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EDUCATION:

B.S. Environmental Studies and Biology, 1994. St. Lawrence University, Canton NY

- Salutatorian and *summa cum laude*
- Phi Beta Kappa Honor Society

M.S. 1999. University of Washington, Department of Botany, Seattle WA. *Dissertation: Spore dispersal and its potential evolutionary consequences to populations of fungi in Pacific Northwest Forests*

Ph.D. 2008. Curtin University, Perth Australia *Peer review in an undergraduate biology curriculum: Effects on students' scientific reasoning, writing and attitudes* (dissertation submitted March 2008, currently out for external review)

PROFESSIONAL EXPERIENCE

Assistant Dean, South Carolina Honors College, Jan 2008 – present

Associate Research Faculty, Department Biological Sciences, University of South Carolina, Jan 2008-present

Director of the Biology Undergraduate Program, Department of Biological Sciences, University of South Carolina, Columbia, SC. Dec. 2002 – August 2007

Lecturer/ Lab Coordinator for Introductory Biology, Department of Biological Sciences, University of South Carolina, Columbia, SC. Dec. 2001 – July 2003

Education Director, Land, Water and Conservation Division, South Carolina Department of Natural Resources, Columbia SC 29201, June 1999-November 2001

GRANTS FUNDED

Feldon, D.F., **Timmerman**, B.E., Thompson, S., Lyons, J. and Maher, M. **2007** “The Role of Graduate Student Teaching Experiences in the Development of Scientific Research Skills” National Science Foundation Research and Evaluation on Education in Science and Engineering Program Award (NSF DRL REESE) # 0723686, **\$699,625**

Feldon, D.F., **Timmerman**, B.E. and Showman, R. **2007** “Improving STEM Retention through Instruction: Leveraging Faculty Expertise.” National Science Foundation Science

Technology Engineering and Mathematics Talent Expansion Program Award
0653160, **\$705,327**

Caicedo, J., Flora, J.R., Nichols, A.P., **Timmerman**, B.E. and Watkins, R. **2007**. "Developing an Engineering Environment for Fostering Effective Critical Thinking (EFFECT) through measurements" National Science Foundation Curriculum, Course and Laboratory Improvement Program, DUE-0633635 2 yrs. **\$199,431**

Timmerman, B.E., Woodin, S., Singer, J. and Reeves, T. **2004** "Peer review as a mechanism for both curriculum reform and assessment" 2004-2007. National Science Foundation Curriculum, Course and Laboratory Improvement Program, DUE -0410992. 3 yrs. **\$199,781**

Timmerman, B. 1995. **National Science Foundation Graduate Research Fellowship**. A first principles approach to mycorrhizal spore dispersal and its consequences for forest succession. \$67,200.00.

PUBLICATIONS

Timmerman, B.E., Strickland, D.C. and Carstensen, S.M. **2008**. Curricular reform and inquiry teaching in biology: where are our efforts most fruitfully invested? *Integrative and Comparative Biology* 48(2): 1-15

Caicedo, J. M., Flora, J., Pierce, C., Nichols, A., **Timmerman**, B., and Graf, W., **2008**. "Environments For Fostering Effective Critical Thinking (EFFECTS)", Proceedings of the ASEE Annual Conference and Exposition, Pittsburgh, PA, June 22-25, 2008

Timmerman, B., Strickland, D., Carstensen, S. and Singer, J. **2006**. Evolution should be a priority for biology curriculum reform. *Proceedings of the National Association of Research in Science Teaching Annual Meeting*.

Timmerman, B. **2005**. Chapter 30: Fungi *In Test Bank for Assessment: Biological Science* Nickla, H. and Perkins, M. (Eds). Pearson Prentice Hall: Upper Saddle River NJ pgs. 459-476

Timmerman, B. **2004**. *Biological Principles II Lab Manual: University of South Carolina Biological Sciences*. Hayden McNeil (author of original material in Chps. 1-4, 11; Editor. of remainder.)

Timmerman B. **2003**. (Ed.) *Biological Principles II Lab Manual: University of South Carolina Biological Sciences* Hayden McNeil Publishing: Plymouth MI

Timmerman, B.E.H. 1999 *Dispersal in epigeous basidiomycetes: implications of varying probabilities of spore settlement and genet size and relatedness to the evolution of fungal populations*. University of Washington MS Thesis

Timmerman, B. and Helmuth B. 1998. Chapter 9: Marine Life. *In*: The Ecotravellers' Wildlife Guide to Belize and Northern Guatemala. (Ed.) Les Beletsky. Academic Press

Johns, C. and **Timmerman, B.E.** 1998. Total cadmium, copper and zinc in two Dreissenid mussels, *Dreissena polymorpha* and *Dreissena bugensis*, at the outflow of Lake Ontario. *Journal of Great Lakes Research* 24(1): 55-64

Helmuth, B.S.T., **Timmerman, B.E.H.** and Sebens, K.P. 1997. The interplay of host morphology and symbiont microhabitat in coral aggregations. *Marine Biology* 130: 1-10

INVITED KEYNOTE PRESENTATIONS

Timmerman, B. 2007. The effect of peer review on students' scientific reasoning and writing abilities. Calibrated Peer Review Symposium, Texas A&M University, College Station, June 19th

Timmerman, B. 2006. Improvement of student scientific reasoning skills: the effect of peer review and a lab report rubric. *National Academy: Integrating Science and Mathematics Education Research into Teaching*. University of Maine at Orono, June 25-30

Timmerman, B. 2006. Biology Undergraduate Curriculum Reform: Goals, Reforms, Data, and Future Directions. *Bio2010 Workshop*. Columbia SC, March 9th
<http://www.sceprior.org/outreach/bio2010/workshop-summary.html>

SELECTED PRESENTATIONS

Timmerman, B. 2008. Peer Review as a Mechanism for Both Curriculum Reform and Assessment. Course Curriculum and Laboratory Improvement (CCLI) program PI conference (AAAS and NSF) Washington DC: August 13 to 15 (planned)

Caicedo, J. M., Flora, J., Pierce, C., Nichols, A., **Timmerman, B.**, and Graf, W., **2008.** "Environments For Fostering Effective Critical Thinking (EFFECTS)", Proceedings of the ASEE Annual Conference and Exposition, Pittsburgh, PA, June 22-25 (planned)

Timmerman, B.E., Johnson, R.L. and Payne, J. **2007.** Development of a universal rubric for assessing students' science inquiry skills. *National Association of Research in Science Teaching 2007 Annual Meeting* New Orleans LA, April 15-18th

Timmerman, B.E., Johnson, R.L. and Payne, J. **2007.** Development of a Universal Rubric for assessing students' science inquiry and scientific reasoning skills using written lab reports. *Association of Southeastern Biologists*. Columbia SC April 19-20th

Feldon, DF. , Gustainis, J., and **Timmerman, B. 2007.** Do Advanced Placement courses in biology really prepare students for higher level biology courses in college? *SC Educators for the Practical Use of Research (SCEPUR)*, Columbia SC, Feb. 22-23rd

- Timmerman, B.** Strickland, D., Carstensen, S. and Singer, J. **2006.** In: Evolution for All: Multi-paper set on Theoretical and Practical Approaches L. Amiri, S. Fowler, L. Jones, G. Branch, A. Cavallo, and M. Gleason *National Association for Research in Science Teaching Annual Meeting San Francisco CA April 7-11,*
- Timmerman, B.** Strickland, D., Carstensen, S. and Singer, J. **2006.** Using Inquiry-Based Curricula to Improve Undergraduate Science: Where Are our Efforts Most Fruitfully Invested? *American Educational Research Association Annual Meeting San Francisco, April 3-7*
- Timmerman, BE** and Strickland, DC, **2006.** Can peer review improve undergraduate lab reports and does experience with peer review improve students' scientific reasoning skills? *Society for Integrative and Comparative Biology Annual Meeting, Orlando FL January 3-8*
- Timmerman, B** and Feller, B. **2005.** Measuring the impact of a professional development experience on Teacher participants understanding of biology content. Part of Multiple Paper Set: Reconceptualizing the structure of professional development: Threading content, pedagogy and the classroom (J. Singer and R. Lacrosse). *American Educational Research Association Annual Meeting Montreal Canada, April 11-15*
- Timmerman, B.** Strickland, D., Carstensen, S. and Singer, J. **2005.** Lessons learned from the first two years of an inquiry-based reform of introductory biology laboratories: Assessment methods, invalid assumptions and the mediating effect of students' alternate conceptions. *American Educational Research Association Annual Meeting Montreal Canada, April 11-15*
- Timmerman, B.,** and Strickland, D.. **2005.** Effect of peer review on biology undergraduates' scientific writing skills. *National Association of Research in Science Teaching Annual Meeting Dallas TX April 4-7*
- Timmerman, B.,** Strickland, D., Carstensen S., Singer J. and Woodin, S. **2005.** Students' prior knowledge mediates the effectiveness of an inquiry-based laboratory curriculum in introductory biology. *Society for Integrative and Comparative Biology Annual Meeting San Diego CA Jan.*
- Singer, J, **Timmerman, B** and USC Secondary MAT and MT students. **2004** 'Exploring technology to support student science learning.' *South Carolina Science Council Conference North Charleston SC*
- Timmerman, B.,** Singer, J., and Strickland, D. **2004** "Student prior conceptions mediate the effectiveness of an inquiry-based curriculum." Presentation at the annual *National Association of Research in Science Teaching, Vancouver BC*

Singer, J., **Timmerman**, B. and McGuiness, C.. **2003**. “*BioLogica*: A computer simulation to support student understanding of genetics.” and “Molecular: A simulated Chemical workbench.” *Educational Technology Conference* Myrtle Beach SC 2003

Timmerman, B. 2000. “Inquiry-based activities for K-12 students using Department Natural Resources materials/SC Envirothon” and “Inquiry-based activities to meet the 6th grade science standards on fungi” *South Carolina Science Council Conference* Myrtle Beach 2000

Timmerman, B.E.H. Population dynamics of wind-dispersed basidiomycetes. Presented at the Daniel E. Stuntz Memorial Symposium, Seattle 1998.

Timmerman, B.E.H., B.S.T. Helmuth and K.P. Sebens. Localized photoadaptation and branch spacing in *Agaricia tenuifolia*. Presented at *8th International Coral Reef Symposium*, Panama City, Panama, 1996.

Timmerman, B.E.H. and G. Muller-Parker. Intracellular Symbiosis: governed by biotic or abiotic factors? A comparison of photosymbiont distributions in *Anthopleura elegantissima*. Presented to the *Society for Integrative and Comparative Biology*, Washington, D.C. 1995.

USC TEACHING EXPERIENCE

- BIOL 101L: Biological Principles I Laboratory (introductory biology for majors)
- BIOL 102L :Biological Principles II Laboratory (introductory biology for majors)
- BIOL 270 and 270 L: Intro to Environmental Biology (Honors, non-biology majors)
- BIOL 398: Peer Teaching Experience (undergraduates assisting in teaching in introductory biology labs)
- BIOL 599: Special topics: Biological perspectives on education
- SCCC 383R Honors Pro-Seminar on the Development of Scientific Expertise
- Supervision of Honors Theses in biological education

SERVICE**For Department of Biological Sciences**

- Member Curriculum Committee 2002 to present
- Development of assessment database for tracking Department's progress in meeting curriculum reform goals, Fall 2005 to present
- Development and implementation of Department's evaluation program for SACS Accreditation, Fall 2005 to present
- Organizer of Departmental Booth at University Showcase, 2003 to present
- Development and implementation of professional development opportunities in teaching for Biology graduate students, Fall 2004 to present
- Resource person for educational technologies within department, Fall 2002 to present
- New Faculty Hires
 - Biol 101 and 102 Lab Coordinators, Spring 2003
 - Biol 101 Lab Coordinator, Spring 2006 and Fall 2006
 - Biol 300 level lab coordinator Spring 2007

For University of South Carolina

- **Advisory Board member for USC Center for Teaching Excellence** Spring 2005-2007 (<http://www.sc.edu/cte>)
- **Member of Faculty Senate Committee on Instructional Development** Fall 2005-2009 (<http://www.me.sc.edu/fs/lyons/fcid/>)
- Workshop leader “Everything you ever needed to know about laboratory teaching (in an hour)” (2002 to present) and “Designing effective lab assessments: Begin at the end” (2006 to present) for **University-wide Teaching Assistant Orientation** (DVD available upon request).
- Serve as faculty resource for program development and teach workshop for University-wide **Supplemental Instruction program** Fall 2005, Spring 2006 (www.sa.sc.edu/supplementalinstruction/index.htm)
- Received **\$6000** funding from Dean's Office, installation of hardware, demonstration by guest lecture in BIOL 110 and encouragement of various faculty to use **student response systems** in classes taught in PSC 210.
- **Search Committee Appointment for new Faculty Hires:**
 - USC Salkahatchie, (2) Assistant Professors (General Biology and Microbiology), Spring 2006
- **SC Academy Science** Councilor and Science Education Section Editor for the *Journal of the South Carolina Academy of Science* 2008-2010

For National Community:

- Service as **Panel reviewer for NSF** Course, Curriculum and Laboratory Improvement Program Feb. 2005
- **Proposal Reviewer** for **2006 and 2007 National Association for Research in Science Teaching** Annual Meeting Proposals (proposals must pass peer review in order for work to be presented at the Annual Meeting).
- **Advisory Board member** for *Biological Science* Scott Freeman author introductory textbook for majors and **contributing author** for assessment materials Chapter 30 (2nd Ed)
- First Year Reading Experience Discussion Leader, 2005 to present

Textbook reviews:

- Brooks/Cole Thomson: Textbook on “How to read Science Papers”
- Wadsworth Media: BioActive Learning Textbook and multi-media materials
- McGraw Hill Higher Education: various non-majors Biology texts
- Prentice Hall: content reviewer, Focus Group participant, Advisory Panel member 1st and 2nd and 3rd Edition Chapter Reviews *Biological Science*
- Content Connections: multi-media and introductory textbook for biology majors

COLLABORATORS AND OTHER AFFILIATIONS:

Recent Collaborators:

David Feldon, Jed Lyons, Michelle Maher, Stephan Thompson, Juan Caicedo, Joseph Flora, Andrew Nichols

Graduate and Post Doctoral Advisors:

David Treagust, Chair Doctoral Committee (Curtin University, Australia)
Joseph Ammirati (PhD/MS advisor, University of Washington)

Undergraduate Research Mentored:

Alisha Owensby, Howard Hughes Award and Honors thesis: Spore color as a predictor of mycorrhizal fungal genetic diversity. 2005-06

Laura Hunter, Honors thesis: Use of simulated dissection to aid student understanding of mammalian anatomy and physiology, University of South Carolina 2003-04

Jessica Marshall, Honors thesis: Effectiveness of *BioLogica* (Mendelian genetics software) as a teaching tool in non-majors biology and its effect on teaching strategy 2003-04