

Academic Identification

Name

Daphne Duncan Wiles

Position

Clinical Assistant Professor

July 2018 - Present

Department of Teaching and Learning
Clemson University

Master of Education Program Coordinator

July 2018 – May 2019

Department of Teaching and Learning
Clemson University

Academic Background

Instructor

January 2017 – May 2018

Gifted, Creative, and Talented Studies
Purdue University

Executive Director

November 2015 – May 2016

Montessori School of Greater Lafayette

Course Mentor (Faculty)

June 2013 – November 2015

Teacher Education

Western Governors University

Post-doctoral Research Associate

May 2012 – June 2013

The Institute for P-12 Engineering Research and
Learning

School of Engineering Education
Purdue University

Curriculum Extensions Coordinator and

2010 - 2013

Engineering Teacher

Lower School

Park Tudor School

Indianapolis, Indiana

Graduate Research Assistant

2006 - 2012

The Institute for P-12 Engineering Research and
Learning

School of Engineering Education
Purdue University

Graduate Teaching Assistant
Gifted Education Resource Institute
College of Education
Purdue University
Spring, Summer 2009

Graduate Research Assistant
College of Education
North Carolina State University
2004 - 2006

Clinical Coordinator
Office of Clinical Experiences
College of Education
East Carolina University
2003 - 2004

Third Grade Teacher
Seaford Elementary School
Yorktown, Virginia
1998 - 2003

Academic Degrees

Doctor of Philosophy in Educational Psychology
Purdue University, West Lafayette, Indiana
Dissertation: *Students' Awareness and Perceptions of Learning Engineering (STAPLE): Content and Construct Validation of an Instrument*
Committee: Dr. Marcia Gentry (chair), Dr. Qui Wang, Dr. Matthew Ohland, Dr. Rebecca Mann
May 2012

Master of Education in Curriculum and Instruction
North Carolina State University, Raleigh, North Carolina
May 2006

Master of Science in Human Resources Management
Troy State University, Troy Alabama
May 2001

Bachelor of Science in Elementary Education
Florida State University, Tallahassee, Florida
May 1998

Research

Publications

Peer reviewed articles

Purzer, S., **Duncan-Wiles, D.**, & Strobel, J. (2013). Teaching fourth and fifth graders about engineering optimization and trade-offs. *Science and Children*, 50, 5, 34-39.

Mann, E. L., Mann, R. L., Strutz, M. L., **Duncan, D.**, & Yoon, S. Y. (2011). Integrating engineering into K-6 curriculum: Developing talent in the STEM disciplines. *Journal of Advanced Academics*, 22, 4, 639-658.

Duncan, D., Diefes-Dux, H. A., & Gentry, M. (2011). Professional development through engineering academies: An examination of elementary teacher recognition and understanding of engineering. *Journal of Engineering Education*, 100, 3, 520-539

Weber, N., **Duncan, D.**, Dyehouse, M., Strobel, J., and Diefes-Dux, H. A. (2011). The Development of a Systematic Coding System for Elementary Students' Drawings of Engineers, *Journal of Pre-College Engineering Education Research*, 1, 1, 49-62.

Presentations

International & National Conferences

Refereed Conference Proceedings

Douglas, K. A., **Duncan-Wiles, D.**, Yoon, S.Y., & Diefes-Dux, H. (2013). *Elementary teachers' two-year implementation of engineering: A case of success*. Paper presented at the ASEE National Conference, San Francisco, California.

Duncan-Wiles, D., Jones, T., Brophy, S., & Diefes-Dux, H. A. (2012). *Changes in elementary teachers' noticing of engineering pre/post professional development with engineering*. Paper presented at the 42nd ASEE/IEEE Frontiers in Education Conference, Seattle, Washington.

Purzer, S., Myers, W. P., **Duncan-Wiles, D.**, & Strobel, J. (2012). *Assessing engineering design creativity in K-12 student designs: Exploring an egg packaging and drop activity*. Paper presented at the 2nd P-12 Engineering and Design Education Research Summit, Washington, D.C.

Duncan, D., Dyehouse, M., & Strobel, J. (2011). *Engineering in an elementary setting: An analysis of context maps*. Paper presented at the Research in Engineering Education Symposium (REES). Madrid, Spain.

Dyehouse, M., Weber, N., Kharchenko, O., **Duncan, D.**, Strobel, S., & Diefes-Dux, H. (2011). *Measuring pupils' perceptions of engineers: Validation of the Draw an Engineer (DAET) coding system with interview triangulation*. Paper presented at the Research in Engineering Education Symposium (REES). Madrid, Spain.

Duncan, D., Weber, N., Dyehouse, M., Diefes-Dux, H. A., & Strobel, J. (2010). *The Development of a Systematic Coding Scheme for Elementary Students' Drawings of Engineers*. Paper presented at the P-12 Engineering and Design Education Research Summit, Seaside, Oregon.

Diefes-Dux, H. A. & **Duncan, D.** (2007). *Adapting Engineering is Elementary professional development to encourage open-ended mathematical modeling*. Paper presented at the Committee on K-12 Engineering Education, National Academy of Engineering, National Research Council, Workshop and Third Meeting, Oct. 22, 2007, Keck Center of the National Academies, Engineering Education in Grades K-5.

Lambert, M. Diefes-Dux, H., Beck, M., **Duncan, D.**, Oware, E., & Nemeth, R. (2007). *What is engineering? – An exploration of P-6 grade teachers' perspectives*. In proceedings of the 37th ASEE/IEEE Frontiers in Education Conference. Milwaukee, Wisconsin.

Duncan, D., Oware, E., Cox, M.F., & Diefes-Dux, H. A. (2007). *Program and curriculum assessment for the institute for P-12 engineering research and learning (INSPIRE) summer academies for P-6 teachers*. Paper presented at the ASEE National Conference, Honolulu, Hawaii.

Refereed Presentations

Duncan-Wiles, D., McCrum, P., Brophy, S., Jones, T., & Diefes-Dux, H. (2013, April). *Elementary teacher's noticing of engineering through a photo prompting assessment*. National Association for Research in Science Teaching (NARST). (part of a poster set). Puerto Rico.

Purzer, S., Wang, J., **Duncan-Wiles, D.**, & Strobel, J. (2013, April). *Elementary students' abilities in engineering design optimization and trade-off methods*. National Association for Research in Science Teaching (part of a poster set). Puerto Rico.

Duncan-Wiles, D., Carmody, H., Mann, E., & Dominguez, D. (2012, November). *STEM in the Trenches*. National Association for Gifted Children (NAGC) National Conference. Denver, Colorado.

Duncan-Wiles, D., Chamberlin, S., & Carr, R. (2012, November). *Mathematical Modeling for Elementary and Middle School Students*. National Association for Gifted Children (NAGC) National Conference. Denver, Colorado.

Carr, R. & **Duncan-Wiles, D.** (2012, November). *Designing an Airplane: Engineering for Elementary Students*. National Association for Gifted Children (NAGC) National Conference. Denver, Colorado.

Duncan, D. (2011, November). *Engineering Design for Elementary Students*. National Association for Gifted Children (NAGC) National Conference. New Orleans, Louisiana.

Duncan, D. (2011, November). *Mathematical Modeling in the Elementary and Middle Grades*. National Association for Gifted Children (NAGC) National Conference. New Orleans, Louisiana.

Duncan, D., Chamberlin, S., & Mann, E. (2010, November). *Model Eliciting Activities: A Challenging and Effective Mathematical Tool*. National Association for Gifted Children (NAGC) National Conference. Atlanta, Georgia

Carr, R., Mann, E., & **Duncan, D.** (2010, November). *Engineering Design Challenges in the Elementary Classroom*. National Association for Gifted Children (NAGC) National Conference. Atlanta, Georgia.

Duncan, D., Carr, R., & Pollock, M. (2010, June). *Model Eliciting Activities: Thinking Outside the Mathematics Textbook*. 7th Annual American Society for Engineering Education (ASEE) Workshop on K-12 Engineering Education: Discovering Engineering in the Classroom, Louisville, Kentucky.

Duncan, D. (2009, November). *Assessing Students' Perceptions of Engineering: The Development of a Quantitative Instrument*. Poster presented at the National Association for Gifted Children (NAGC) Graduate Student Research Gala, St. Louis, Missouri.

Duncan, D. & Mann, E. L. (2009, August). *The Institute for P-12 Engineering Research and Learning (INSPIRE): Promoting Engineering Through Summer Academies*. Paper presented at the 18th World Conference on Gifted and Talented Children, Vancouver, Canada.

Duncan, D. (2008, October). *Meeting Diverse Needs: A Mathematics Modeling Activity*. Presented at National Association for Gifted Children (NAGC) National Conference, St. Tampa, Florida.

Beck, M. & **Duncan, D.** (2008, June). *Mathematical Modeling in the Elementary Classroom: A Windmill Problem*. Presented at the American Society for Engineering Education (ASEE) Workshop of K-12 Engineering Education, Pittsburgh, Pennsylvania.

Duncan, D., Oware, E., Cox, M. F., & Diefes-Dux, H. A. (2007, June). *Program and Curriculum Assessment for the Institute for P-12 Engineering Research and Learning (INSPIRE) Summer Academies for P-6 Teachers*. Presented at the American Society for Engineering Education (ASEE) National Conference, Honolulu, Hawaii.

Invited Presentations

Presentations

Duncan-Wiles, D. (2013, February). *Engineering Design Challenges for Elementary and Middle School Students*. Winter Edufest, Coeur d'Alene, Idaho.

Duncan-Wiles, D., (2013, February). *Mathematical Modeling for Elementary and Middle School Students*. Winter Edufest, Coeur d'Alene, Idaho.

Duncan-Wiles, D. (2012, November). Engineering Design for Elementary and Middle School Students. In L. J. Sheffield (Chair), *Invest in America's Future: Maximize the Challenge for STEM Students*. Board Institute conducted at the National Association for Gifted Children (NAGC) STEM Network at the NAGC 59th Annual Convention.

Duncan, D. (2011, November). Integrating Engineering in the Elementary Classroom. In L. J. Sheffield (Chair), *Invest in America's Future: Maximize the Challenge for STEM Students*. Board Institute conducted at the National Association for Gifted Children (NAGC) STEM Network at the NAGC 58th Annual Convention.

Mann, E. & **Duncan, D.** (2010, November). Integrating the STEM Disciplines in Middle and High School. In L. J. Sheffield (Chair), *Invest in America's Future: Maximize the Challenge for STEM Students*. Board Institute conducted at the National Association for Gifted Children (NAGC) Math/Science SIG at the NAGC 57th Annual Convention.

Mann, E. & **Duncan, D.** (2010, November). Innovations in Engineering Education. In L. J. Sheffield (Chair), *Invest in America's Future: Maximize the Challenge for STEM Students*. Board Institute conducted at the National Association for Gifted Children (NAGC) Math/Science SIG at the NAGC 57th Annual Convention.

Mann, E. L. & **Duncan, D.**, (2009, November). Engineering Design Activities. In L.J. Sheffield (Chair), *Science, Technology, Engineering, and Mathematics (STEM) Oh My!* Board Institute conducted at the meeting for the National Association for Gifted Children (NAGC) Math/Science Task Force at the NAGC 56th Annual Convention.

Regional & State Conferences

Presentations

Duncan, D. (2009, June). *Engineering in the Elementary Classroom*. Discover Conference, West Lafayette, Indiana.

Duncan, D. (2009, April). *Engineering and the Sciences*. Presented at the High Ability Middle School Conference, Indianapolis, Indiana.

Duncan, D. (2009, April). *Using Model Eliciting Activities*. Presented at the High Ability Middle School Conference, Indianapolis, Indiana.

English, L., Oware, E., & **Duncan, D.** (2007, July). *Modeling in Primary Schools*. Presented at the 13th International Conference on Teaching Modeling and Applications, Bloomington, Indiana.

Other Presentations

Presentations

Bellue, J., Harriman, A., & **Wiles, D.** (2019, September). *The Incidence of Perfectionism in Clemson Honors College Students*. EUREKA! Research Poster Forum, Clemson, South Carolina.

McCarver, P., **Wiles, D.**, Douglas, D., & Betts, S. (2015, February). *Challenging Courses: MZCI Fundamentals of Educational Psychology Best Practices*. WGU Winter Academic Meetings, Anaheim, California.

Wiles, D., Affleck, A., Betts, S., Bunting, T., Cohen, K., Douglas, D., McCarver, P., & Pack, M. (2014, July). *Creative Course Mentoring: Building a Toolbox of Strategies*. WGU Summer Academic Meetings, Salt Lake City, Utah.

Betts, S., Douglas, D., McCarver, P., & **Wiles, D.** (2014, July). *Empowering Students to Self-Directed Learning through the Triangle Model of Responsibility*. WGU Summer Academic Meetings, Salt Lake City, Utah.

Grants and Contracts

Not Funded

ADR Seed Grant: Clemson University. Transdisciplinary STEAM Teaching as a Pathway to Academic Motivation and Engagement in Elementary Students (2018). PI: **Daphne Wiles**; Co-PI: Cynthia Deaton. \$27,797.

Institute of Sciences: Education Research Program CFDA Number 84.305A-2. Improving Math and Science Achievement of Elementary and Middle School Students with Modeling and Design as an Integrative Context (2013-2017). PI: Johannes Strobel; Co-PI: **Daphne Wiles**, Anna Douglas, Luciana De Oliveira, Heidi Diefes-Dux. \$1,500,000.

National Science Foundation, #00041870. SEALS: South Carolina Engineering Accelerate Longitudinal Study. (2013-2018). PI: Johannes Strobel; Co-PI: **Daphne Wiles**, Anna Douglas. \$390,642.

National Science Foundation: Pre-College Assessment Quality (PEAQ): Capacity Building and Research & Development. (2013-2017). PI: Johannes Strobel; Co-PI: Luciana De Oliveira, Yukiko Maeda, Heidi Diefes-Dux, Senay Purzer; Key Personnel: **Daphne Wiles**, Anna Douglas, So Yoon Yoon. \$2,799,004.

Awards and Honors

Course Mentor Quality Call Competition Winner 2015
Western Governors University

Purdue Summer Undergraduate Research Fellowship 2012
Graduate Student Mentor of the Summer

Nominated for Best Paper 2007

American Society for Engineering Education
National Conference

Teaching & Advising

Teaching

Department of Teacher Education, Clemson University July 2018 - Present

ED 8720 *STEAM Enacted and Evaluated*
ED 8600 *Classroom Based Research*
EDEL 4510 *Elementary Science Methods*
ED 8650 *Curriculum Theory*
ED 8990 *Capstone Project*
ED 8700 *STEAM Instructional Design*
ED 8710 *STEAM Transdisciplinary Teaching*

Department of Educational Studies, Purdue University January 2017 – May 2018
EDPS 695 *Practicum in Gifted Education*

Department of Teacher Education, Western Governors University June 2013 – November 2015

MZC1 *Foundations of Educational Psychology*
FHT4 *Human Development and Learning*
SRA1 *Research Writing*
STA1 *Educational Theory and Analysis: Educational Thought Seminar*
SSA1 *Synthesis of Educational Research*
SCA1 *Theoretical Reasoning and Problem Solving*
SDA1 *Synthesis of Educational Theory*

Department of Educational Studies, Purdue University 2009
EDPS 590 *Discover Capstone Course*
EDPS 430 *Creating and Managing Learning Environments*

Advising

Eugene T. Moore School of Education, Clemson University 2018 - 2019
Department of Teaching and Learning
Master of Education (201 students)

Service

Service to Field of Scholarship

- Manuscript Reviewer
- *Journal of STEM Education* 2012 - Present
 - *Journal of Engineering Education* 2012 - 2013

- Conference Proposal Reviewer
- National Association for Gifted Children 2010 - 2013
STEM Network

Service to Profession

Membership in Professional Organizations

- American Psychological Association 2018 - Present
(APA)
Division 5: Quantitative and Qualitative
Methods
Division 15: Education Psychology
- National Association for Gifted Children 2006 - 2013
(NAGC)
Research and Evaluation Network
STEM Network
- American Educational Research Association 2006 - 2012
(AERA)
Teacher and Teacher Education (Division K)
Motivation in Education (SIG)
Research on Giftedness and Talent (SIG)
- American Society of Engineering Education 2006 - 2010
K-12 and Pre-College Engineering Division

- Professional Organization Committee Member
- National Association for Gifted Children 2010 - 2013
Board Member
STEM Network

Other National, State, and Regional Service

- Montessori School of Greater Lafayette 2015
Board Member

University Service

Clemson University (University, College, Department)

- M.Ed. Search Committee (Department) 2019 - 2020
- M.Ed. Award Committee (Department) 2019 - 2020
- M.Ed. Merit Pay Ad-Hoc Committee Member 2019 - 2020
(Department)
- M.Ed. Program Coordinator (College) 2018 - 2019
- College By-Laws Ad-Hoc Committee Member 2018 - 2019
(Department)

- Teacher Effectiveness M.Ed. Specialization/CERRA Partnership Ad-Hoc Committee Member (Department) 2018 - 2019
 - Invited Speaker: Clemson Online First Fridays November 2018
- Purdue University
- Faculty Fellow 2011 - 2013
 - Undergraduate Mentor for P-12 Intern Researchers in STEM, Particularly Engineering (UMPIRE) 2011 - 2012
 - Graduate Students in Education Council Board Member 2010
 - Graduate Organization for Educational Studies Board Member 2010