

SANDRA L. WESTMORELAND, Ph. D.

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EDUCATION

Ph.D. in Quantitative Biology , University of Texas at Arlington	2001
M.S. in Biology , University of Texas at Arlington	1997
B.S. in Biology , University of Houston	1972

TEACHING EXPERIENCE

Assistant Professor, Department of Biology, Texas Woman's University 2008

Principles of Biology

- This course involves the development of current concepts in cell structure and functions with introduction to the organism level. This course is for science majors and minors.

Teacher Education Program Advisor

Lecturer, University of Texas at Arlington 2001-2008

Scientific and Technical Writing

- This course involves the study and application of the written and verbal communication skills involved in gathering, analyzing, and distributing scientific and technical information efficiently and accurately for specific scientific audiences.
- 30 junior and senior level students per class
- **Cellular and Molecular Biology**
 - The first of a three-part introductory biology sequence, this course focuses on the chemical and molecular basis of life, including metabolism, cell structure and function, and genetics.
 - Up to 300 freshman students per class
- **Structure and Function of Organisms**
 - This course involves the study of structure and function in plants and animals. Topics include structure at the level of the cell, tissue, organ and individual growth, transport/circulation/gas exchange, nutrition, reproduction, development, endocrinology, and animal neural regulation
 - 150 freshman students
- **Introduction to Biology**
 - This course focuses on fundamental principles, concepts, and topical subjects relating to biology. This course is for non-science majors and satisfies in part the laboratory science requirements for students in the Colleges of Liberal Arts and Business Administration, and in the School of Social Work.
 - 150 students, classifications vary
- **Human Anatomy and Physiology**
 - In this course concentrates on functional morphology of humans, cellular function, principles of support and movement, and neural and endocrine

control systems. This class is designed for students in sport activities, medical technology, and pre-nursing.

- 150 sophomore or junior students
- **Medical Terminology**
 - This course focuses on the vocabulary used to describe such things as parts of the body, locations in the body, bodily functions, diseases, surgical and clinical procedures, measurements, and medical instruments.
 - Distance Education course
 - Up to 350 students per semester, classification varies
- **Independent Research**
 - Independent study by individual students in biology under the supervision of a biology faculty member.
 - Development of research skills using scanning electron microscopy, image analysis, collection and analysis of data, and the oral and written presentation of research results at a professional meeting.
- **Instructional Techniques in Biology**
 - Students participate in lecture and/or lab sessions under the supervision of a faculty member.
 - Students assist in developing new teaching materials and teaching strategies.
 - Students present a lesson to the class.
- **Cellular and Molecular Biology Lab Supervisor**
 - Labs emphasize data collection and analysis using computer programs and training in the use of spectrophotometry and gel electrophoresis.
 - Supervised up to 29 lab sections with 800 students.
 - Trained, organized, and motivated up to 10 graduate teaching assistants.
 - Recruited, organized, trained, and motivated up to 15 undergraduate teaching assistants.
- **Introduction to Biology Lab Supervisor**
 - Supervised up to 7 lab sections with 200 students.
 - Trained, organized, and motivated up to 5 graduate teaching assistants.
 - Recruited, organized, trained, and motivated up to 10 undergraduate teaching assistants

Graduate Teaching Assistant, University of Texas at Arlington

1995-2000

- **Human Anatomy and Physiology I and II Lab Instructor and Lab Coordinator**
 - Student laboratory exercises involve both anatomical and experimental aspects of principles introduced in the lecture.
 - Supervised up to 10 lab sections with 300 students.
 - Trained, organized, and motivated up to 6 graduate teaching assistants.
 - Recruited, organized, trained, and motivated up to 10 undergraduate teaching assistants

SECONDARY TEACHING EXPERIENCE**Lifetime Texas Teacher Certification: Secondary Biology and Chemistry (Grades 6-12)****Classroom Instructor, Irving High School** 1976

- Physical Science

Department Chairman and Classroom Instructor, Huffman High School 1972

- Biology
- Chemistry
- Environmental Science
- Oceanography
- Algebra

HONORS AND AWARDS

- Outstanding Faculty Award: McNair Scholars Program 2008
- Recipient of Provost's Award for Excellence in Teaching 2006
- Outstanding Teacher Award by Freshman Leaders on Campus 2006-8
- Supervising Professor Fellowship, Louis Stokes Alliance for Minority Participation (LSAMP) program, Sponsored by the National Science Foundation (three awards) 2005-8
- U.S. Department of Agriculture Research Grant 2005-7
- Invited speaker at Poultry Science Assn. Annual Meeting 2002-8
- Outstanding Student Speaker, Texas Society of Microscopy 1997
- T.E. Kennerly Award for Outstanding Teaching 1998
- Award for Academic Excellence, University of Texas Arlington 1998-2001

SERVICE APPOINTMENTS AND ADVANCED TRAINING

- Invited Participant Process Oriented Inquiry Guided Learning (POGIL) National Meeting, Arlington, Texas 2008
- Panel Participant: Active Learning for Critical Thinking 2008
- Teacher Certification Advisor for Department of Biology 2007-8
- Faculty Liaison for Advanced Placement Biology Training Workshop 2007-8
- Member Undergraduate Curriculum Committee 2007-8
- Member of One Book Selection Committee 2007-8
- Member Teacher Education Committee 2006-8
- Facilitator of Active Learning Faculty Teaching Circle (appointment by the Provost) 2007-8
- Participant Process Oriented Inquiry Guided Learning Workshop (POGIL) at Washington University, St. Louis, Missouri 2007
- Participant Science Education for New Civic Engagement and Responsibilities (SENCER) Workshop at The University of Southern Maine, Portland, Maine 2007
- Participant Next Generation Course Redesign Workshop at The University of North Texas, Denton, Texas 2007
- Member McNair Selection Committee 2006-8
- Member of Honors College Faculty 2006-8
- Supervising Professor for Honor's Thesis 2006-8

- Participant Active Learning Training Seminars 2006-8
- Conducted McNair Scholars Writing Workshop 2005-8
- Member Health Care Professionals Advisory Committee 2005-8
- Member Science Technology Engineering and Math Committee
- for Gender Equity 2006-8
- Participant Tissue Engineering Conference at Rice University 2006

PROFESSIONAL MEMBERSHIPS

- National Science Teachers Association 2008
- National Association of Research for Science Teachers 2008
- Texas Society of Microscopy 1996-present
 - Program Chairman (2008-9)
 - President (2005-6)
 - Secretary (2000-2)
- Poultry Science Association 2002-present
- Microscopy Society of America 1996-present
- Phi Sigma Graduate Honor Society 1996-present

FUNDED RESEARCH

- Principle Investigator for POGIL SPUR Research Proposal: Title: BIO-POGIL: It's alive! (submitted August 2008)
- Author and Principle Investigator for POGIL SPUR Research Proposal: Using Process Oriented Guided Learning (POGIL) in the Large Biology Classroom (not funded submitted 9/15/07)
- “Microscopic evaluation of egg membrane and shell structure for effects of diet and F-strain *Mycoplasma gallisepticum* (FMG) when administered to commercial layers (Hyline W36)” in cooperation with Dr. David Peebles, et al., Department of Poultry Science Mississippi State University. Funded by a grant from the U.S. Department of Agriculture.
- “The effects of post-hatch estrogen on eggshell quality of zebra finches” in cooperation with Dr. Jim Millam, University of California, Davis. Funded by a grant from the National Science Foundation.

RESEARCH

- “The effect of space flight on calcium uptake from eggshell of Japanese quail” in cooperation with Dr. Patricia Hester, Department of Poultry Science, Purdue University and National Aeronautics and Space Administration.

PUBLISHED ABSTRACTS AND PLATFORM PRESENTATIONS:

S.L. Westmoreland*1, H.Pourarsalan1, K. A. Schug3, and J. R. Millam2, 1Department of Biology, University of Texas, Arlington, 2Department of Animal Science, University of California, Davis, 3Department of Chemistry, University of Texas, Arlington. 2008. Investigating the effects of estrogen on Zebra Finch eggshell thickness and eggshell morphology. Poultry Science. 87(Supplement 1): 18.

Westmoreland SL, Pourarsalan H, Schug K, Millam J. 2008. Examining the Morphology of Different Effects of Estrogen on Zebra Finch Eggshell Thickness. *Texas Journal of Microscopy*. 38(2):128.

Westmoreland SL, Pourarsalan H, Hawkins DL, Rochester JR, Millam JR. 2007. Changes in Zebra Finch (*Taeniopygia guttata*) Eggshell Morphology after Oral Estrogen Exposure as Chicks. *Journal of Poultry Science*. 86(2007):Supplement 1.

Pourarsalan H, Gracey M, Westmoreland SL. 2007. Investigating the Different Methods of Eggshell Thickness Measurements: A comparison of Microcaliper and Image Analysis. *Texas Journal of Microscopy*. 38(1):10.

Westmoreland SL, Pourarsalan H, Hawkins DL, Rochester JR, Millam JR. 2006. The Use of Scanning Electron Microscopy and Image Analysis to Determine Changes in Zebra Finch (*Taeniopygia guttata*) Eggshell Morphology after Oral estrogen Exposure as Chicks. *Texas Journal of Microscopy*. 38(1):10.

Westmoreland SL, May SB, Gracey MI, Hawkins DL, Peebles ED, Park SW, Branton SL. 2006. Determination of Eggshell Microstructural Characteristics and Associated Physiological Profiles in MG-Vaccinated Egg-Laying Chickens. *Poultry Science Association 95th Annual Meeting Abstracts*. 85 (Supplement 1):1-227.

Westmoreland SL, Halupnik T, Walker J, and Hester PY. 2005. Microgravity's Effect on Mammillary Cones of Japanese Quail Eggs. *Texas Journal of Microscopy*. 36(1):14.

Westmoreland S, Halupnik T, Walker J, Hester P. 2005. Effect of Microgravity on Mammillary cones of Japanese Quail Eggs. *Poultry Science Proceedings from the 94th Annual Meeting*. 84(Supplement 1):1-152.

Emam H, Haifa J, Luna C, Shah K, Woehrle S, and Westmoreland S. 2004. The Effects of Estradiol Benzoate on the Thinning of Zebra Finch Eggshells. *Texas Journal of Microscopy*. 35(1).

Rahmani S. and Westmoreland S. 2004. Electron Microscopy Analysis of *Gentoo* Penguin Eggshells. *Texas Journal of Microscopy*. 35(1).

Westmoreland S, Hester P, Halupnik T. 2004. Changes in eggshell of Japanese quail during embryogenesis. *Poultry Science Proceedings from the 93rd Annual Meeting*. 83 (Supplement 1).

Westmoreland S, Halupnik T, and Hester P. 2004. Changes in Eggshell of Japanese Quail During Embryogenesis. *Texas Journal of Microscopy*. 35(2).

Westmoreland SL. 2003. Comparative Study of Examination Techniques for Imaging Avian Eggshell. *Proceedings of Microscopy and Microanalysis*. 9(2):1520CD.

Westmoreland SL. 2003. A Comparison of Pore Size in Avian Eggshells Measured Using Three Methods: Water Vapor Gas Conductance, Computer Image Analysis, and

Vitalscan. Poultry Science Association 92nd Annual Meeting Abstracts. 82 (Supplement 1):1-156.

Westmoreland SL. 2003. A Comparative Study of Examination Techniques for Imaging Avian Eggshell. Texas Journal of Microscopy 34(2):13.

Westmoreland SL. 2002 A Study of Casts from Epoxy Embedded Eggshell of White Leghorn Chickens. Poultry Science Association Proceedings from the 91st Annual Meeting. 81 (Supplement 1).

Westmoreland SL. 2002 A Study of Casts from Epoxy Embedded Eggshell of White Leghorn Chickens. Texas Journal of Microscopy. 34(1).

Westmoreland SL and Arnott HJ. 2001. Estimation of Eggshell Pore Size Using the Method of Water Vapor Gas Conductance. Texas Journal of Microscopy. 32(2):19.

Westmoreland SL and Arnott HJ. 2001 Using the Internet to Organize Teaching Materials. Texas Journal of Microscopy. 32(2):24.

Westmoreland SL and Arnott HJ. 2000. Sources of Variation in Pore Density in Eggshells of White Leghorn Chickens. Texas Journal of Microscopy. 31(1):41.

Westmoreland SL and Arnott HJ. 1999. a Comparison of the Mammillary Cone Region of the Eggshell of the Domestic Fowl as Observed in Thick (30-micron) and Thin (1-micron) Embedded Samples Using Light Microscopy. Texas Journal of Microscopy. 30(2):44.

Westmoreland SL and Arnott HJ. 1999 Structural Changes in White Leghorn Eggshells after Treatment with Buffered Solutions from pH 6.6 to pH 7.6. Texas Journal of Microscopy. 30(1):9.

Westmoreland SL and Arnott HJ. 1998 Structural Changes in Eggshells Due to Treatment with Buffered Aqueous Solutions Ranging From pH 6 to 8. Texas Journal of Microscopy. 29(2):46.

Westmoreland SL and Arnott HJ. 1998. A Comparison of Untreated Mammillary Cones of Incubated Eggs of the Domestic Fowl with Those Treated with sodium Hypochlorite for Protein Removal. Texas Journal of Microscopy. 29(1):9.

Westmoreland SL and Arnott HJ. 1997 Changes in Mammillary Cones During Incubation of Fertilized Eggs of *Gallus domesticus*. Texas Journal of Microscopy. 28(2):44.

Westmoreland SL and Arnott HJ. 1997 A Comparison of Mammillary Cones of Incubated and Non-incubated Avian Eggs. Texas Journal of Microscopy. 28(1):12.

Westmoreland SL and Arnott HJ. 1996. A Comparison of Modern Avian and Fossilized Avian Eggshell Microstructure. Texas Journal of Microscopy. 27(2):44.

POSTER PRESENTATIONS:

Westmoreland SL. 2008. The Use of Technology to Facilitate Active Learning and Student Success in the Large Biology Classroom. National Meeting of Process Oriented Inquiry Guided Learning (POGIL), Arlington, Texas.

Westmoreland SL. 2002. A Study of Casts from Epoxy Embedded Eggshell of White Leghorn Chickens. Gordon Research Conference on Biomineralization.

Westmoreland SL and Arnott HJ. 2000. Variation of Pore Density in Chicken Eggshells. Gordon Research Conference on Biomineralization.

Westmoreland SL and Arnott HJ. 1998. Complementary Fracture Faces in Caps and Cones of Incubated Eggshell of White Leghorn Chickens. Gordon Research Conference on Biomineralization.