
MEENA MICHELLE BALGOPAL

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EDUCATION

North Dakota State University: Fargo

Ph.D., Biological Sciences-Science Education/Zoology (May 2007)

Dissertation: *Examining undergraduate understanding of evolution and natural selection*

University of California: Davis

Doctoral studies, Entomology (1994-96)

Dissertation: *Feeding behavior and transmission of tomato yellows virus by the potato aphid, Macrosiphon euphorbia*

University of Wisconsin: Madison

M.S., Entomology (May 1994)

Thesis: *Correlations between altered development of Pseudoplusia includens and parasitism by the braconid wasp, Microplitis demolitor*

University of Illinois: Urbana-Champaign

B.S., Animal Sciences-with college honors (May 1991)

Senior thesis: *Tolerance in wool and hair breeds of sheep to the barber-pole worm, Haemonchus contortus*

EMPLOYMENT

TEACHING AND OUTREACH

Colorado State University, School of Education

2008-present Assistant Professor (Science Teaching Methods)

Minnesota State University Moorhead, Department of Biosciences

2007-08 Visiting Assistant Professor (comparative evolutionary physiology, genetics labs, organismal biology labs, cell biology labs, exploring biology for education majors, and middle school science methods)

Spring 2006 Adjunct Lecturer (Organismal biology labs)

North Dakota State University, Department of Biological Sciences

Fall 2005 Teaching Assistant for Environmental Science (non-majors)

Teaching Mentor for Science Education Methods students

Center for Science and Math Education, North Dakota State University, Fargo

2004-05 NSF GK-12 Teaching Fellow at Fargo South High School (General Biology, AP Biology and Biology for English Language Learners)

2003-04 NSF GK-12 Teaching Fellow at West Fargo High School (General Biology and Environmental Science)

Department of Biological Sciences North Dakota State University, Fargo

Fall 2003 Teaching Assistant-Anatomy and Physiology (Biology majors)

Private Tutor

2001-2002 Part-time middle school math and science tutor

Department of Curriculum & Instruction, Texas A&M University, College Station

- 1998-99 Program Coordinator, Texas Alliance for Science, Technology and Mathematics Education (YOUth Symposium organizer for 2,000 students and teachers who attended 125 inquiry workshops)
- 1996-97 **Espiritu Community Development Corporation – Phoenix, AZ**
Head Science/Biology teacher (7-12) at Esperanza Charter School
- 1996 **Department of Entomology, University of California-Davis,**
Teaching Assistant-Insects and Society (non-majors) for 2 terms
- 1995 **Community Alliance with Family Farmers-Davis, CA**
Field/Outreach Education Entomologist
- 1994 **University of Wisconsin, Madison**
Instructor for College for Kids, College of Education
Instructor for Summer Enrichment Program, Center for Biology Education
- 1991-92 Volunteer ELL teacher, Refugee Center, Dane County, WI
- 1990-91 Volunteer ELL teacher, Refugee Center, Champaign County, IL

RESEARCH

Minnesota State University Moorhead

- 2006-2008 In collaboration with A. Wallace (Dept. of Biosciences, MSUM) and S. Dahlberg (Dept. of Sciences, White Earth Tribal College) *The use of guided writing activities to increase ecological literacy of elementary education students*
In collaboration with Dr. P. Ode (Dept. Entomology, NDSU) and Brandon Kowalski (undergraduate student, MSUM) *Host plant ovipositional preference of Trichoplusia ni moths for wild and commercial varieties of cabbage with varying levels of glucosinolates*
In collaboration with Dr. P. Ode (Dept. Entomology, NDSU) and Kyle Noyes (undergraduate student, MSUM) *Effects of relatedness and the risk of competition on clutch size decisions in a parasitic wasp*
- 2003-2007 **North Dakota State University, Fargo, ND**
Dept of Biological Sciences (Dr. Lisa Montplaisir, PhD Advisor)
- 1994-96 **University of California – Davis, CA**
Research Assistant, Dept of Entomology/Cooperative Extension (Dr. Diane Ullman, PhD Advisor)
- 1992-94 **University of Wisconsin – Madison**
Research Assistant, Dept of Entomology (Dr. Mike Strand, MS Advisor)
- 1991-92 Research Assistant, Dept of Animal Health and Biomedical Sciences
- 1990-91 **University of Illinois - Champaign-Urbana**
Research Assistant, Dept. Animal Sciences, Quantitative Genetics
- 1989-91 Laboratory Assistant, Dept. Animal Sciences, Immunogenetics
- 1988 Research Assistant, College of Veterinary Medicine

EXTERNAL FUNDING

NSF-CCLI (May 2008), PI, Collaborators- Drs. Alison Wallace and Steve Dahlberg, "Dilemmas and Decisions: Using Guided Writing to Increase Ecological Literacy in Undergraduate Biology Students." (\$139,011)

AWARDS/RECOGNITION

- 2006 National Association of Researchers in Science Teaching Diversity Scholarship
- 2005 P.E.O. National Scholarship Nomination
- 2005 Outstanding Graduate Student Teaching Award, NDSU
- 2004 Phi Kappa Phi National Membership
- 2004 NSF GK-12 Teaching Fellowship (GraSUS program), NDSU
- 2003 NSF GK-12 Teaching Fellowship (GraSUS program), NDSU
- 1996 Jastro-Shields Graduate Research Scholarship, UC-Davis
- 1991 United Way Volunteer (Teacher) of the Year, Champaign, IL
- 1991 W.D. Buddenmeier Merit Scholarship (in International Agriculture), UIUC
- 1990 College of Agriculture Merit Scholarship, UIUC
- 1990 JB Turner Undergraduate Research Scholarship, UIUC
- 1989 O.S. Carman Merit Scholarship, UIUC

PROFESSIONAL LICENSE:

North Dakota 7th-12th grade Life Sciences/Biology Teaching License (May 2007)

PUBLICATIONS:

JOURNAL ARTICLES

- Balgopal, M.M. and L.M. Montplaisir. An examination of knowledge generation in reflective essays of biology students" (In review, *Instructional Science*)
- Balgopal, M.M. The role of professional and personal identity in motivating conceptual change. (In review, *Cultural Studies in Science Education*)
- Balgopal, M.M. and A. Wallace. Dilemmas and decisions: The use of guided writing to increase ecological literacy of elementary education majors. (In Press, *Journal of Environmental Education*)
- Balgopal, M.M. and P.J. Ode. Quantitative ecology: Constructing life history tables (In Press, *American Biology Teacher*).
- Balgopal, M.M., B.A. Dover, W.G. Goodman, and M.R. Strand. 1996. The effects of parasitism by *Microplitis demolitor* on the juvenile hormone titers of *Pseudoplusia includens*. *Journal of Insect Physiology*. 42(4): 337-345.

ARTICLES IN PREPARATION

- Balgopal, M.M. Student motivation for conceptual change: The teacher's role. (In preparation for submission to *Journal of Research in Science Teaching*)
- Balgopal, M.M. and L.M. Montplaisir. Measuring undergraduate conceptual change using the incremental conceptual change number line (ICCL). (In preparation)

PRESENTATIONS:

INVITED TALKS

- Balgopal, M.M. "Why aren't students getting it? Misconceptions about evolution" World of Change Teachers' Conference, Keynote speaker, Minnesota State University Moorhead (Oct 2006)

- Balgopal, M.M. "Sloppy writing and misconceptions in a college biology course" Dept. Elementary and Early Childhood Education, Minnesota State University Moorhead (June 2006)
- Balgopal, M.M. "Identifying understanding of evolution and natural selection through student written discourse." Dept. Biology, Spelman College, Atlanta (April 2006)
- Balgopal, M.M. "Refutational instruction of teleology and anthropomorphism in an ecology course" Dept. Biological Sciences, NDSU, Fargo (March 2006)
- Balgopal, M.M. "International science education." World Studies Seminar, Concordia College, Moorhead, MN (Nov 2004)
- Balgopal, M.M. "Examining undergraduate understanding of natural selection in two introductory biology courses." Dept. Biological Sciences, NDSU, Fargo (Oct 2004)

WORKSHOPS

- Balgopal, M.M., Wallace, A., and Dahlberg, S. "Dilemmas and decisions: Using WTL activities to increase ecological literacy of undergraduates." Faculty Professional Development workshop, MSUM (May 2008).
- Balgopal, M.M. "Influenza virus evolution: why do we have to get annual flu shots?" World of Change Teacher Conference, MSUM, Nov 2007
- Balgopal, M.M. "Creating mock mummies to teach NOS" Minnesota Science Teacher Association, Lakeville, MN (Oct 2007)
- Wallace, A. and M.M. Balgopal. "Bright beginnings and engaging endings." Minnesota Science Teacher Association, Lakeville, MN (Oct 2007)
- Balgopal, M.M. "The inquiry continuum using kolam artwork." Faculty Professional Development, MSUM (Oct 2007)
- Gill-Robinson, H. and M.M. Balgopal. "Mystery mummies." Expanding Your Horizon mathematics/science symposium for 7th grade girls, NDSU/MSUM (April 2007).
- Balgopal, M.M. "Writing in the sciences: beyond lab reports" World of Change Teachers' Conference, seminar/workshop, Minnesota State University Moorhead (Oct 2006)
- Balgopal, M.M. and C. Bondy. Kinesthetic activities to teach cell biology: trail mix genetics and sockosome mitosis. North Dakota/Minnesota Science Teachers Association. Moorhead, MN (March 2005)

SUBMITTED TALKS

- Balgopal, M.M. Motivation to resolve misconceptions: the role of identity in pre-service teachers. Proceedings of the Annual Conference of the National Association of Researchers in Science Teaching, Baltimore, MD (March 2008, accepted)
- Balgopal, M.M. How reflective writing reveals cognitive and affective alienation and affiliation in a college biology course. National Association of Researchers in Science Teaching, New Orleans, LA; published abstract (April 2007)
- Balgopal, M.M. W. Reed, and L. Montplaisir. 'Sloppy writing' and conceptual change in a college course. National Association of Researchers in Science Teaching, San Francisco, CA; published abstract (April 2006)
- Balgopal, M.M. and L.M. Montplaisir. Examining undergraduate understanding of evolution and natural selection. National Association of Researchers in Science Teaching. Dallas, TX; published abstract (April 2005)

Balgopal, M.M., M.R. Strand. and W.G. Goodman. JH titers associated with altered development in *Pseudoplusia includens* parasitized by *Microplitis demolitor*. Entomological Society of America. Indianapolis, IN (Dec 1993)

Balgopal, M.M. The Bhopal tragedy and the effects of pesticides on women's health. International University Consortium on Social Development. Boston, MA. (June 1992)

SUBMITTED POSTERS

Ode, P.J., M.M. Balgopal, and J. Harvey. "Cabbage, cabbage loopers, and *Copidosoma*" Entomological Society of America, San Diego, CA (Dec 2007)

Ode, P.J. and M.M. Balgopal. "Multitrophic effects of cabbage quality on the generalist herbivore, the cabbage looper, and its specialist parasitoid, *Copidosoma floridanum*" National Congress of Biological Control and International Organization of Biological Control, Merida, Yucatan, Mexico (Nov 2007)

Comez, D., D. Drummond, M. Balgopal* and S. Forness*. GraSUS I (Graduate Students, University and School Partnerships) at North Dakota State University. NSF GK-12 Meeting, Washington, D.C. (March 2004), *co-presenters

Balgopal, M.M. and R.K. James. Science, Technology and YOUth Symposium at Texas A&M University. Association of Science Teachers of Texas. Corpus Christi, TX (Oct 1998)

SERVICE:

Educational Outreach

- 2008 Judge, MN 6th-12th grade Science Fair, Moorhead, MN
- 2008 Faculty advisor, MN Science Olympiad
- 2008 Facilitator, "Math and Science Night", Centennial Elementary School
- 2006 Co-facilitator of graduate student/faculty Philosophy of Science reading group
- 2006-07 Weekly Volunteer, Reading Center Teacher, Centennial Elementary
- 2006 Substitute Teacher (once a month), Accelerated Math, Centennial Elementary
- 2005-08 Reading Facilitator, Junior Great Books Program, Fargo Public Schools
- 2005-06 Team Coach, Destination Imagination, Fargo Public Schools
- 2004-05 Facilitator/Judge, ND Science Olympiad
- 2004-06 Immigrant Mentor, Cultural Diversity Resource Service, Fargo-Moorhead
- 2004 Judge, Sullivan Middle School Science Fair

Peer Reviewer

2004-present Journal of Research in Science Teaching, NARST proposals

PROFESSIONAL AFFILIATION:

Ecological Society of America (ESA))

National Association of Researchers in Science Teaching (NARST)

National Science Teachers Association (NSTA)

National Association of Biology Teachers (NABT)

Women in Science, Mathematics, Engineering and Technology (NDSU-WISMET)