakower (Fall 2013, UMD)

Maria Paula Angarita (Fall 2011 - Summer 2012, FIU)

Sean Stewart (Fall 2011 - Summer 2012, FIU)

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## **TEACHING**

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**Instructor of Record** (01/21 – 04/21), Department of Physics & Astronomy, Michigan State University, PHY215

Teaching an undergraduate level course of Thermodynamics and Modern Physics for physics and engineering majors.

**Co-Instructor of Record**, (01/18 – 4/21), Lyman Briggs Coll., Michigan State University, LB492

Co-teaching an undergraduate senior seminar capstone course online. This course is writing intensive and engages students in studying the racialized history of medical technology.

**Instructor of Record**, (01/17 – Present), Lyman Briggs Coll., Michigan State University, LB274  
Teaching an undergraduate level course of Introductory Physics with Calculus II with a life sciences perspective.

**Instructor of Record**, (08/16 – Present), Lyman Briggs Coll., Michigan State University, LB273

Briggs Life Science Studio (BLiSS) Physics, and Introductory Physics with Calculus course that integrates the lab and lecture in a studio format with a life sciences perspective.

**Instructor of Record**, (08/18 – 5/19), Lyman Briggs Coll., Michigan State University, LB492  
Teaching an undergraduate senior seminar capstone course. This course is writing intensive and engages students in studying the impact of gender in the physical sciences.

**Co-Instructor of Record**, (08/15 – 12/15), Lyman Briggs Coll., Michigan State University, LB273

Co-teaching an undergraduate level course of Introductory Physics with Calculus with a life sciences perspective. Supported a research associate in teaching her first large-lecture classroom environment.

**Instructor of Record**, (08/14 – 12/14), Lyman Briggs Coll., Michigan State University, LB273  
Teaching an undergraduate level course of Introductory Physics with Calculus with a life sciences perspective.

**Instructor of Record**, (01/15 – 05/15), Lyman Briggs Coll., Michigan State University, LB492  
Teaching an undergraduate senior seminar capstone course. This course is writing intensive and engages students in studying the impact of gender in the physical sciences.

**Instructor of Record**, (09/13 – 12/13), Department of Teaching & Learning, Policy & Leadership, University of Maryland, EDCI 751

Co-taught a graduate level course on an introduction to Theory and Research on Mathematics and Science Thinking and Learning. Created a set of readings on research on science thinking and learning that emphasized the specialties of the disciplines of science.

**Instructor of Record**, (01/13 – 05/13), Department of Physics, University of Maryland, PHY 115

Taught the Inquiry into Physics course required for all pre-service elementary school teachers at University of Maryland. Created an integrated lab/lecture environment that emphasized inquiry activities for pre-service teachers.

**Lead Instructor**, (8/10 – 4/11), Department of Physics, Florida International University, PHY 2048/L and PHY 2049/L

Served as the lead teacher for an integrated lab and lecture Introductory Physics with Calculus course utilizing Modeling Instruction. Created an inquiry environment using extensive laboratory investigations and guided class discussions.

**Teaching Assistant**, (8/09 – 4/10), Department of Physics, Florida International University, PHY 2048/L and PHY 2049/L

Assisted the lead instructor in an integrated lab and lecture Introductory Physics with Calculus course using Modeling Instruction.

**Teaching Assistant**, (8/08 – 4/09), Department of Physics, Florida International University, PHY 2048L

Taught two sections of the laboratory component of Introductory Physics with Calculus I course using University of Maryland Open Source Tutorials.

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## CONFERENCES ORGANIZED

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**Conference for Undergraduate Women in Physics**, Faculty Advisor on Organizing Committee, Michigan State University, January 18-20, 2019

A regional conference for Michigan, Ohio, Illinois, Indiana, Kentucky, and Western Pennsylvania this conference hosted 190 undergraduate students (primarily women) who are interested in physics at MSU. The conference is targeted at providing professional development and networking opportunities to undergraduate women, who are underrepresented in earning physics bachelor's degrees. (Press release: <https://natsci.msu.edu/news/undergraduate-conference-empowers-female-physicists/>)

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## WORKSHOPS FACILITATED

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### **An Introduction to Race, Ethnicity, and Equity in Physics Education**

A workshop designed for physics faculty and high school physics teachers to build competency in creating inclusive classrooms and mentoring students through instances of racial bias. Served as initial co-creator and co-facilitator of this workshop and as co-organizer to expand the leadership team.

*Workshop facilitated at national meetings:*

American Association of Physics Teachers National Meeting, July 2016, July 2017, July 2018.

American Association of Physics Teachers New Faculty Workshop, Washington DC, June 2017.

*Workshop facilitated at MSU:*

Physics & Astronomy Department, Michigan State University, June 2016.

### **Graduate Teaching Assistant Workshop - MSU**

Collaborated in redesigning and facilitating the graduate student teaching assistant professional development in the Department of Physics and Astronomy at Michigan State University. Co-facilitated this workshop in August 2014, August 2015, August 2016, August 2017, August 2018, August 2019

### **Graduate Teaching Assistant Workshop - UMD,**

Collaborated in designing a session and facilitating the graduate student teaching assistant professional development in the Department of Physics and Astronomy at University of Maryland, College Park, August 2012, August 2013

### **Modeling Instruction for University Physics,**

A workshop designed for university physics faculty on the Modeling Instruction for University Physics. Served as co-designer and facilitator of the workshop.

National Meeting of the American Association of Physics Teachers, Co-Facilitator July 2012

University of Cincinnati, Co-Facilitator, March 2012

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## GRANTS AWARDED

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**Natural Science Transfer Scholars: Natural Science Foundations for Innovation in the Data-Driven Economy** co-PI, NSF, S-STEM, \$4,986,777, 2023 - 2028

A project to study how to best support the development of self-efficacy and science identity for students who start their college path at a two-year college in Michigan and transfer to the College of Natural Science at Michigan State.

**Practices and Research on Student Pathways in Education from Community College and Transfer Students in STEM (PROSPECT S-STEM)**, MSU PI, NSF, DUE, \$420,018, 2022 - 2027. A project understanding how to create equitable partnerships between community colleges and baccalaureate granting institutions that support the transfer of low-income college students.

**MSU Creating Inclusive Excellence Grant (CIEG)**, co-PI, internal to Mich. St. Univ., \$15,600, 2021-2022, Improving Accessibility in Physics Active Learning Curricula. A grant with collaborators in Physics & Astronomy to examine the accessibility of our active learning introductory physics curriculum.

**MSU Discretionary Funding Initiative (DFI)**, PI, internal to Mich. State. Univ., \$19,109, 2020, Demonstrating a mixed methods approach to studying self-efficacy developmental patterns for 2-year college transfer students. A project to build a set of pilot data using a new methodology to student self-efficacy of TYC transfer students.

**Natural Science Transfer Scholars**, co-PI, NSF, S-STEM, Co-PI, \$4,998,113, 2017 - 2022  
A project to study how to best support the development of self-efficacy, identity, and mindset for students who transfer from a two-year college to the College of Natural Science at Michigan State.

**Science Studies at State Seed Grant**, co-PI (PI - PhD student Nair), internal to Mich. State Univ., \$10k, 2016, Vital Signs: Bridging and Democratizing Physics. A project creating curricular materials to support students in building a spirometer and an EKG. Research examined how students think about the ethics of collecting data from living systems.

**CREATE for STEM, LPF-CMP 2 Innovation Grant**, PI, internal to Mich. State Univ., \$100k, June 2015 – June 2017, Investigating How Students Connect Essential Ideas Across the Science Disciplines. A project to design and run a tool to understand and assess students interdisciplinary reasoning skills.

**Science Studies at State Seed Grant**, co-PI (PI – White), internal to Mich. State Univ., \$10k, 2014, Facilitating the interdisciplinary education research in Lyman Briggs College.  
A project to review the literature and create a collaboration of LBC faculty to create curriculum that would span across the disciplines as students' progress through the LBC degree program.

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## FELLOWSHIPS AND AWARDS

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**2022 Michigan Distinguished Professor of the Year**, Michigan Association of State Universities

An award that recognizes the outstanding contributions and dedication exhibited by faculty from Michigan's 15 public universities to the education of undergraduate students.

**2019 MSU Spirit of Ability Award**, Michigan State University

Awarded through the Resource Center for Persons with Disabilities at MSU, the Spirit of Ability Award is given to contemporary leaders who create vibrant environments that welcome, fortify, and compassionately challenge each person to reach their fullest ability.

**2018 Teacher Scholar Award**, Michigan State University

Awarded by Michigan State University to six members of the tenure system faculty from the ranks of assistant professor and associate professor who early in their careers have earned the respect of students and colleagues for their devotion to and skill in teaching.

**2017 STEM Gateway Fellows Award**, Michigan State University, 2017 – 2018 cohort

A 2-year fellowship program designed to engage faculty in the exploration of effective STEM teaching and learning practices.

**2015 PERC Proceedings Notable Paper** (Finalist), Physics Education Research Conference, Washington, DC, 2015

The Physics Education Research Leadership Organizing Council (PERLOC) identifies a select set of peer reviewed papers that are particularly noteworthy in terms of their overall quality of research, readability, and impact on the PER community.

**2013 AAMC MedEdPORTAL Award**

A peer-reviewed, open-access journal that promotes educational scholarship and dissemination of teaching and assessment resources in the health professions. Awarded to the top submission in biochemistry for our curriculum developed for understanding chemical energy, 2013

**2012 PERC Proceedings Paper Award** (Finalist), Physics Education Research Conference, Philadelphia, PA, 2012

The Physics Education Research Leadership Organizing Council (PERLOC) identifies a select set of peer reviewed papers that are particularly noteworthy in terms of their overall quality of research, readability, and impact on the PER community.

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**PROFESSIONAL ENGAGEMENT AND SERVICE**

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**Seed Contributor to The Living Physics Portal, 2018 - 2019**

Invited to contribute starting materials from Briggs Life Sciences Studio (BLiSS) Physics curriculum to the newly formed (2019) online resource the Living Physics Portal - an online environment for physics faculty to share and discuss free curricular resources for teaching introductory physics for life sciences (IPLS). <https://www.livingphysicsportal.org/>

**BRUSH Researcher & Evaluator, 2018 – 2019**

Served as a consultant and voluntary research supervisor for the Biomedical Research for University Students in Health Sciences (BRUSH) Summer Research Program. The BRUSH program provides hands-on research exposure and graduate or professional school preparation opportunities for undergraduate students who are from populations that are underrepresented in biomedical research. Supervised two graduate students in collecting research and evaluation data on this cohort program in the Summer 2018 and Summer 2019. <https://cvm.msu.edu/research/student-research/undergraduate-student-summer-research-program/program-at-a-glance>

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**SERVICE WORK**

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*National Professional Societies*

**AIP Statistical Resource Center Advisory Committee**, American Institute of Physics, 2013- Present  
**Co-Chair of Physics Education Research Leadership Organizing Council (PERLOC)**, 2018 – 2019  
**Vice-Chair & Treasurer of Physics Education Research Leadership Organizing Council (PERLOC)**, 2017 – 2018  
**Chair of Grants Committee Physics Education Research Leadership Organizing Council (PERLOC)**, 2016 – 2017  
**Committee on Education, American Physical Society**, 2016-2017  
**Chair of Research in Physics Education Committee, American Association of Physics Teachers**, 2015-2016  
**Vice-Chair of Research in Physics Education Committee, American Association of Physics Teachers**, 2014-2015

*University Service*

*University Level*

**OVRGS Seminar Series Steering Committee**, 2014 – 2015  
**Grandparents University**, 2015, 2016, 2017

*College of Natural Sciences*

**Physics Representative to the STEM Teaching & Learning Building committee, 2017 - 2018**

*Lyman Briggs College*

**LBC Inc, diversity and inclusion committee for LBC**, 2018 - Present  
**LBC Dean Search Committee – Dean**, 2017 - 2018  
**Faculty Search Committee – Physics Tenure Stream**, 2016  
**Faculty Search Committee – Physics & Math Academic Specialist**, 2015

*Department of Physics & Astronomy*

**Graduate Program Committee**, 2020-2021  
**Transformation for Undergraduate Education Committee**, 2018 - 2020  
**Undergraduate Program Committee**, 2015 – 2018

*National service to the field*

*Editorial*

**Guest Editor for Gender in Physics**, Theme Issue of Physical Review Special Topics – Physics Education Research, 2013 - 2016

*Journal reviewer*

**American Journal of Physics**  
**Physical Review Physics Education Research**  
**Cell Biology Education – LSE**

*National Science Foundation Reviewer*

**Directorate for Education & Human Resources**

*Conference Proposal Reviewer*

**International Conference of the Learning Sciences**  
**Reviewer for National Association of Research in Science Teaching**

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## PROFESSIONAL AFFILIATIONS

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National Association of Research in Science Teaching  
International Society of the Learning Sciences  
American Association of Physics Teachers  
American Physical Society

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## PUBLICATIONS

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### **Editorials:**

1. Brewe, E., & **Sawtelle, V.** (2016) "Editorial: Focused Collection: Gender in Physics," *Phys. Rev. Phys. Educ. Res.*, **12**(2), 020001 (2016).

### **Edited Book Chapters:**

1. Gupta, A., Elby, A., & **Sawtelle, V.** (2016) "Bridging Knowledge Analysis and Interaction Analysis Through Understanding the Dynamics of Knowledge in Use." In diSessa, A. A., Levin, M., & Brown, N. J. S. (Editors). *Knowledge and interaction: A synthetic agenda for the learning sciences*. New York, NY: Routledge.

### **Refereed Research Journal Articles:**

(names of mentored students are italicized)

1. Wood, L. A. H., & **Sawtelle, V.** "Narrative Analysis of a Woman's Experience Transferring from a TYC Reveals Impact of Supporting Characters." *CBE—Life Sciences Education*, **21**(3), (2022). <https://doi.org/10.1187/cbe.21-09-0253>
2. Henderson, R., **Sawtelle, V.**, & Nissen, J. M. "Gender & Self-Efficacy: A Call to Physics Educators." *Phys. Teach.*, **58**(5), 345–348, (2020). <https://doi.org/10.1119/1.5145533>
3. McPadden, D., Brewe, E., *Monsalve, C.*, & **Sawtelle, V.** Productive faculty resources activated by curricular materials: An example of epistemological beliefs in University Modeling Instruction. *Phys. Rev. Phys. Educ. Res.*, **16**(2), 20158 (2020) <https://doi.org/10.1103/physrevphyseducres.16.020158> (open access)
4. Geller, B.D., Gouvea, J., Dreyfus, B.W., **Sawtelle, V.**, Turpen, C., Redish, E.F. , "Bridging the gaps: How students seek disciplinary coherence in introductory physics for life science", *Phys. Rev. Phys. Educ. Res.* **15**, 020142 (2019), <https://link.aps.org/doi/10.1103/PhysRevPhysEducRes.15.020142> (open access)
5. *Nair, A.*, **Sawtelle, V.**, "Operationalizing relevance in physics education: using a systems view to expand our conception of making physics relevant," *Phys. Rev. Phys. Educ. Res.* **15**, 020121 (2019), <https://doi.org/10.1103/PhysRevPhysEducRes.15.020121> (open access)
6. Little, A., *Humphrey, B.*, *Green, A.*, *Nair, A.*, **Sawtelle, V.**, "Exploring Mindset's Applicability to Students' Experiences with Challenge in Transformed College Physics Courses," *Phys. Rev. Phys. Educ. Res.*, **15**, 010127 (2019), <https://doi.org/10.1103/PhysRevPhysEducRes.15.010127> (open access)



7. Gouvea, J., **Sawtelle, V.**, Nair, A. "Epistemological progress in physics and its impact on biology," *Phys. Rev. Phys. Educ. Res.*, **15**, 010107 (2019). (open access)
8. Scott, E. E., Anderson, C. W., Mashood, K. K., Matz, R. L., Underwood, S. M., & **Sawtelle, V.** "Developing an Analytical Framework to Characterize Student Reasoning about Complex Processes." *CBE-Life Sciences Education*, *17*(3), 1–14 (2018), <http://doi.org/10.1187/cbe.17-10-0225> (open access)
9. Nair, A., **Sawtelle, V.**, "Real-time Visualization of Equipotential Lines Using the IOLab," *Phys. Teach.*, *56*(Nov), 512–514 (2018), <http://doi.org/10.1119/1.5064557>
10. Brewe, E., Bartley, J. E., Riedel, M. C., **Sawtelle, V.**, Salo, T., Boeving, E. R., et al., "Toward a Neurobiological Basis for Understanding Learning in University Modeling Instruction Physics Courses," *Frontiers in ICT*, *5*, (2018), 646–13. <http://doi.org/10.3389/fict.2018.00010>
11. Brewe, E., & **Sawtelle, V.** Modelling instruction for university physics: examining the theory in practice. *European Journal of Physics*, *39*(5), (2018). <http://doi.org/10.1088/1361-6404/aac236>
12. Daane, A.R., Decker, S.R., **Sawtelle, V.**, "Teaching About Racial Equity in Introductory Physics Courses," *Phys. Teach.*, *55*(6), 328–333 (2017), <http://doi.org/10.1119/1.4999724>
13. **Sawtelle, V.**, Turpen, C., "Leveraging a relationship with biology to expand a relationship with physics," *Phys. Rev. Phys. Educ. Res.*, **12**, 010136 (2016). (open access)
14. Dreyfus, B.W., Geller, B.D., **Sawtelle, V.**, Meltzer, D.E., "Resource letter: Teaching thermodynamics and statistical mechanics in physics, chemistry, and biology," *Amer. J. of Phys.*, **83**, 5–21 (2015).
15. Dreyfus, B.W., Geller, B.D., Gouvea, J., **Sawtelle, V.**, Turpen, C., Redish, E.F., "Ontological metaphors for negative energy in an interdisciplinary context," *Phys. Rev. ST—Phys. Educ. Res.*, **10**, 020108 (2014). (open access)
16. Dreyfus, B. W., **Sawtelle, V.**, Turpen, C., Redish, E.F., "A Vision of Interdisciplinary Education: Students' Reasoning about 'High-Energy Bonds' and ATP," *Phys. Rev. ST—Phys. Educ. Res.*, **10**, 010115 (2014). (open access)
17. Dreyfus, B.W., Gouvea, J.S., Geller, B.D., **Sawtelle, V.**, Turpen, C., Redish, E.F., "Chemical Energy in an Introductory Physics Course for the Life Sciences," *Amer. J. Phys.*, **82**, 403–411 (2014).
18. Geller, B.D., Dreyfus, B.W., Gouvea, J.S., **Sawtelle, V.**, Turpen, C., Redish, E.F., "Entropy and Spontaneity in an Introductory Physics Course for the Life Science Students," *Amer. J. Phys.*, **82**, 394–402 (2014).
19. Redish, E.F, Bauer, C., Carleton, K.L, Cooke, T.J., Cooper, M., Crouch, C.H., Dreyfus, B.W., Geller, B., Giannini, J., Gouvea, J.S., Klymkowsky, M.W., Losert, W., Moore, K., Presson, J., **Sawtelle, V.**, Turpen, C., Thompson, K., "NEXUS/Physics: An interdisciplinary repurposing of physics for biologists," *Amer. J. Phys.*, **82**, 368–377 (2014).

20. Gouvea, J.S., **Sawtelle, V.**, Geller, B.D., Turpen, C., "A Framework for Analyzing Interdisciplinary Tasks: Implications for Student Learning and Curricular Design," *Cell Biol. Educ.*, 12, 187 (2013).
21. **Sawtelle, V.**, Brewe, E., Goertzen, R.M., Kramer, L.H., "Identifying Opportunities to Influence Self-Efficacy in Real Time," *Phys. Rev. Special Topics – PER*, 8, 020111 (2012). (open access)
22. Rodriguez, I., Brewe, E., **Sawtelle, V.**, Kramer, L.H., "The Impact of Equity Models and Statistical Measures on Interpretations of Educational Reform," *Phys. Rev. Special Topics – PER*, 8, 020103 (2012). (open access)
23. **Sawtelle, V.**, Brewe, E., Kramer, L.H., "Exploring the Relationship Between Self-Efficacy and Retention in Introductory Physics," *J. Res. Sci. Teach.*, **49**(9), 1096 (2012).
24. Brewe, E., Kramer, L.H., **Sawtelle, V.**, "Investigating student communities with network analysis of interactions in a physics learning center," *Phys. Rev. Special Topics – PER*, 8, 010101 (2012). (open access)
25. Brewe, E., **Sawtelle, V.**, Kramer, L.H., O'Brien, G.E., Rodriguez, I., Pamela, P., "Toward Equity Through Participation in Modeling Instruction in Introductory University Physics," *Phys. Rev. Special Topics - PER*, 6, 010106 (2010). (open access)
26. **Sawtelle, V.**, Brewe, E., Kramer, L., "A validation study of the Colorado Learning About Science Survey at a Hispanic-Serving Institution," *Phys. Rev. Special Topics-PER*, 5, 023101 (2009). (open access)

***Papers in the Peer-Reviewed Physics Education Research Conference (PERC) Proceedings:***

*The PERC Proceedings may have the word "proceedings" in the title, but unlike most conference proceedings they are subject to a rigorous peer review that can result in rejection, revision, or acceptance. In Physics Education Research, PERC proceedings (limited to 4-pages in length) are used as one of the primary peer-reviewed publication outlets of the discipline.*

1. Myers, C., **Sawtelle, V.**, & Henderson, R. (2022). A Mixed Methods Approach Towards Defining A Student 's Ranges of Self-Efficacy. In B. Frank, D. Jones, & Q. X. Ryan (Eds.), *Proceedings of the Physics Education Research Conference* (pp. 323–328). <https://doi.org/10.1119/perc.2022.pr.Myers>
- 2.
3. Monsalve, C., Henderson, R., & **Sawtelle, V.** "An Investigation of Degree Pathways for Students of Color with Transfer Credits." 2020 PERC Proceedings [Virtual, 2020], edited by S. Wolf, M.B. Bennett, and B.W. Frank, 352–357. doi: 10.1119/perc.2020.pr.monsalve
4. Henderson, R., & Sawtelle, V. (2020). *Implementing a mixed-methods approach to understand students ' self-efficacy : A pilot study.* 2020 PERC Proceedings [Virtual, 2020], edited by S. Wolf, M.B. Bennett, and B.W. Frank, 204–209. doi: [10.1119/perc.2020.pr.Henderson](https://doi.org/10.1119/perc.2020.pr.Henderson)
5. Weller, D.P., Hinko, K.A., & **Sawtelle, V.**, "Investigating complementary computational and empirical activities for students learning diffusion," 2018 PERC Proceedings [Washington, DC, August 1-2, 2018], edited by A. Traxler, Y. Cao, and S. Wolf, doi:[10.1119/perc.2018.pr.Weller](https://doi.org/10.1119/perc.2018.pr.Weller)

6. *Funkhouser, K.*, Caballero, M.D., Irving, P.W., **Sawtelle, V.**, “What counts in laboratories: toward a practice-based identity survey,” 2018 PERC Proceedings [Washington, DC, August 1-2, 2018], edited by A. Traxler, Y. Cao, and S. Wolf, doi:10.1119/perc.2018.pr.Funkhouser.
7. *Wood, L.A.*, Little, A.J., **Sawtelle, V.**, “Researching experiences in a cohort program to influence transfer self-efficacy,” 2018 PERC Proceedings [Washington, DC, August 1-2, 2018], edited by A. Traxler, Y. Cao, and S. Wolf, doi:10.1119/perc.2018.pr.Wood.
8. *Nair, A.*, **Sawtelle, V.**, “An uncommon case of relevance through everyday experiences,” 2018 PERC Proceedings [Washington, DC, August 1-2, 2018], edited by A. Traxler, Y. Cao, and S. Wolf, doi:[10.1119/perc.2018.pr.Nair](https://doi.org/10.1119/perc.2018.pr.Nair).
9. Turpen, C., Little, A., **Sawtelle, V.**, "Investigating Physics Faculty's Reasoning about Inequities in Undergraduate Physics Education", Presented at the 2017 Physics Education Research Conference, American Association of Physics Teachers, 396–399 (2018).  
***Selected as a notable paper in the 2017 conference proceedings.***
10. *Nair, A.*, Irving, P., **Sawtelle, V.**, “Using disciplinary perspectives to refine conceptions of the ‘real world’”, Presented at the 2017 Physics Education Research Conference, American Association of Physics Teachers, 268-271 (2018).  
<http://doi.org/10.1119/perc.2017.pr.062>
11. *Tunstall, S.*, *Nair, A.*, Hinko, K. A., Irving, P. W., & **Sawtelle, V.**, “Understanding life science majors’ ideas about diffusion,” Presented at the 2017 Physics Education Research Conference, American Association of Physics Teachers, 392–395 (2018).  
<http://doi.org/10.1119/perc.2017.pr.093>
12. Daane, A., **Sawtelle, V.**, “Student Discourse about Equity in an Introductory College Physics Course,” Physics Education Research Conference, Sacramento, CA, Proceedings of the 2016 Physics Education Research Conference, American Association of Physics Teachers, 88-91 (2016).
13. Little, A., **Sawtelle, V.**, *Humphrey, B.*, “Context Dependent Mindset: Building New Frameworks and Measurement Methodologies,” Physics Education Research Conference, Sacramento, CA, Proceedings of the 2016 Physics Education Research Conference, American Association of Physics Teachers, 204-207 (2016).
14. Mashood, K.K., **Sawtelle, V.**, Anderson, C.W., Matz, R. L., Scott, E. E., Underwood, S.M., “Developing an empirically grounded framework to assess interdisciplinarity of student explanations of everyday phenomena,” Sacramento, CA, Proceedings of the 2016 Physics Education Research Conference, American Association of Physics Teachers, 220-223 (2016).
15. **Sawtelle, V.**, and Little, A., “Understanding the Nuance in Disciplinary Self-Efficacy,” Proceedings of the 2015 Physics Education Research Conference, American Association of Physics Teachers, 295-298 (2015). (selected as a Notable Paper)
16. Irving, P.W., **Sawtelle, V.**, Caballero, M.D., “Troubleshooting Formative Feedback in P<sup>3</sup> (A Group Based Learning Environment,” Proceedings of the 2015 Physics Education Research Conference, American Association of Physics Teachers, 335-338 (2015).

17. *Turnbull, A., Doughty, L., Sawtelle, V., Caballero, M.D., "Student Ideas around Vector Decomposition in the Upper-Division," Proceedings of the 2015 Physics Education Research Conference, American Association of Physics Teachers, 295-298 (2015).*
18. *Dreyfus, B.W., Geller, B.D., Gouvea, J.S., Sawtelle, V., Turpen, C., and Redish, E.F., "Negative energy: Why interdisciplinary physics requires multiple ontologies," Proceedings of the 2013 Physics Education Research Conference, American Association of Physics Teachers, 129-132 (2014).*
19. *Geller, B.D., Dreyfus, B.W., Gouvea, J.S., Sawtelle, V., Turpen, C., and Redish, E.F., "Like dissolves like: Unpacking student reasoning about thermodynamic heuristics," Proceedings of the 2013 Physics Education Research Conference, American Association of Physics Teachers, 157-160 (2014).*
20. *Sawtelle, V., Sikorski, T.R., Turpen, C., Redish, E.F., "Examining the Positioning of Ideas in the Disciplines," Proceedings of the 2012 Physics Education Research Conference, AIP Press, Melville NY, **1513**, 366-369 (2013). *Finalist in the 2012 PERC Proceedings Award.**
21. *Stewart, S., Angarita, M.P., Durden, J., Sawtelle, V., "'Learning Arc': The Process of Resolving Concerns through Student-Student Discourse," Proceedings of the 2012 Physics Education Research Conference, AIP Press, Melville NY **1513**, 398-401 (2013).*
22. *Dreyfus, B.W., Geller, B.D., Sawtelle, V., Svoboda, J., Turpen, C., Redish, E.F., Students' Interdisciplinary Reasoning about 'High Energy Bonds' and ATP, Proceedings of the 2012 Physics Education Research Conference, AIP Press, Melville NY **1513**, 122-125 (2013).*
23. *Geller, B.D., Dreyfus, B.W., Sawtelle, V., Svoboda, J., Turpen, C., and Redish, E.F., Students' Reasoning about Interdisciplinarity, Proceedings of the 2012 Physics Education Research Conference, AIP Press, Melville NY, **1513**, 146-149 (2013).*
24. *Sawtelle, V., Brewe, E., Kramer, L.H., "Creating Opportunities to Influence Self-Efficacy through Modeling Instruction," Proceedings of the 2011 Physics Education Research Conference, AIP Press. Melville NY, 1413, 339-342, (2011).*
25. *Sawtelle, V., Brewe, E., Kramer, L.H., "Positive Impacts of Modeling Instruction on Self-Efficacy," Proceedings of the 2010 Physics Education Research Conference, AIP Press. Melville NY, 1289, 289-292, (2010).*
26. *Sawtelle, V., Brewe, E., Kramer L.H., "An Exploratory Qualitative Study of the Proximal Goal Setting of Two Introductory Modeling Instruction Physics Students," Proceedings of the 2009 Physics Education Research Conference, AIP Press. Melville NY, 1179, 261-264, (2009).*

***Papers in other Peer-Reviewed Conference Proceedings:***

1. *Geller, B.D., Gouvea, J.S., Sawtelle, V., and Turpen, C., "Sources of Affect around Interdisciplinary Sense Making," Proceedings of the International Conferences of the Learning Sciences, Boulder, CO June 2014.*
2. *Redish, E.F., Sawtelle, V., Turpen, C., "The role physics can play in a multi-disciplinary curriculum for non- physics scientists and engineers," Proceedings of the Frontiers in*

Mathematics and Science Education Research Conference, Famagusta, North Cyprus, May 2014.

3. **Sawtelle, V.**, Turpen, C., Gouvea, J.S., “Harnessing Affinity Towards Biology to Support Diversity in Physics,” Proceedings of the National Association of Research in Science Teaching Annual Conference, Pittsburgh, PA March 2014.
4. Halman, J., Ramsey, K., **Sawtelle, V.**, “Effects of mesh voids on insertion loss of metallic mesh coatings,” Proc. SPIE, 2 May 2007, V.6545; DOI:10.1117/12.719807
5. Shaw, R.W., **Davis, V.A.**, Potter, R.N., Wilson, L.L., Fiergle, C.S., Peretich, M.E., & Liaw, C.J., “Corrugated thin diamond foils for SNS H-injection stripping,” Particle Accel. Conf. 2005, May 16-20, 2005, Knoxville, TN, RPPE030.

### ***Invited Presentations***

1. Daane, A.R., Sybertz, S.R., **Sawtelle, V.**, “Teaching about Racial Equity in Introductory Physics Courses,” Invited talk, AAPT National meeting, July 2019.
2. **Sawtelle, V.**, Nair, A., “Assessing the Briggs Life Science Studio (BLiSS) Physics Course”, Invited talk, AAPT National Meeting, July 2019.
3. **Sawtelle, V.**, “Rethinking Physics for Biologists: A Design-Based Research Approach” Invited colloquium, Eastern Michigan University, November 2018.
4. **Sawtelle, V.**, “Imposter Syndrome: Do I belong here?” Invited colloquium, Ithaca College, September 2018.
5. **Sawtelle, V.**, “Designing for Affect: Inclusion and Diversity in Physics” Invited colloquium, Cornell University, September 2018.
6. **Sawtelle, V.**, McPadden, D., “STUDIO PHYSICS: What is it and what can we learn from it?”, Invited seminar, HHMI Summit, Michigan State University, May 2018.
7. **Sawtelle, V.**, “Designing for Affect through an Introductory Physics for Life Science Course,” Invited talk, APS April Meeting, April 2018.
8. **Sawtelle, V.**, “Designing for Affect through an Introductory Physics for Life Science Course,” Invited colloquium, Tufts University, April 2018.
9. **Sawtelle, V.**, “Designing for Affect through an Introductory Physics for Life Science Course,” Invited colloquium, Albion College, February 2018.
10. **Sawtelle, V.**, “Integrating Physics Teaching for Life Science Majors and Teaching for Equity,” Plenary, Foundations and Frontiers in Physics Education Research Conference, Bar Harbor, ME, June 2017.
11. **Sawtelle, V.**, “Harnessing Affinity Towards Biology to Support Diversity in Physics,” Invited talk, AAPT Winter 2017 meeting, Atlanta, GA, February 2017.
12. **Sawtelle, V.**, Underwood, S., Matz, R., Anderson, C. “Assessing the connection of essential ideas across the disciplines,” Invited talk, AAPT Winter 2016 meeting, New Orleans, LA, January 2016.

13. **Sawtelle, V.**, “Rethinking Physics for Biologists: Reconciling Interdisciplinary Perspectives,” Invited colloquium, Texas State – Commerce, April 2015.
14. **Sawtelle, V.**, “Understanding Women’s Success in Physics through Self-Efficacy”, Invited talk, American Physical Society, San Antonio, TX, March 2015.
15. **Sawtelle, V.**, “Rethinking physics for biologists: A design-based research approach”, Invited talk, American Physical Society, San Antonio, TX, March 2015.
16. **Sawtelle, V.**, “Understanding Retention in Physics through Self-Efficacy & Identity,” Invited Work in Progress, CREATE series, Mich. St. Univ., Jan, 2015.
17. **Sawtelle, V.**, Caballero, M.D., “Investigating Student Learning in Physics: What’s up with PERL@MSU?,” Invited Physics Education Research Seminar, Mich. St. Univ., Sept, 2014.
18. **Sawtelle, V.**, “Rethinking Physics for Biologists: Reconciling Interdisciplinary Perspectives,” Invited colloquium, Rochester Institute of Technology, Rochester, NY, April, 2014.
19. **Sawtelle, V.**, “Designing an Interdisciplinary Physics Course to Support Scientific Reasoning Skills,” Invited talk, National Meeting of the American Association of Physics Teachers Meeting, Portland, OR, July 2013.
20. **Sawtelle, V.**, “Progress through Paradox: Reconciling Interdisciplinary Perspectives,” Invited colloquium, Dickinson College, Carlisle, PA, October 2012.
21. **Sawtelle, V.**, “The transformation of Florida International University's undergraduate physics program,” Invited talk, South-Eastern Pennsylvania Section of American Association of Physics Teachers Meeting, Philadelphia, PA, February 2012.
22. **Sawtelle, V.**, Brewe, E., Goertzen, R.M., Kramer, L.H., “Describing Social Persuasion Opportunities in a Physics Problem Solving Session,” Invited Poster, Foundations and Frontiers in Physics Education Research, Bar Harbor, ME, June 2011.
23. **Sawtelle, V.**, Brewe, E., Kramer, L.H., “Sequential Logistic Regression: Predicting Success Through Self-Efficacy and Gender,” Invited talk, American Association of Physics Teachers National Meeting, Jacksonville, FL, January 2011.

***Contributed Presentations (Posters and Talks) at National Conferences:***

1. *Wood, L., Sawtelle, V.* (2020, July 22-23). Transfer Student’s Narrative of Groupwork Characterized by Research Methods Course, AAPT National Meeting, Virtual Conference.
2. *Wood, L., Little, A., Northington, D.M., Sawtelle, V.* (2020, July 22-23). Coding Students’ Statements of Science Degree and Transfer Self-Efficacy, AAPT National Meeting.
3. *Monsalve, C., Henderson, R., & Sawtelle, V.* (2020, July 22-23). An Investigation of Degree Pathways for Students of Color with Transfer Credits. Paper presented at Physics Education Research Conference 2020, Virtual Conference.

4. Henderson, R., *Wood, L.*, **Sawtelle, V.** The Importance of Validating Survey Measurements in Different Contexts, AAPT National Meeting, July 2020. **Presentation canceled due to COVID-19.**
5. Little, A., Robbins, A., Caldwell, J., **Sawtelle, V.**, “Oh, this is possible”: Self-Efficacy in University STEM Advising, AAPT National Meeting, July 2020. Presentation canceled due to COVID-19.
6. **Sawtelle, V.**, Henderson, R., Little, A., *Northington, D.*, *Wood, L.A.*, “Transitional Support: Community College Transfer Students at Michigan State University,” AAPT National Meeting, July 2020. **Poster canceled due to COVID-19**
7. *Wood, L.*, **Sawtelle, V.** (2020, July 22-23). Comparing Transfer Student’s Groupwork Experience: TYC Research Class to FYC, AAPT National Meeting, July 2020. **Canceled due to COVID-19.**
8. *Northington, D.*, *Wood, L.A.*, **Sawtelle, V.**, (2020, April). Exploring the connection between self-efficacy and two-year college transfer experiences. Presentation accepted to the Council for the Study of Community Colleges Conference in Tempe, AZ. **Canceled due to COVID-19.**
9. Little, A., *Humphrey, B.*, *Green, A.*, *Nair, A.*, *Elby, A.*, **Sawtelle, V.**, “Reflections on a context-dependent beliefs approach to studying mindset,” PER National Conference, Provo, UT, 2019.
10. *Wood, L.A.*, Little, A., **Sawtelle, V.**, “Developing a coding scheme for self-efficacy opportunity experiences,” PER National Conference, Provo, UT, 2019.
11. **Sawtelle, V.**, Henderson, R., Little, A., *Wood, L.A.*, “Natural Science Transfer Scholars: Building self-efficacy, identity, and mindset,” AAPT National Meeting, Provo, UT, July 2019.
12. *Funkhouser, K.M.*, *Caballero, M.D.*, **Sawtelle, V.**, “Revisiting an identity framework through coding practice-based identity statements,” AAPT National Meeting, Provo, UT, July 2019.
13. *Funkhouser, K.M.*, Henderson, R., *Caballero, M.D.*, **Sawtelle, V.**, “Developing and validating a closed response practice-based identity survey,” AAPT National Meeting, Provo, UT, July 2019.
14. *Funkhouser, K.M.*, Henderson, R., *Caballero, M.D.*, **Sawtelle, V.**, “Practice-based identity survey for physics labs: From design to validation,” AAPT National Meeting, Provo, UT, July 2019.
15. Little, A., **Sawtelle, V.**, “Research on holistic support of university STEM students,” AAPT National Meeting, Provo, UT, July 2019.
16. *Wood, L.A.*, **Sawtelle, V.**, “Analyzing fieldnotes to characterize teaching approaches in physics help sessions,” AAPT National Meeting, Provo, UT, July 2019.
17. *Nair, A.*, **Sawtelle, V.**, “An uncommon case of relevance through everyday experiences”, AAPT National Meeting, Washington DC, July 2018

18. *Funkhouser, K.*, Caballero, M.D., Irving, P.W., **Sawtelle, V.**, “What counts in laboratories: toward a practice-based identity survey,” AAPT National Meeting, Washington DC, July 2018
19. *Wood, L.A.*, Little, A.J., **Sawtelle, V.**, “Researching experiences in a cohort program to influence transfer self-efficacy,” AAPT National Meeting, Washington DC, July 2018
20. *Weller, D.P.*, Hinko, K.A., & **Sawtelle, V.**, “Investigating complementary computational and empirical activities for students learning diffusion,” AAPT National Meeting, Washington DC, July 2018
21. Little, A., *Humphrey, B.*, *Green, A.*, *Nair, A.*, **Sawtelle, V.** “Exploring Mindset’s Applicability to Transformed College Physics Courses,” AAPT National Meeting, Washington DC, July 2018
22. **Sawtelle, V.**, and Hinko, K., “BLiSS Physics: A Studio Physics Course for Life Science Students,” Contributed Poster, AAPT National Meeting, Cincinnati, OH, July 2017.
23. **Sawtelle, V.**, “Incorporating Computation into a Physics Course for Life Science Students,” Contributed Talk, AAPT National Meeting, Cincinnati, OH, July 2017.
24. *Funkhouser, K.*, Caballero, M.D., Irving, P.W., & **Sawtelle, V.**, “Examining how Physics Lab Practices Influence a Student’s Physics Identity,” Contributed Talk and Poster, AAPT National Meeting, Cincinnati, OH, July 2017.
25. *Gambrell, J.*, Mashood, K.K., **Sawtelle, V.**, "Exploring How Student's Reasoning About A Sneezing Phenomenon Relates to Concepts in Introductory Science Textbooks", Contributed Poster, AAPT National Meeting, Cincinnati, OH, July 2017.
26. *Nair, A.*, Irving, P., **Sawtelle, V.**, Using disciplinary perspectives to refine conceptions of the real-world. Contributed Poster, Physics Education Research Conference, Cincinnati, OH, July 2017
27. *Nair, A.*, Irving, P., **Sawtelle, V.**, Exploring life-science students' conceptions of the relevance of physics. Contributed Talk, American Association of Physics Teachers National Meeting, Cincinnati, OH, July 2017
28. *Nair, A.*, **Sawtelle, V.**, IOLab Investigations Beyond Mechanics: Equipotential Lines & Lung Function Tests. Contributed Poster, American Association of Physics Teachers National Meeting, Cincinnati, OH, July 2017
29. Turpen, C., Little, A., **Sawtelle, V.**, “Investigating Physics Faculty Reasoning About Equity in Undergraduate Physics Education”, Contributed poster and talk, Cincinnati, OH, July 2017.
30. Little, A., *Humphrey, B.*, *Green, A.*, **Sawtelle, V.**, "Methodological Approach to Understanding Complexity in College Physics Mindset", Contributed presentation, AAPT National Meeting, Cincinnati, OH, July 2017
31. Mashood, K.K., and **Sawtelle, V.**, Interdisciplinary thinking and the assessment challenges – Tagging disciplinary ideas, Contributed poster and talk, AAPT National Meeting, Cincinnati, OH, July 2017.



32. Mashood, K.K., and **Sawtelle, V.**, Addressing the assessment challenge of interdisciplinary thinking: Tagging disciplinary ideas, Contributed poster, Physics Education Research Conference, Cincinnati, OH, July 2017.
33. Mashood, K.K. and **Sawtelle, V.**, Interdisciplinary thinking and the assessment challenge, Contributed poster, Foundations and Frontiers in Physics Education Research, Bar Harbor, ME, June 2017.
34. *Nair, A., Irving, P., Sawtelle, V.*, Exploring life-science students' conceptions of the relevance of physics. Contributed Poster, Transforming Research on Undergraduate STEM Education (TRUSE), St. Paul, MN, July 2017
35. Little, A., *Humphrey, B., Sawtelle, V.*, "Mindset Research in Introductory Physics: Strengths of Student Interview Analyses", Contributed presentation, AAPT National Meeting, Atlanta, GA, February 2017.
36. Underwood, S. M., Scott, E.E., Mashood, K. K., **Sawtelle, V.**, Matz, R. L., Anderson, C. W. "Investigating how students integrate their everyday experiences with their content knowledge from their chemistry, biology, and physics courses," presented at BCCE, University of Northern Colorado, CO, August, 2016.
37. Scott, E. E., **Sawtelle, V.**, Anderson, C. W., Mashood, K. K., Matz, R. L., & Underwood, S. M. Developing an Explanatory Framework to Characterize Student Reasoning About Interdisciplinary Phenomena. Society for the Advancement of Biology Education Research (SABER) National Meeting, Minneapolis, MN, July 2016,.
38. Daane, A.R., **Sawtelle, V.**, "Student discourse about equity in an introductory college physics course", Contributed poster, AAPT National Meeting, Sacramento, CA, July 2016.
39. Funkhouser, K.M., **Sawtelle, V.**, Martinez, W.M., Caballero, M.D., "Differential Impacts of Aligning Epistemological Expectations in Introductory Physics Labs," Contributed poster, AAPT National Meeting, Sacramento, CA, July 2016.
40. Mashood, K.K., **Sawtelle, V.**, Andersen, C.W., Scott, E.E., Matz, R.L., Underwood, S.M., "Investigating Student Reasoning of Everyday Interdisciplinary Phenomena: Initial Phases," Contributed poster, AAPT National Meeting, Sacramento, CA, July 2016.
41. Little, A., **Sawtelle, V.**, *Humphrey, B.*, "Context Dependent Mindset: Building New Frameworks and Measurement Methodologies", Contributed poster, AAPT National Meeting, Sacramento, CA, July 2016.
42. *McPadden, D., Sawtelle, V.*, Brewe, E., "Purpose of Representation Use in Modeling Instruction Physics," Contributed presentation, AAPT National Meeting, Sacramento, CA, July 2016.
43. Underwood, S. M., **Sawtelle, V.**, Matz, R. L., Anderson, C. W., & Scott, E.E. An Investigation into how Students Make Connections that Cross the Disciplinary Boundaries of Chemistry, Biology, and Physics. American Chemical Society (ACS) National Meeting, March 14, 2016, San Diego, CA.
44. Little, A., **Sawtelle, V.**, "Growth Mindset In the Details: Overlapping Interests Projects in Physics," Contributed poster, AAPT National Meeting, College Park, MD, July 2015.

45. *Lee, M., Sawtelle, V.,* Stroupe, D., Irving, P.W., Obsniuk, M.J., Caballero, M.D., “Negotiating Positionings within Small Groups in Introductory Physics,” Contributed talk and poster, AAPT National Meeting & Physics Education Research Conference, College Park, MD, July 2015.
46. *Hancock, J. B., Sawtelle, V.,* Caballero, M.D., Stroupe, D., “Perceptions of Learning and Teamwork: Practice-based Introductory Physics,” Contributed talk, AAPT National Meeting, College Park, MD, July 2015.
47. Turnbull, A., Doughty, L., **Sawtelle, V.,** Cabellero, M.D., “Student Ideas around Vector Decomposition in the Upper-Division,” Contributed poster, Physics Education Research Conference, College Park, MD, July 2015.
48. **Sawtelle, V.,** and Little, A., “Understanding the Nuance in Disciplinary Self-Efficacy,” Contributed talk and poster, AAPT National Meeting & Physics Education Research Conference, College Park, MD, July 2015.
49. Irving, P.W., **Sawtelle, V.,** Caballero, M.D., “Troubleshooting Formative Feedback in P<sup>3</sup> (A Group Based Learning Environment,” Contributed poster, Physics Education Research Conference, College Park, MD, July 2015.
50. **Sawtelle, V.,** *Dreyfus, B.W., Geller, B.D.,* Gouvea, J., Redish, E.F., & Turpen, C., “Designing and refining physics for biologists: The scaling up process,” Contributed poster, Physics Education Research Conference, Minneapolis, MN, July 2014.
51. **Sawtelle, V.,** *Dreyfus, B.W., Geller, B.D.,* Gouvea, J., Redish, E.F., & Turpen, C., “Beyond the Numbers: Finding Mechanisms to Support Diversity,” Contributed talk, AAPT National Meeting, Minneapolis, MN, July 2014.
52. *Geller, B.D., Dreyfus, B.W.,* Gouvea, J.S., **Sawtelle, V.,** Turpen, C., and Redish, E.F., “Explanatory coherence in an introductory physics for life scientists course,” Contributed poster, Gordon Research Conference, South Hadley, MA 2014.
53. *Dreyfus, B.W., Geller, B.D.,* Gouvea, J., **Sawtelle, V.,** Turpen, C., & Redish, E.F. “Chemical energy in introductory physics for the life sciences,” Contributed talk and poster, AAPT National Meeting, Minneapolis, MN, July 2014.
54. *Geller, B.D., Dreyfus, B.W.,* Gouvea, J., **Sawtelle, V.,** Turpen, C., & Redish, E.F. “Explanatory coherence in an introductory physics for life scientists course,” Contributed talk and poster, AAPT National Meeting, Minneapolis, MN, July 2014.
55. Gouvea, J.S., *Dreyfus, B.W., Geller, B.D.,* **Sawtelle, V.,** Turpen, C., “In biology we never explain: The construction of epistemological stances in course experiences,” Contributed poster, Society for the Advancement of Biology Education Research, National Meeting, Minneapolis, MN, July 2014.
56. *Geller, B.D., Dreyfus, B.W.,* Gouvea, J., **Sawtelle, V.,** Turpen, C., & Redish, E.F. “Sources of affect in interdisciplinary sense making,” Contributed talk, International Conference of the Learning Sciences, Boulder, CO, June 2014.
57. **Sawtelle, V.,** Gouvea, J.S., Turpen, C., “Harnessing Affinity Towards Biology to Support Diversity in Physics,” Contributed talk, National Association of Research in Science Teaching Annual Conference, Pittsburgh, PA March 2014.

58. E.F. Redish, C. Bauer, K. Carleton, T. Cooke, M. Cooper, C. Crouch, B.W. Dreyfus, B.D. Geller, J. Giannini, J. Svoboda Gouvea, M. Klymkowsky, W. Losert, K. Moore, J. Presson, **V. Sawtelle**, C. Turpen, and K. Thompson, "NEXUS/Physics: Rethinking physics for biology and premed students", Mid-Atlantic Regional Learning Assistant Workshop, College Park, MD. February 2014.
59. **Sawtelle, V.**, Turpen, C., Gouvea, J.S., *Dreyfus, B.W., Geller, B.D.*, "A case study in leveraging biology experiences in physics," Contributed talk and poster, American Association of Physics Teachers, 2013 National Meeting, Portland, OR, July, 2013.
60. *Dreyfus, B.W., Geller, B.D.*, Gouvea, J.S., **Sawtelle, V.**, Turpen, C., and Redish, E.F., "Negative energy: Why interdisciplinary physics requires multiple ontologies," Contributed talk and poster, American Association of Physics Teachers, 2013 National Meeting, Portland, OR, July, 2013.
61. *Geller, B.D., Dreyfus, B.W.*, Gouvea, J.S., **Sawtelle, V.**, Turpen, C., and Redish, E.F., "Like dissolves like: Unpacking student reasoning about thermodynamic heuristics," Contributed talk and poster, American Association of Physics Teachers, 2013 National Meeting, Portland, OR, July, 2013.
62. Gouvea, J.S., *Dreyfus, B.W., Geller, B.D.*, **Sawtelle, V.**, Turpen, C., and Redish, E.F., "Mathematical reasoning across the sciences: The case of IPLS," Contributed poster, American Association of Physics Teachers, 2013 National Meeting, Portland, OR, July, 2013.
63. Redish, E.F., **Sawtelle, V.**, Turpen, C., *Dreyfus, B.W., Geller, B.D.*, "NEXUS/Physics: Rethinking physics for biology and premed students," Contributed poster, American Association of Physics Teachers, 2013 National Meeting, Portland, OR, July, 2013.
64. *Daane, A.R., Geller, B.D.*, **Sawtelle, V.**, Scherr, R.E., Redish, E.F., "Connecting learner ideas about energy and free energy," Contributed poster, American Association of Physics Teachers, 2013 National Meeting, Portland, OR, July 2013.
65. Redish, E.F., **Sawtelle, V.**, Turpen, C., *Dreyfus, B.W., Geller, B.D.*, "NEXUS/Physics: Rethinking physics for biology and premed students," Contributed poster, American Association of Physics Teachers, 2013 National Meeting, Portland, OR, July 2013.
66. **Sawtelle, V.** Turpen, C., and *Dreyfus, B.W.*, "Physics energy is not chemistry energy is not biology energy," Contributed Poster, American Association of Physics Teachers, 2013 National Winter Meeting, New Orleans, LA, January, 2013.
67. **Sawtelle, V.**, Sikorski, T.R., Turpen, C., Redish, E.F., "Examining the Positioning of Ideas in the Disciplines," Contributed poster, Physics Education Research Conference, Philadelphia, PA, August 2012.
68. *Stewart, S., Angarita, M.P., Durden, J.*, **Sawtelle, V.**, "'Learning Arc': The Process of Resolving Concerns through Student-Student Discourse," Contributed Poster, Physics Education Research Conference, Philadelphia, PA, August 2012.
69. *Dreyfus, B.W., Geller, B.D.*, **Sawtelle, V.**, Svoboda, J., Turpen, C., Redish, E.F., Students' Interdisciplinary Reasoning about 'High Energy Bonds' and ATP," Contributed Poster, Physics Education Research Conference, Philadelphia, PA, August 2012.

70. Geller, B.D., Dreyfus, B.W., **Sawtelle, V.**, Svoboda, J., Turpen, C., and Redish, E.F., Students' Reasoning about Interdisciplinarity," Contributed Poster, Physics Education Research Conference, Philadelphia, PA, August 2012.
71. Geller, B.D., Dreyfus, B.W., **Sawtelle, V.** Turpen, C., and Redish, E.F. "Research on students' reasoning about interdisciplinarity," Contributed Poster, Transforming Undergraduate Science Education (TRUSE) Conference, St. Paul, MN, June 2012.
72. Dreyfus, B.W., Geller, B.D., **Sawtelle, V.**, Svoboda, J., Turpen, C. and Redish, E.F. "Students' interdisciplinary reasoning about "high-energy bonds" and ATP," Contributed poster, Society for the Advancement of Biology Education Research (SABER) National Meeting, SABER National Meeting, Minneapolis, MN, July 2012.
73. **Sawtelle, V.**, Brewe, E., Goertzen, R.M., Kramer, L.H., "Creating Opportunities to Influence Self-Efficacy through Modeling Instruction," Contributed Poster, Physics Education Research Conference, Omaha, NE, August 2011.
74. **Sawtelle, V.**, Brewe, E., Goertzen, R.M., Kramer, L.H., "Increasing Confidence by Characterizing Self-Efficacy Experience Opportunities," Contributed Poster, American Association of Physics Teachers National Meeting, Omaha, NE, August 2011.
75. **Sawtelle, V.**, Brewe, E., Goertzen, R.M., Kramer, L.H., "A Qualitative Investigation of Opportunities to Influence Self-Efficacy," Contributed Talk, American Association of Physics Teachers National Meeting, Omaha, NE, August 2011.
76. **Sawtelle, V.**, Brewe, E., Goertzen, R.M., Kramer, L.H., "Characterizing *Self-Efficacy Opportunities* in the Process of Modeling a Physical Phenomenon: A Study of Three Female Modeling Instruction Students," Contributed talk, National Association of Research in Science Teaching Annual Conference, Orlando, FL, March 2011.
77. **Sawtelle, V.**, Brewe, E., Kramer, L.H. "Sequential Logistic Regression: A Method to Reveal Subtlety in Self-Efficacy," Contributed talk, College of Education Research Conference, Miami, FL, April 2011.
78. **Sawtelle, V.**, Brewe, E., Kramer, L.H., "Positive Impacts of Modeling Instruction on Self-Efficacy," Contributed poster, Physics Education Research Conference, Portland, OR, July 2010.
79. **Sawtelle, V.**, Brewe, E., Kramer, L.H., "Predicting Success from Sources of Self-Efficacy: A Gender Study," American Association of Physics Teachers National Meeting, Portland, OR, July 2010.
80. **Sawtelle, V.**, Brewe, E., Kramer, L.H., "Exploring the Relationship Between Self-efficacy and Retention of both Men and Women in Introductory Physics," National Association of Research in Science Teaching Annual Conference, Philadelphia, PA, March 2010.
81. **Sawtelle, V.**, Brewe, E., Kramer, L.H., "I Think I Can: Investigating the Impact of Physics Problem Solving on Student Self-efficacy," Contributed poster, Physics Education Research Conference, Ann Arbor, MI, July 2009.
82. **Sawtelle, V.**, Brewe, E., Kramer, L.H., "Evaluating gender differences in sources of self-efficacy," Contributed talk, American Association of Physics Teachers National Meeting, Ann Arbor, MI, July 2009.

83. **Sawtelle, V.**, Brewe, E., Kramer, L.H., “Picture This: Examining the Relationship between Self-efficacy and Representation of Physics Problem Solving,” Contributed poster, Foundation and Frontiers in Physics Education, Bar Harbor, ME, June 2009.
84. **Sawtelle, V.**, Brewe, E., Kramer, L.H., “Mind the gap please: examining the role of self-efficacy in achievement gaps,” Contributed poster, Physics Education Research Conference, Edmonton, Canada, July 2008.
85. **Sawtelle, V.**, Brewe, E., Kramer, L.H., “Mind the gap please: examining the role of self-efficacy in achievement gaps,” Contributed talk, American Association of Physics Teachers National Meeting, Edmonton, Canada, July 2008.

***Contributed Presentations (Posters and Talks) at Local and Regional Conferences:***

1. *Taylor, S.*, Little, A., **Sawtelle, V.**, “Developing a Transfer Experience Codebook Using Transfer Students Self-Efficacy Interviews,” Contributed poster, MidSURE, East Lansing, MI, July 2019.
2. *Northington, D.*, Little, A., **Sawtelle, V.**, “Experiences of Natural Science Majors Transferring from Two-Year Colleges to Four-Year Universities,” Contributed poster, MidSURE, East Lansing, MI, July 2019.
3. *Maestrales, S.*, **Sawtelle, V.**, “Improving Science and Degree Self Efficacy Through Near-Peer Video Modeling,” Contributed Poster, CUWiP, East Lansing, MI, January, 2019.
4. *Green, A.*, *Humphrey, B.*, Little, A., **Sawtelle, V.**, "Analyzing Mindset and Self-Efficacy in Introductory College Physics", Contributed Poster, Lyman Briggs Research Symposium, East Lansing, MI, April, 2018.
5. *Green, A.*, *Humphrey, B.*, Little, A., **Sawtelle, V.**, "Analyzing Mindset in Introductory College Physics", Contributed Poster, MID-Sure, East Lansing, MI, July, 2017.
6. *Shrode, A.*, *Scott, E.*, **Sawtelle, V.**, “Understanding and characterizing student reasoning about the interdisciplinary phenomenon of sneezing”, Contributed poster, Mid-Michigan Symposium for Undergraduate Research Experiences, East Lansing, MI, July 2016.
7. *Funkhouser, K.*, *Caballero, M.D.*, **Sawtelle, V.**, “Evaluating the Impact of Sophisticated Lab Practices in Introductory Physics Labs,” Contributed Poster, Annual Spring Meeting of the APS Ohio-Region Section, Ypsilanti, MI, May 2017.
8. *Nair, A.*, *Record, I.*, **Sawtelle, V.**, Strengthening life-science students' relationship with physics through prototyping biomedical devices. Contributed Poster, Annual Spring Meeting of the APS Ohio-Region Section, Ypsilanti, MI, May 2017
9. *Kumar, N.*, *Gambrell, J.*, **Sawtelle, V.**, *Scott, E. E.*, *Anderson, C. W.*, *Mashood, K. K.*, *Matz, R. L.*, & *Underwood, S. M.* An Introductory Textbook Analysis of Multidisciplinary Concepts. University Undergraduate Research and Arts Forum (UURAF), Michigan State University, April 8, 2016, East Lansing, MI.
10. *Scott, E. E.*, **Sawtelle, V.**, *Anderson, C. W.*, *Mashood, K. K.*, *Matz, R. L.*, & *Underwood, S. M.* Developing Explanatory Frameworks to Characterize Student Reasoning of

Interdisciplinary Phenomena. CREATE for STEM Institute Mini Conference, Michigan State University, February 26, 2016, East Lansing, MI.

11. *Gambrell, J., **Sawtelle, V.**, Kumar, N., Scott, E. E., Anderson, C. W., Mashood, K. K., Matz, R. L., & Underwood, S. M.* Investigating Student Reasoning About “Sneezing”: An Interdisciplinary Phenomenon. CREATE for STEM Institute Mini Conference, Michigan State University, February 26, 2016, East Lansing, MI.
12. *Turnbull, A., Doughty, L., **Sawtelle, V.**, and Caballero, M.D.*, “Student ideas about Vector Decomposition in the Upper-Division,” Contributed Talk, Michigan Section of the American Association of Physics Teachers, East Lansing, MI, April 2015.
13. *Lee, M., **Sawtelle, V.**, Stroupe, D., Irving, P. W., *Obsniuk, M. J.*, & Caballero, M. D.*, “Negotiating positions within small groups in introductory physics,” Contributed Poster, CREATE for STEM mini-conference, East Lansing, MI, February 2015.
14. *Turnbull, A., Doughty, L., **Sawtelle, V.**, and Caballero, M.D.*, “Rubric Design for Separating the Roles of Open-Ended Assessment,” Contributed Poster, CREATE for STEM mini-conference, East Lansing, MI, February 2015.