Timothy A. Goodale, PhD
109 Countryside Lane
Cary, NC 27518
tagoodal@ncsu.edu
757 333 2881

Experience

Assistant Professor & Director MAT in STEM Education
North Carolina State University, Raleigh, NC, August 2013 – Present
Teach graduate and undergraduate education courses in K-12 STEM Education, educational assessment, research methods and professional development. Advise STEM Education graduate students and coordinate their course of study to meet licensure requirements in North Carolina. Engage in appropriate science and environmental education related scholarly activities and grant writing and attainment. Develop science and environmental education related curriculum for professional learning initiatives. Direct and evaluate STEM teacher performance within K-12 classroom field experiences and student teaching. Recruit prospective graduate student teacher candidates for STEM teaching careers and academic pursuits. Provide service and expertise on several NCSU College of Education and University Committees.

Assistant Professor of Science Education
College of Coastal Georgia, Brunswick GA, Aug 2009 – July 2013
Teach undergraduate education courses in curriculum and assessment, instructional technology, educational foundations and STEM teaching methods (math and science). Direct externally funded sustainability education program aimed at area teachers as part of an EPA superfund site remediation plan. Supervise accreditation efforts, which include overall unit assessment and database management and analysis and interpretation of teacher candidate performance data. Advise undergraduate students and engage in appropriate science and environmental education related scholarly activities and grant writing. Provide service at the college, national, state and local levels. Direct and evaluate teacher performance within K-12 classroom field experiences. Develop science and environmental education related curriculum for professional learning initiatives.

Adjunct Faculty
Old Dominion University, Norfolk, VA, Jan 2008 – May 2009
Lead instructor for course entitled, "Developing Instructional Strategies for K-6 Science".
Created and modeled a constructivist learning and teaching environment for undergraduates and integrated emerging science technologies and teaching strategies. Administrative duties included maintaining accurate attendance and scholastic records of students, responding to student questions, validating student learning and submission of required reports.

Doctoral Research Assistant
Old Dominion University, Norfolk, VA, Jul 2006 – Jun 2009
Coordinated research for grant entitled, "Exploratory Study of the Relationship between National Board Certification in Library Media and Information Science and Student Academic Achievement". Served as a critical member on the research project and performed duties that included participating in the conceptual aspects of the research design and developing measures to obtain original data. Utilized computer and data-processing software to analyze data and coauthored papers for national conferences and publication.

Classroom Teacher: Science
St. Patrick's Catholic School, Norfolk, VA, Aug 2007 - Jun 2009
Planned, developed and taught advanced science curriculum for upper elementary and middle grades science. Assisted in the coordination of the school wide implementation of Glasser's "Choice Theory" as a classroom behavior and management methodology and managed science education supply inventory and laboratory equipment.

Classroom Teacher: 6th Grade Science
Chesapeake Public Schools, Chesapeake, VA Aug 2005 - Aug 2006
Developed curriculum based on Virginia Standards of Learning for approximately 109 students. Created multiple cognitive and performance based assessments to indicate level of student achievement. Coordinated the implementation and execution of the Meaningful Watershed Experience (MEWE) projects for 6th grade science classrooms and collaborated across grade level and discipline in various projects to meet school instructional goals in literacy and mathematics.

Education Technology Coordinator & Graduate Teaching Assistant
Old Dominion University, Norfolk, VA, Aug 2004 - Aug 2006
Supervised and instructionally designed online and traditional course content and assessments for an Environmental Science course for 2000+ first year college students. Used web-based platforms to distribute course materials, assessments and evaluations and was responsible for teaching and assessing a classroom section of thirty students and assisted in the qualitative evaluation of course.

Education

Doctor of Philosophy (Education: Instruction Design and Technology)

Old Dominion University, Norfolk, VA, Jun 2009

Master of Science (Science Education)

Old Dominion University, Norfolk, VA, Aug 2005

Bachelor of Science (Biology)

Old Dominion University, Norfolk, VA, May 2004

Presentations, Publications, Awards, Grants, Service & Organization

Refereed Paper Presentations

2017 National Science Teachers Association: National Conference: Using Vectors, Mutations, and Viral Replication to Teach Evolution and Genetics in a Context-Based Setting Focused on Africa

2017 Children and Nature Network International Conference: Factors that Influence Curricular Adoption for Teachers in Environmental & Outdoor Education Professional Development

2016 National Science Teachers Association: STEM Forum, Empowering East Africans to Confront Challenges in Food Security and Health through Innovative Extension and Education Models

2016 National Science Teachers Association: STEM Forum, Teaching Genetics and Evolution Through Context-Based Learning Involving Food Security Issues in Africa

2016 National Association of Research in Science Teaching, Exploring the Challenges and Successes of Integrating Robotics in K-12 Learning Environments

2016 National Association of Research in Science Teaching, A Design Charrette to Explore Models for Engaging Science Preservice Teachers in Engineering

2016 National Science Teachers Association, National Conference: Identifying Constructs That Go Beyond Content Knowledge in Ocean Literacy

2015 National Science Teachers Association (NSTA) STEM Forum: Fostering Creativity in the K-12 Science Classroom

2015 Eastern Educational Research Association (EERA): Factors that Influence Teacher Adoption of Professional Development and Curricula in K-12 Science

2015 Eastern Educational Research Association (EERA): In-Service Science Teacher Perspectives on Engineering Design

2014 Southeastern Regional Association of Teacher Educators: Dissecting the Merit Pay Debate: Exploring the variables used to determine additional compensation for classroom teachers.

2014 North Carolina Association of Colleges of Teacher Educators (NC-ACTE): Utilizing a Content Area Practicum (CAP) to Strengthen Teacher Pedagogical Content Knowledge and Foster Collaborative Partnerships with Informal Education Institutes

2014 American Society for Engineering Education: The Influence of an Engineering Design Workshop on In-Service Teacher Attitude and Self-Efficacy

2014 This Way to Sustainability Conference IX: In-Service Science Teacher Professional Development in Education for Sustainability (EfS): Preconceptions, Methodologies and Strategies for Comprehensive Adoption of Curricula

2014 Interdisciplinary Engineering Design Education Conference (IEDEC): Impact of a ROV Themed Engineering Design Workshop on Teacher Confidence

2013 National Student Teaching & Supervision Conference (NSTSC): The Pros and Cons of Social Networking

2013 National Student Teaching & Supervision Conference (NSTSC): Keys to Success in BYOT (Bring Your Own Technology)

2012 American Education Research Association (AERA): Impact of a Content Area Practicum Experience on Science Teacher Content Knowledge and Pedagogical Efficacy.

2012 American Education Research Association (AERA): The Impact of Synchronous Video Conferencing and Peer Feedback on Chinese English Language Learner's Oratory Skills.

2011 Georgia Association of Marine Educators (GAME): Service Learning in the Marine Sciences

2011 Southern Association of Science Teacher Educators (SASTE): Marine Science through Service Learning.

2011 Georgia COMO (Council of Media Organizations: How Do IPADS Impact Early Childhood Engagement and Early Literacy During a Storytime program?

2011 OCEANS MTS/IEEE International Conference (accepted): Marine Science Instruction through Student Centered Service Learning

2011 Association of Science Teacher Education (ASTE) International Conference: Impact of a Content Area Practicum Experience on Science Teacher Content Efficacy

2010 National Student Teaching & Supervision Conference (NSTSC): Designing and Implementing a Content Area Practicum Experience for Pre-Service Science Teachers

2009 National Science Teachers Association (NSTA): Using the Remotely Operated Vehicle in K-12 Settings

2009 American Education Finance Association (AEFA): An Exploratory Analysis of the Relationship between State Fiscal Effort and Academic Achievement.

2009 American Education Research Association (AERA): The Relationship between National Board Certification in Library Media and Information Science and Student Academic Achievement

2009 New Learning Technologies SALT Conference: Student Centered Instruction Using the Tablet PC

2008 National Marine Educators Association: *Creating an Assessment of Ocean Literacy*

2008 Virginia Tidewater Consortium for Higher Education Annual Research Exposition: *Assessing Ocean Literacy: Construction, Evaluation & Validation*

2008 American Library Association, Library Research Round Table Research Forums, Four Star Research: Exploratory Study of the Relationship between National Board Certification in Library Media and Information Science and Student Academic Achievement

2007 Association for Library and Information Science Education, Poster Presentation: *The Relationship between National Board Certification in Library Media and Information Science and Student Academic Achievement*

Refereed Publications

Goodale, T (2017). Utility of Context Based Learning to Influence Teacher Understanding of Evolution and Genetics Concepts Related to Food Security Issues in East Africa. *Implementing and Researching Evolution Education*. Eds., Reiss, M. and Harms, U. Sense Publishers, Rotterdam, Netherlands.

Goodale, T. (2017). Evaluating Differences in Outcomes & Participant Perspectives in Marine Science Professional Development Conducted by Informal Educators Compared to Specialized University Faculty. Exemplary Practices in Marine Science Education: A Resource for Practitioners and Researchers. Eds. Fauville, G., Payne, D. Springer Publications, New York, NY.

Goodale, T. (2017). Factors that Influence Curricular Adoption in Marine Science Professional Development for In-Service Teachers. Exemplary Practices in Marine Science Education: A Resource for Practitioners and Researchers. Eds. Fauville, G., Payne, D. Springer Publications, New York, NY.

Jones, M.G., Goodale, T., Hite, R., Corin, E. (2016). Teacher' and Students' Perceptions of Presence in Virtual Reality Instruction, Recent Researches in Engineering Education, Summer 2015 World Scientific and Engineering Academy and Society Press, ISBN: 978-1-61804-312-2.

Goodale, T. & Hughes, C.E. (2015*).* Mind Your P's and E's: Developing Creativity in the Early Science Classroom. *The Interplay of Creativity and Giftedness in Science Education,* Eds. Demetrikopoulos, M.K & Pecore, J.L Institute for Biomedical Philosophy, Dunedin, Fl. Sense Publishers, Rotterdam, Netherlands.

Goodale, T., (2014). Science Teacher Professional Development in Education for Sustainability, *Handbook on Urban Environmental Education*, Ed. Kudryavtsev, A., Environmental Education Capacity Project, Department of Natural Resources, Cornell University, Ithaca, NY

Goodale, T., (2014). Institutional and Community Partnerships for Environmental Education, *Handbook on Urban Environmental Education*, Ed. Kudryavtsev, A., Environmental Education Capacity Project, Department of Natural Resources, Cornell University, Ithaca, NY

Lu, R., Goodale, T. A. & Guo, Y. (2014). Impact of Videoconference with Native English Speakers on EFL Learners' Oral Competence and Self-Confidence. *Open Journal of Social Sciences*, 2, 54-60.

Goodale, T. (2013). The Influence of a ROV Themed Engineering Design Workshop on K-8 In-Service Teacher Self Efficacy. *Integrated STEM Education*, *IEEE Transactions on,* Mar 2013. ISBN 978-1-4673-5624-4

Goodale, T. (2012). *Impact of a Content Area Practicum Experience on Science Teacher Content Knowledge and Pedagogical Efficacy.* Proceedings of the American Education Research Association (AERA), Vancouver, B.C.

Goodale, T. (2012). The Impact of Synchronous Video Conferencing and Peer Feedback on Chinese English Language Learner's Oratory Skills. Proceedings of the American Education Research Association (AERA), Vancouver, B.C.

Pribesh, S., Dickinson, G., Goodale, T.A. (2009). *The Relationship between National Board Certification in Library Media and Information Science and Student Academic Achievement*, Proceedings of the American Education Research Association (AERA), San Diego CA.

Goodale, T., (2016). The Impact of College Major on Environmental Knowledge and Concern, The Journal of Environmental Education (Accepted, with revisions)

Goodale, T., (2016). Impact of a Content Area Practicum Experience on Science Teacher Content Efficacy, The Field Experience Journal. (Accepted)

In Review: Assessing Ocean Literacy: Constructs and Validation, The Journal of Marine Education

In Review: *Evaluating the Apple IPAD and its Impact on Early Literacy Skills*, Literacy and Technology.

Grants (Principal Investigator)

Current

(Co-PI) 2015-2020 NSF PIRE – East Africa Research and Education Partnership: Cassava mosaic disease – A paradigm for the evolution of insect-transmitted plant virus patho-systems. National Science Foundation, Programs for International Research and Education (PIRE). 5 years. $5,000,000.00.

Awarded

(PI) 2013 Education for Sustainability Summer Teaching Institute, Honeywell Hometown Solutions Community Grant **Awarded**: 1 year, $45,500.00.

(PI) 2012: Implementing the New Engineering and Technology K-12 Science Education Standards through Remotely Operated Vehicle (ROV) Classroom Missions, U .S. Department of Education Improving Teacher Quality Higher Education grant. **Awarded**: 1 year, $37,500.00 (Co-PI's: Fumin Zhang, Georgia Tech, Cathy Sakas, NOAA).

(PI) 2012: Inspiring Youth Activism through Classroom Citizen Marine Science Projects, U .S. Department of Education Improving Teacher Quality Higher Education grant. **Awarded**: 1 year, $31,000.00 (Co-PI: Kris Irwin, University of Georgia).

(PI) 2012: Education for Sustainability Summer Teaching Institute, Honeywell Hometown Solutions Community Grant **Awarded**: 1 year, $39,500.00.

(Co-PI) 2011: Improving Interdisciplinary Marine Science Instruction Through Student-Centered Service-Learning Projects, U.S. Department of Education Improving Teacher Quality Higher Education grant. **Awarded**: 18 months, $33,227.00 (PI Michael Hazelkorn, University of West Georgia).

(PI) 2008: *Assessing Ocean Literacy: Construction, Evaluation & Validation.* Old Dominion University: Faculty Development Grant, **Awarded**: $750.00.

In Review

(PI) 2015: MARINE STEM: Maritime Applications & Research Involving a Network of Educators in Science, Technology, Engineering and Mathematics. National Science Foundation, Innovative Technology Experiences for Students and Teachers (ITEST), 3 years, $1,200,000.00 (Co-PI's: David Eggleston & Patrick Curley, NCSU, Linda Hayden and Robert George, Elizabeth City State University).

(PI) 2015: Teacher STEW2ARD: Science Teachers Examining the Environment With Argumentation, Research and Discovery, National Science Foundation, Robert Noyce Teacher Scholarship Program, 5 Years, $1,193,000.00 (Co-PI's: David Eggleston & Patrick Curley, Eric Wiebe, Gail Jones, Miriam Ferzli, NCSU).

(Co-PI) 2015: PRECI^{2}SE: Promoting Research Enhanced Collaboration & Integrated Instruction in STEM Education, Robert Noyce Teacher Scholarship Program, 5 Years, $1,200,000.00 (Co-PI's: Karen Keane, Molly Fenn, Allison McCulloch, NCSU).

Reviewed (PI)

2015: Fostering Achievement and Creativity in the Elementary Science Classroom: Investigating the Utility of the P's & E's Instructional Model, U.S Department of Education, Institute of Educational Sciences (IES) Mathematics and Science Research Grant, 4 years, $1,223,000.00 (Co-PI: Sarah Carrier, NCSU).

2014: Utilizing a Massive Open Online Course (MOOC) and Teacher Professional Development to Advance Awareness of the Deep Subseafloor Biosphere, National Science Foundation Sub-Award through Center for Dark Biosphere Investigations Education and Outreach Grant, 1 year, $48,754.70 (Co-PI: David Eggleston, NCSU).

2013: *Informing K-12 Teachers and Students about Deep Biosphere Research via Remotely Operated Vehicle (ROV) Classroom Missions*, National Science Foundation Sub-Award through Center for Dark Biosphere Investigations Education and Outreach Grant, 1 year, $48,754.00 (Co-PI's: Fumin Zhang, Georgia Tech, Cathy Sakas, NOAA).

2013: *Digital Online Math Opportunities and Resources for Equalizing Education (DO MORE^2)*, United States

Department of Education, Office of Special Education, Stepping-up Technology Implementation Grant, 5 Years, $2,290,000.00.

2013: Georgia's Educators Transitioning Students to Engineering and Technology (GET SET), United States Department of Education, Race to the Top: Innovation Fund, 2 years, $451,238.00.

2012: Georgia's Exceptional & Talented Students in Engineering and Technology (GET_SET), U.S. Navy Long-Term STEM grant, 3 years, $425,000.00.

2012 Interdisciplinary Science Instruction through Student-Centered Service-Learning. , U.S. Department of Education Improving Teacher Quality Higher Education grant. 14 months, $44,227.00.

2012: Exploratory Study of the Impact of Synchronous Video Conferencing and Peer Feedback on Chinese English Language Learner's Oratory Skills, IELTS (International English Language Testing System) Research Grant , Cambridge University, UK 1 year, $29,000.00.

2011: Coastal Georgia Community Learning Garden, Lowes Charitable and Education Foundation grant: 1 Year, $11,000.00.

2011: College of Coastal Georgia Stem Education Initiative, University System of Georgia Office of Teacher Preparation, Research, and Innovation Science, Technology, Engineering, and Mathematics (STEM) Initiative Category 2 Grant. 2 years $129,000.00.

2010: Improving Early Childhood and Adult Literacy through Mobile E-Reader Seminars, Verizon Foundation Grant, 1 year, $15,000.00.

Co-PI

2009. *State Fiscal Effort and Student Academic Achievement: A 20 year trend analysis*. Institute of Education Sciences, Department of Education, Washington D.C., $235,000.00 for three years (PI's: William Owings and John Nunnery).

2009. *Sea Sojourn: A Journey to Ocean Literacy for Early Learners and their Families*. National Oceanic & Atmospheric Administration (NOAA): Ocean Education Grants for AZA Aquariums, $500,000.00 for three years (PI: Chris Witherspoon, Virginia Aquarium).

2009. *Sea Sojourn: A Journey to Ocean Literacy for Early Learners and their Families*. Institute of Museums and Library Services (IMLS): Museums for America grant program, $150,000.00 for three years (PI: Chris Witherspoon, Virginia Aquarium).

Awards

College of Coastal Georgia 2010-2011 Outstanding Professor of the year (runner-up)

College of Coastal Georgia faculty development award from the Committee on Faculty Welfare and Development to present research at the National Science Teachers Association 2009 annual meeting

Will Myers Memorial Scholarship: travel and presentation at the American Education Finance Association annual conference

1st Place, 2008 Virginia Tidewater Consortium for Higher Education Annual Research Exposition: *Assessing Ocean Literacy: Construction, Evaluation & Validation*

Outstanding Graduate Teaching Assistant, 2006, Old Dominion University

Honor Society Member, 2005, Phi Kappa Phi

Service

Proposal Review Panel Member, National Science Foundation, Innovative Technology Experiences for Students and Teachers (ITEST) Grant Program

NOAA Gray's Reef National Marine Sanctuary Advisory Council: Education member

Georgia Sea Grant and UGA Marine Extension Advisory Board: Education member

Technology Reviewer, National Science Teachers Association

Manuscript Reviewer, The Field Experience Journal

Manuscript Reviewer, Environmental Education Research Journal

Cannons Point Nature Reserve Education Committee

Proposal Reviewer, National Association of Research in Science Teaching (NARST) conference

Proposal Reviewer, American Society for Engineering Education (ASEE) annual conference

Proposal Reviewer, Institute of Electrical and Electronics Engineers (IEEE) Interdisciplinary Engineering Design Education Conference (IEDEC)

Curriculum Evaluator, NSF BSCS (Biological Sciences Curriculum Study)

Education Consultant: Education Ministry of China (2011)

NC State Quality Enhancement Plan, Evaluation Committee

College of Coastal Georgia, Institutional Review Board (IRB)

NCAA Division 1 Varsity athlete, Old Dominion University wrestling 1999-2003

Organizations

National Science Teachers Association, member

National Marine Educators Association, member

American Education Research Association, member

National Education Association, member

National Association of Research in Science Teaching, member

Workshops, Outreach and Professional Development

2014 National Aeronautics and Space Administration, Robotic Mining Competition, Kennedy Space Center, FL. Workshop in Next Generation Science Standards (technology and engineering) for Teachers, Outreach/Recruitment for NCSU in College Fair , Competition Technical Judge.

2009-Current: Marine Advanced Technology Education (MATE) Regional Remotely Operated Vehicle (ROV) Annual Competition: Judge and Associate Coordinator for Georgia and Mid-Atlantic Competitions.

2013 Coastal Georgia Science Exposition: Workshop in Next Generation Science Standards (technology and engineering) for Teachers.

2009-2013 Coastal Georgia Regional Science Fair: Judge and Coordinator for Elementary Science Projects.

2011 Jincheng Institute of Technology, Shanxi Province, China: Workshop on Creativity and Technology Integration in post-secondary classrooms.

Licenses & Certifications

North Carolina Teaching (M) License: Secondary Science, Elementary K-5

North Carolina Administrative (D) License: Supervision Curriculum and Instruction K-12