Lisa M. Goering, Ph.D.

Associate Professor
Department of Biological Sciences
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Education

Ph.D University of Utah, Salt Lake City, Utah.
Human Genetics - May 2003
Thesis Advisor: Dr. David Grunwald.
Thesis Title: T-Box Transcription Factor Interactions in the Zebrafish Mesoderm: Regulation of Gene Expression and Cell Fate.

BA Bethel College, North Newton, Kansas
Biology – May 1995, *summa cum laude*
Senior Thesis: The role of *c-fos* in rat intestinal development.

Academic Appointments

2015- Associate Professor (Tenured) of Biological Sciences
St. Edward's University, Austin TX.

2012- Associate Professor of Biological Sciences
St. Edward's University, Austin TX.

2007-2012 Assistant Professor of Biological Sciences
St. Edward's University, Austin TX.

Research Positions

2003-2007 Post-Doctoral Research Fellow
Department of Genetics, North Carolina State University.
Advisor: Dr. Gregory Gibson.
Research Interest: Natural genetic variation for early development in *Drosophila melanogaster*.

1995-1996 Research Technician II
Baylor College of Medicine, Houston TX.
Supervisor: Dr. Gregor Eichele,
Project: Retinoic acid signaling in chick limb morphogenesis.

1994 Summer Medical and Research Traning (SMART) program participant

Baylor College of Medicine, Houston Texas.
Advisor: Susan J. Henning.
Project: The role of *c-fos* in rat intestinal development.

Honors and Awards

2014 Curriculum Improvement Grant, St. Edward's University $500
2014 Presidential Excellence Grant, St. Edward's University $5000
2013 Teaching Award, St. Edward's School of Natural Sciences
2011 Distinguished Teaching Award, St. Edward's University
2011 Curriculum Improvement Grant, St. Edward's University, School of Natural Sciences $1500, Patricia Baynham, William Quinn, Osvaldo Hernandez, Al Hook co-awardees
2010 Curriculum Improvement Grant, St. Edward's University, School of Natural Sciences $1000
2009-2013 "Undergraduate Research Experiences in Microbiology and Developmental Entomology". Patricia Baynham and Lisa Goering, co-PD. USDA $295,000
2009 Presidential Excellence Grant, St. Edward's University $5000
2008 Presidential Excellence Grant, St. Edward's University $5000
2008-2009 Course Reduction, St. Edward's University, School of Natural Sciences
2007-2008 Course Reduction, St. Edward's University, School of Natural Sciences
1998-2001 Genetics Training Grant, National Institutes of Health, University of Utah. $30,000
1997-1998 Huntsman Cancer Institute Graduate Student Fellowship, University of Utah. $10,000
1997 National Science Foundation Predoctoral Fellowship, Honorable Mention.

Teaching Experience

St. Edward's University, Department of Biological Sciences
Cell Biology, senior core course
Molecular Biology, sophomore core course
Cells, Genetics, and Organ systems, freshmen core course
Cells, Genetics, and Organ systems lab, freshmen core course
Research, independent student research
Research Methods, senior level thesis course
Senior Seminar, senior level thesis course
Undergraduate Research, independent student research
Developmental Biology, upper level majors elective
Contemporary Biology: Animal Development, non-majors science in depth course
Human Genetics, upper level majors elective
Agricultural Microbiology and Developmental Entomology, research course

Selected Undergraduate Research Projects Supervised:

- Mina Jalali, "Genotypic and phenotypic evolution of *orthodenticle*" Summer 2008
- Veronica Gaffney, "Natural variation for anterior-posterior patterning in *D. melanogaster*: the anterior gap genes." Spring 2008-Fall 2009
- Lauren Stewart, "Natural variation for anterior-posterior patterning in *D. melanogaster*: the posterior gap genes." Spring 2008-Fall 2009
- Andrea Pavia. Characterization of *orthodenticle* expression in *D. simulans.* Spring-Fall 2009
- Elisabeth Sanders. Association of mRNA levels and eggshell phenotypes in *D. melanogaster*. Spring-Fall 2009
- Albert Venegas. Natural variation for anterior-posterior patterning in *D. melanogaster*: the pair-rule genes. Summer 2009
- Korre Fairman. Characterization of the *otd* early head enhancer from *D. simulans*. Summer-Fall 2009
- Austin Lewis. Quantitative analysis of expression differences among *otd* early head enhancer haplotypes. Summer2009-Fall 2010
- Aaleen Cox, Phenotypic effects of regulatory polymorphisms in *orthodenticle.* Spring-Fall 2010
- Ivan Pulido, Effects of organophosphate pesticides on leg development in *Drosophila melanogaster*." Spring-Fall 2010
- Noor Mahmoud, Do even-skipped regulatory polymporhisms associate with variation for anterio-posterior patterning? Summer-Fall 2010
- Katie Turner, Exploration of the phenotypic effects of *orthodenticle* haplotypes in *Drosophila melanogster* Fall 2010
- Alyssa Ghant, Effects of regulatory polymorphisms on mRNA abundance and eggshell phenotypes in *D. melanogaster*. Spring-Fall 2010
- Matthew Perez, Effects of ethanol on CNS development and anterior-posterior patterning in *D. melanogaster*. Summer 2011
- Katie Hughes, The role of *kekkon-1* in eggshell patterning and diversity among *Drosophila* species. Summer 2011
- Hossaini, Roya. Effects of fructose nutritional stress on early development and patterning of *Drosophila melanogaster*.Summer 2012
- Laura Youngblood. Genetic background effects on the expressivity of EGFR pathway mutations and eggshell patterning in *D. melanogaster"*. Summer 2012-Summer 2013
- Stephanie Pace. Characterization of *orthodenticle* regulatory variation in *D. simulans.* Summer 2012-Fall 2013.
- Michelle Victoria. The effects of organophosphate exposure on development of the larval central nervous system of *Drosophila melanogaster*. Summer 2013
- Emily Wright. Examining epigenetic inheritance of embryonic patterning phenotypes in response to nutritional variation. Summer 2013.
- Oscar Paz. Variation in *orthodenticle* expression in response to nutritional stress. Fall 2013-Fall 2015

- Nathalie Eguiza. The effects of a high protein diet on Parkinson's disease symptoms in *Drosophila melanogaster*. Spring-Fall 2014
- Matthew Duerr. Examining epigenetic inheritance of egg laying phenotypes in response to nutritional variation. Summer 2014.

North Carolina State University

Honors Genetics, Department of Genetics, Lecturer (with Drs. L. Mathies and J. Thorne). Spring 2006

The Human Genome: Hope or Hype? NCSU Encore Center for Lifelong Enrichment Lecturer **(**with Drs. G. Gibson and I. Dworkin). Winter 2005

Genome Science, Department of Genetics, Lecturer (with Dr. G. Gibson). Spring 2004, 2005, 2006

University of Utah

General Biology for Science Majors, Department of Biology, Teaching Assistant. Fall 1997

University Service

St. Edward's University

Chair, Department of Biological Sciences, 2011-2012; 2013-2014
Chair, Institutional Animal Care and Use Committee, 2012-
Co-Chair, Faculty Performance Evaluation Committee (elected), 2014-
Academy of Science, Faculty Co-Advisor, 2012-
Pre-Dental Club, Faculty Advisor 2012-
McNair STEM Advisor, 2013-
Faculty Evaluation Committee (elected), 2012-2014
Faculty Senate Committee on School Reorganization, 2012-2013
School Administrative Appointments Committee, 2011-2012
Health Professions Advisory Committee, 2009-2010
Institutional Review Board, 2009-2011
Pre-Health Humanitarians, Faculty Advisor, 2009-2012
Alternate Faculty Senator, School of Natural Sciences (elected), 2008-2010
Darwin Day Planning Committee, 2008
J-SOURCE Editorial Board, 2008-
SOURCE Planning Committee 2007-

- Co-chair, 2009-2011

University of Utah

Retention, Promotion and Tenure Committee, Graduate Student representative, 1999-2000

Community Service

Section Chair, Annual Biomedical Research Conference for Minority Students, 2012
Judge, Annual Biomedical Research Conference for Minority Students, 2009-
Volunteer, Ten Thousand Villages, Austin, TX. 2008-
Abstract Reviewer, Annual Biomedical Research Conference for Minority Students (ABRCMS), 2007, 2012, 2013, 2014
Teacher Link Fellow, Center for Inquiry Based Learning and NC Science, Math and Technology Education Center, Durham, NC. 2006-2007 .
NCSU Genetics Outreach (GO:NCSU). 2005-2007
Genetic Science Learning Center, University of Utah. 1997-2000

Professional Organizations

Society for the Study of Evolution
Society for Developmental Biology
Texas Academy of Science

Manuscript referee

Genetics
Evolution
Evolution and Development
Frontiers in Genetics

Publications

Goering LM, Hunt PK*, Heighington C*, Van Emden B, Kumar, S, and Gibson G. (2009). Association of orthodenticle with natural variation for early embryonic patterning in *Drosophila melanogaster*. *Journal of Experimental Biology Part B: Molecular Biology and Evolution*. 312B(8):841-854

Le JE, Wu SF**, Goering LM,** Dorsky RI. (2006). Canonical Wnt signaling through Lef1 is required for hypothalamic neurogenesis. *Development* 133: 4451-4461.

Goering LM and Gibson G. (2005). Genetic variation for dorsal-ventral patterning of the *Drosophila melanogaster* eggshell. *Evolution and Development*. 7:81-88.

Goering LM, Hoshijima K, Hug B, Bisgrove B, Kispert A, and Grunwald DJ. (2003). An

interacting network of T-box genes directs gene expression and fate in the zebrafish mesoderm. *PNAS* 100: 9410-9415.

Lu HC, Revelli JP, **Goering L**, Thaller C, Eichele G. (1997). Retinoid signaling is required for the establishment of a ZPA and for the expression of Hoxb-8, a mediator of ZPA formation. *Development* 124: 1643-1651.

Croissant JD, Kim JH, Eichele G, **Goering L**, Lough J, Prywes R, Schwartz RJ. (1996). Avian serum response factor expression restricted primarily to muscle cell lineages is required for alpha-actin gene transcription. *Dev. Biol.* 177: 250-264.

*Undergraduate co-authors

Manuscripts in Preparation

Voong T*, Vaziri C*, Youngblood, L*, **Goering LM**, and Dworkin I. The effects of genetic background on the expressivity of EGFR pathway mutation. In Preparation

Selected Peer Reviewed Meeting Abstracts and Invited Talks

Goering LM, PJ Baynham. Building a Community of Microbiology and Developmental Entomology Undergraduate Researchers to Increase Scientific Expertise and Confidence. Texas Academy of Science Annual Meeting. March 2015, San Antonio, TX

Goering LM. Variety is the spice of life! Investigating the genetic basis of phenotypic change. Concordia University seminar series. March 2014, Austin TX

Victoria M* and Goering LM. The Effects of Organophosphate Pesticides on Larval Central Nervous System Development in *Drosophila melanogaster*. Texas Academy of Science Annual Meeting. March 2014, Galveston TX

Pace S* and Goering LM. The role of *orthodenticle* in early embryonic patterning in *Drosophila simulans*. Texas Academy of Science Annual Meeting. March 2014, Galveston TX.

Youngblood L* and Goering LM. The effects of genetic background on the expressivity of EGFR pathway mutations affecting *Drosophila melanogaster* eggshell patterning. Annual Biomedical Research Conference for Minority Students. November 2013, Nashville ,TN.

Hossaini R* and Goering LM. Effects of Nutritional Stress on Early Development and

Patterning of *Drosophila melanogaster*. Texas Academy of Science Annual Meeting. March 2013, Kerrville, TX.

Baynham PJ and Goering LM. Undergraduate Research Experiences in Microbiology and Developmental Entomology. USDA Hispanic Serving Institutions Education Grant Project Director's Meeting. June 2012, Edinburg, TX.

Perez, M* and Goering LM. Effects of ethanol on CNS development and anterior-posterior axis patterning in *Drosophila melanogaster*. Texas Academy of Sciences, annual meeting. March, 2012. Alpine, TX.

Henegar T* and Goering LM. The effects of glutaraldehyde on the development of the CNS in *Drosophila melanogaster.* Annual Biomedical Research Conference for Minority Students. November 2011, St. Louis MO.

Rozacky J* and Goering LM. The effects of maternal age on the spacing of dorsal respiratory appendages in *Drosophila melanogaster.* Society for Developmental Biology Southwest Regional Meeting. October 2010, Austin, TX.

Mahmoud N*, Venegas A*, and Lisa M. Goering. Investigating Regulatory Polymorphisms for Anterior-Posterior Patterning in *Drosophila melanogaster.* Society for Developmental Biology Southwest Regional Meeting, October 2010, Austin, TX.

Pulido I* and Goering LM. Effect of Dichlorvos on Leg Development in *Drosophila melanogaster*. Society for Developmental Biology Southwest Regional Meeting. October 2010, Austin, TX.

Fairman K*, Jalali M*, Pavia-Jimenez A*, and Goering LM *cis*-regulatory variation contributes to between species differences in *orthodenticle* gene expression. Society for Developmental Biology Southwest Regional Meeting. October 2010, Austin, TX.

Rozacky J* and Goering LM. The Effects of Maternal Age on the Spacing of Dorsal Respiratory Appendages in *Drosophila melanogaster***.** Annual Biomedical Research Conference for Minority Students (ABRCMS). November 2010, Charlotte, NC.

Baynham PJ and Goering LM. Undergraduate Research Experiences in Microbiology and Developmental Entomology. North American Colleges & Teachers of Agriculture Annual Meeting. June 2010, State College, PA.

Goering LM, Hunt PK, Heighington C, Gibson G. Variety is the spice of life! Investigating the genetic basis of phenotypic change. University of Utah, Genetics Training Grant lecture series, March 2008.

Goering LM, Hunt PK, Heighington C, Gibson G. Are cis-regulatory mutations a major

contributor to phenotypic change? Texas Academy of Sciences, annual meeting. March 6-8, 2008. Corpus Christi, TX.

Goering LM and Gibson, G. Cis-regulatory variation and the evolution of eggshell patterning in *Drosophila melanogaster*. Evolution 2005, annual meeting. June 10-14, 2005. Fairbanks, Alaska.

Goering LM and Gibson, G. Investigating the genetic basis of phenotypic variation for *Drosophila* eggshell patterning. XXII International Congress of Entomology. August 15-21, 2004.

Goering LM, Hoshijima, K., Grunwald, DJ. A T-box Code Specifies Regional Identities in the Mesoderm. Zebrafish Development and Genetics Meeting. June 12-16, 2002.

Goering LM, Hoshijima, K, Metherall, J, Grunwald, DJ. T-box Genes Act Combinatorially to Control Downstream Gene Expression and Cell Fate: II. Interactions Between *no tail* and *spadetail*. West Coast Regional Zebrafish Meeting. July 22-23, 2001.

*Undergraduate co-authors
Presenting author is underlined