

## CURRICULUM VITAE

**BETH E. LEUCK**

**Professor of Biology and Whited-Douglas Chair of Neurobiology**

### **Address:**

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### **Education:**

B.S. in Zoology, *magna cum laude*, Michigan State University, 1973  
M.S. in Zoology, University of Oklahoma, 1975  
Ph.D. in Zoology, University of Oklahoma, 1980

### **Professional Experience:**

2007-present	Whited-Douglas Chair of Neurobiology, Centenary College of LA
1992-2007	Professor of Biology, Centenary College of LA
1986-1992	Associate Professor of Biology, Centenary College of LA
1980-1986	Assistant Professor of Biology, Centenary College of LA
1993-present	Graduate Faculty Member (Adjunct Professor), Central Michigan University

### **Awards and Honors**

Phi Beta Kappa, 1973  
Sigma Xi Advanced Student Award, 1980  
Jasper P. Baldwin Award for Outstanding Undergraduate Teaching-Advising, 1980  
Ortenberger Award for Outstanding Graduate Student, 1980  
Centenary College Outstanding Teaching Award, 2003

### **Membership in Professional Organizations**

Phi Beta Kappa  
Southwestern Association of Naturalists  
National Center for Science Education

### **Grant Proposals**

Computer-Assisted Data Acquisition in Physiology Laboratories of Three Undergraduate Biology Courses, National Science Foundation Undergraduate Instrumentation and Laboratory Improvement Grant, 1989 (funded).

Software and Thinkware: Generating Analytical Skills in Biology Laboratories Through Computer-Assisted Data Acquisition and Small Group Interactions, National Science Foundation Undergraduate Instrumentation and Laboratory Improvement Grant, 1994 (funded).

Promoting Active Learning in the Biological Sciences: Instrumental Enhancement of Discovery-Based Learning and Student Research Among Undergraduates, Louisiana Education Quality Support Fund, 1996 (not funded).

Jump-starting an Environmental Science Program: Long-term Environmental Monitoring and Vegetative and Soil Analyses as Vehicles for Discovery-based Learning, Board of Regents Support Fund, 1998

(funded).

Using Microcomputer-Based Laboratories and Guided-Inquiry to Revitalize an Introductory Biology Course, Board of Regents Support Fund, 1999 (funded).

Implementing Field Laboratories in a New Environmental Biology Curriculum, Board of Regents Support Fund, 2000 (funded).

Using Digital Microscopes to Strengthen a Studio-Format Introductory Biology Course, Board of Regents Support Fund, 2002 (not funded, but was listed as “to be funded if funds become available”).

Using Digital Microscopes to Strengthen Premedical and Pre-Allied Health Education in Selected Biology Courses, Board of Regents Support Fund, 2003 (not funded, but was listed as “to be funded if funds become available”).

Focus on Biology: Using Digital Microscopes to Enhance Knowledge, Critical Thinking, and Teamwork in Biology Courses, Board of Regents Support Fund, 2005 (funded).

Population Monitoring and Diet Evaluation of Double-crested Cormorants Breeding in the Beaver Archipelago, Michigan, 2006. Student/Faculty Summer Research Support Program (funded).

Summer Stipend for Faculty Research, Centenary College, 1981-1982, 1989-2005, 2007 (internal institutional grants; all proposals funded).

Teaching Environmental Physiology Through Doing Individual Research Projects on the Effects of Anthropogenic Chemicals, Board of Regents Support Fund, 2010 (funded).

## **Publications**

Snelling, J.C. and B.E. Leuck. 1976. Predatory behavior of Aplomado Falcons in captivity. *Aviculture Magazine* 82: 169-171.

Leuck, B.E. 1977. Differential use of space by eight species of birds in a free-flight zoological park aviary. *Applied Animal Ethology* 3: 105-126.

Owen, R.D. and B.E. Leuck. 1978. Verdin nest in Harmon County, Oklahoma. *Bulletin of the Oklahoma Ornithological Society* 11: 23-24.

Leuck, B.E., E.E. Leuck II and R.T.B. Sherwood. 1981. A new population of New Mexico whiptail lizards (*Cnemidophorus neomexicanus*: Teiidae). *Southwestern Naturalist* 26: 72-74.

Leuck, B.E. and C.C. Carpenter. 1981. Shell variation in a population of three-toed box turtles (*Terrapene carolina triunguis*). *Journal of Herpetology* 15: 53-58.

Leuck, B.E. 1982. Comparative burrow use and activity patterns of parthenogenetic and bisexual whiptail lizards (*Cnemidophorus*: Teiidae). *Copeia* 1982: 416-426.

Leuck, B.E. 1985. Comparative social behavior of bisexual and unisexual whiptail lizards (*Cnemidophorus*). *Journal of Herpetology* 19: 492-506.

- Leuck B.E., K. Hughes and H.Y. Cheng. 1990. Social behavior of the nocturnal gecko *Sphaerodactylus clenchi*. *Journal of Herpetology* 33: 467-469.
- Leuck, B.E. 1993. The effect of genetic relatedness on the social behavior of the parthenogenetic whiptail lizard *Cnemidophorus tesselatus*. *Biology of Whiptail Lizards*, J.W. Wright and L.J. Vitt (eds.). Oklahoma Museum of Natural History Publications, pp. 291-318.
- Leuck, B.E. 1995. Territorial defense by male Carolina anoles (*Anolis carolinensis*): an experimental test of the roles of residency and resource quality. *Herpetological Monographs* 9: 63-74.
- Leuck, B.E. 1998. Letter in support conserving the specific name *Cnemidophorus neomexicanus* Lowe & Zweifel, 1952. *Bulletin of Zoological Nomenclature* 55: 43.
- Leuck, B.E. 2002. The function of cloacal rubbing in whiptail lizards (*Cnemidophorus*: Teiidae): testing alternative hypotheses. *Herpetological Natural History* 9: 31-38.
- Leuck, B.E. 2005. Behavior of the dung fly *Sepsis punctum* (Diptera: Sepsidae) on a permanent dung source. *Great Lakes Entomologist* 37: 92-101.
- Seefelt, N.E. and B. E. Leuck. 2008. Abandonment of cormorant and gull breeding colonies due to the presence of a mammalian predator. Submitted to *Michigan Birds* (journal).
- Leuck, B.E. and G.Q. Butcher. 2010. The Effect of Viewing NOVA's *Judgment Day: Intelligent Design on Trial* Docudrama on College Students' Perceptions of Intelligent Design and Evolution. *Reports of the National Center for Science Education* 30 (1): 29-33.

#### **Presentations at Professional Meetings**

- Leuck, B.E. 1976. Differential use of space by eight species of birds in a free-flight zoological park aviary. *Animal Behavior Society*.
- Leuck, B.E. 1978. Non-adaptive tail autotomy in lizards. *Southwestern Association of Naturalists*.
- Leuck, B.E. 1978. Shell variation in a population of three-toed box turtles (*Terrapene carolina triunguis*). *Joint Meeting of the Three American Herpetological Associations*.
- Leuck, B.E. 1979. Cloacal rubbing in *Cnemidophorus sexlineatus*: A critical analysis. *Southwestern Association of Naturalists*.
- Leuck, B.E. 1979. Aggressive interactions in parthenogenetic and bisexual species of whiptail lizards (*Cnemidophorus*: Teiidae). *Oklahoma Academy of Sciences*.
- Leuck, B.E. 1980. Dominance hierarchy formation in parthenogenetic and bisexual species of whiptail lizards (*Cnemidophorus*: Teiidae). *Southwestern Association of Naturalists*. (Voted runner-up for best student paper)
- Hughes, K. and Leuck, B.E. 1986. Display behavior of the nocturnal gecko *Sphaerodactylus clenchi*. *Louisiana Academy of Sciences*.
- McCray, J. and Leuck, B.E. 1988. Effect of prenatal and neonatal flavor exposure on taste preferences in

mice. Louisiana Academy of Sciences.

- Leuck, B.E. 1990. Monarch butterfly egg and caterpillar survivorship in five habitats on Beaver Island, MI. Southwestern Association of Naturalists.
- Dayton, T. and Leuck, B.E. 1997. Long-term and short-term mating strategies by females in a singles bar in Bossier City, LA. Louisiana Academy of Sciences.
- Leuck, B.E. 1997. Using computer simulations to enhance discovery-based learning. Louisiana Academy of Sciences.
- Leuck, B.E. 1997. The use of LOGAL probes and software in physiology laboratories. Louisiana Academy of Sciences.
- Dayton, C. and Leuck, B.E. 1997. Behavior of female cicada killers (*Sphecius speciosus*) during the mating season. Southwestern Association of Naturalists.
- Leuck, E.E. and Leuck, B.E. 1997. Five-year plant succession at an abandoned beaver dam pond on Beaver Island, MI. Southwestern Association of Naturalists.
- Leuck, B.E. 1998. Evidence for lek behavior in the dung fly *Sepsis punctum*. Southwestern Association of Naturalists.
- Leuck, B.E. 2000. Predation of monarch butterfly larvae (*Daneus plexippus*) by antlion larvae (*Myrmeleon immaculatus*). Southwestern Association of Naturalists.
- Leuck, B.E. and Leuck, E.E. 2001. The use of studio format classes in an introductory biology course. Louisiana Academy of Sciences.
- Rasbery, Jeanne and B.E. Leuck. 2002. Effect of continuous noise on the metabolic rate and ion conductivity of *Rana pipiens*. Louisiana Academy of Sciences. (Presented by J. Rasbery)
- Gillingham, J.C., N. Seefelt, and B.E. Leuck. 2003. Dietary preferences of breeding Double-crested Cormorants (*Phalacrocorax auritus*) in Northern Lake Michigan. Southwestern Association of Naturalists. (Presented by B.E. Leuck)
- Leuck, B.E. and S.E. Chirhart. 2004. The use of studio-format classes in an introductory biology course. Associated Colleges of the South Workshop on Teaching Science for Nonmajors. Millsaps College, MS.

#### **Invited Symposium Papers**

- Leuck, B.E. 1984. Comparative social behavior of *Cnemidophorus*: The role of bisexuality, parthenogenesis and ploidy level. Joint Meeting of the Three Herpetologist Associations.
- Leuck, B.E. 1989. Comparative social behavior of two species of parthenogenetic whiptail lizards (genus *Cnemidophorus*). World Congress of Herpetology.

Leuck, B.E. 1993. Territorial defense by male Carolina anoles: An experimental test of the roles of residency and resource quality. Joint Meeting of the Three Herpetologist Associations.

Leuck, B.E. 2004. The use of studio-format classes in an introductory biology course. Associated Colleges of the South Symposium on Teaching Science for Nonmajors. Rollins College, FL.

### **Professional Reports**

Leuck, B.E. 2007, 2008, 2009. Analysis of plant community structure and composition in and near a double-crested cormorant colony in the Beaver Archipelago, northern Lake Michigan. U.S. Fish and Wildlife Service.

### **Directed Student Research Projects**

Hill, Kristi. 1984. Heat output of college-age women. Poster at the Louisiana Association of Health, Physical Education and Dance.

Hughes, Kent. 1986. Display behavior of the nocturnal gecko *Sphaerodactylus clenchi*. Oral presentation at the Louisiana Academy of Sciences.

McCray, Jennifer. 1988. Effect of prenatal and neonatal flavor exposure on taste preferences in mice. Oral presentation at the Louisiana Academy of Sciences.

Pagano, James. 1995. Racial differences in mate-seeking behavior as expressed in personal advertisements in newspapers. Oral presentation at the Centenary College Research Forum.

Dayton, Catherine. 1997. Behavioral changes in cicada killer wasps (*Sphecius speciosus*) during the mating season. Oral presentation at the Centenary College Research Forum (awarded first place in sciences).

McConnell, Keegan. 1997. Exercising the abdominals: Out with the old and in with the new. Oral presentation at the Centenary College Research Forum (awarded first place overall).

Armstrong, Treva. 1997. The effects of body composition on heart activity in college-age females. Poster presented at the Centenary College Research Forum.

Dayton, Catherine. 1997. Observing the combined effects of ultraviolet radiation and water pollution on the salamander *Triturus viridescens*. Poster presented at the Centenary College Research Forum (awarded first place).

King, David. 1997. Changes in *Brachydanio rerio* metabolism due to exposure to aggressive fish. Poster presented at the Centenary College Research Forum.

Landry, Arie. 1997. The physiological effects of test anxiety in college freshmen vs. seniors. Poster presented at the Centenary College Research Forum.

Stanley, Callie. 1997. Metabolism of *Manduca sexta* on tomato plants grown in three soils. Poster presented at the Centenary College Research Forum.

Dayton, Tim. 1997. Long-term and short-term mating strategies by females in a singles bar in Bossier City,

- LA. Oral presentation at Louisiana Academy of Sciences.
- Dayton, Catherine. 1997. Behavior of female cicada killers (*Sphecius speciosus*) during the mating season. Oral presentation at Southwestern Association of Naturalists.
- Morgan, Matt. 1998. Perceived physical fitness in comparison to actual physical fitness in college students. Oral presentation at the Centenary College Research Forum (awarded first place in sciences).
- Armstrong, Treva. 1998. Do different recreational sports have an effect on the quadriceps femoris and brachioradialis muscles in female athletes? Oral presentation at the Centenary College Research Forum.
- Ruffin, Chad. 1999. Metabolic rate of *Triturus viridescens* as an indicator of water quality of various Caddo Parish water sources. Oral presentation at the Centenary College Research Forum (awarded first place in sciences).
- Strange, Micah. 1999. Testing the effects of endurance training on muscular function. Poster presented at the Centenary College Research Forum.
- Stanley, Jamie. 1999. The effect of obesity on heart rate, respiratory pressure, and temperature after exercise in companion dogs. Poster presented at the Centenary College Research Forum.
- Renschen, Holly. 1998. Display site choice by male dung flies (*Sepsis punctum*). Howard Hughes Medical Institute Summer Biomolecular Research Program student.
- Stodghill, Stephanie. 2000. Facial asymmetry and rape: An evolutionary explanation. Oral presentation at the Centenary College Research Forum (awarded third place in sciences).
- Baker, Ashlei. 2002. The effects of an intense movie clip and sex of the viewer on muscle fatigue. Poster presented at the Centenary College Research Forum.
- Fowler, Jason. 2002. A physiological comparison of the oxygen produced by *Elodea canadensis* and the oxygen consumed by *Gambusia affinis*. Oral presentation at the Centenary College Research Forum.
- Furr, Katie. 2002. The effect of heartworm pills on the metabolism of the American cockroach (*Periplaneta americana*). Poster presented at the Centenary College Research Forum (awarded second place).
- Landry, Brant. 2002. The effects of electrical stimulation vs. exercise on strength increase in the biceps brachii. Oral presentation at the Centenary College Research Forum.
- Mims, Laura. 2002. Oxygen consumption of *Pomacea maculata* and *P. bridgesi* in a 0.25% aqueous caffeine solution. Poster presented at the Centenary College Research Forum.
- Norwood, Jeremy. 2002. The effects of different brands of dog food on consumption rates, elimination rates, and resting metabolic rates of *Mus musculus*. Oral presentation at the Centenary College Research Forum.
- Rasbery, Jeanne. 2002. The effect of continuous noise on the metabolic rate and conductivity of *Rana pipiens*. Oral presentation at the Centenary College Research Forum.

- Reisig, Julie. 2002. Critical maximum temperatures for *Pholcus phalangioides* and *Phidippus mystaceus*. Oral presentation at the Centenary College Research Forum.
- Smith, Doug. 2002. The effect of phenylpropanolamine on the metabolic rate of *Mus musculus*. Oral presentation at the Centenary College Research Forum.
- Castleberry, Devon. 2004. The effects of an impoverished environment on metabolic rates of crawfish in relation to temperature. Poster presented at the Centenary College Research Forum (awarded first place).
- Hauser, C. Sean. 2004. Effects of environmental flow rate on the upper critical temperature of the mosquitofish *Gambusia affinis*. Poster presented at the Centenary College Research Forum (awarded second place).
- Levinski, Mindi. 2004. Enriched versus impoverished effects on oxygen consumption on indigenous dragonfly larvae. Poster presented at the Centenary College Research Forum.
- Mai, Andrew. 2004. Effects of enriched environments versus impoverished environments on alcohol preference in mice. Poster presented at the Centenary College Research Forum.
- Myers, Sarah. 2004. Effects of caffeine and environmental stress on oxygen consumption and behavior of laboratory mice (*Mus musculus*). Poster presented at the Centenary College Research Forum.
- Szot, Jeff. 2004. Metabolic differences of male green anoles (*Anolis carolinensis*) in enriched and impoverished environments. Oral presentation at the Centenary College Research Forum.
- Ward, Jaymi. 2004. Effect of environment on the CO<sub>2</sub> output of *Bufo woodhousii* when exposed to a simulated predator. Oral presentation at the Centenary College Research Forum (awarded third place).
- Hauser, Sean. 2005. Effects of environmental flow rate on the lower critical temperature of the mosquitofish *Gambusia affinis*. Poster presented at the Centenary College Research Forum (awarded second place).
- O'Brien, Rebecca. 2006. The effect of agricultural pesticides on native and farm-reared earthworms. Oral presentation at the Centenary College Research Forum.
- O'Brien, Rebecca. 2006. The effect of paraquat poisoning on the green anole (*Anolis carolinensis*). Oral presentation at the Centenary College Research Forum.
- Requena, Lisa Yi. 2006. The short-term effects of carbaryl on adult Woodhouse's toads (*Bufo woodhousii*). Poster presented at the Centenary College Research Forum.
- Rome, Courtney. 2006. The effects of a sugarcane pesticide cocktail on the metabolism of *Lumbricus terrestris*. Oral presentation at the Centenary College Research Forum (awarded first place).
- Thompson, Beth. 2006. Increases in extracellular calcium concentration lead to increased metabolic rate in *Xenopus laevis* larvae. Poster presented at the Centenary College Research Forum (awarded first place).

- Arceneaux, Adam. 2008. Aggressive behaviors in *Anas platyrhynchos* (mallard duck), *Anas domesticus* x *Anas platyrhynchos* (hybrid duck), and *Anas domesticus* (Pekin duck). Oral presentation at the Centenary College Research Forum.
- Holley, Kim. 2008. Acute toxicity of different concentrations of Roundup® to mosquitofish (*Gambusia affinis*) in the presence and absence of giant salvinia (*Salvinia molesta*). Poster presented at the Centenary College Research Forum.
- Hunt, Kelly. 2008. The effects of carbaryl on metabolism in juvenile mice. Poster presented at the Centenary College Research Forum.
- Rhodes, Courtney. 2008. Metabolic and developmental effects of *Bacillus thuringiensis* on painted lady butterfly larvae (*Vanessa cardui*). Oral presentation at the Centenary College Research Forum.
- Robinson, Elizabeth M. 2008. The effects of Imidacloprid on the morphology of *Artemia salina* (brine shrimp) and its bioaccumulations effect upon a predator *Palaemonectes vulgaris* (marsh grass shrimp). Poster presented at the Centenary College Research Forum (awarded second place).
- Trottier, Jordan. 2008. Small scale biospherics: A test phase. Oral presentation at the Centenary College Research Forum.
- Antee, Daniel. 2009. Relationship between color of flowers in the field and feeder color preference by *Apis mellifera*. Oral presentation at the Centenary College Research Forum (awarded third place).
- Trottier, Jordan. 2009. Small scale biospherics: A 50-day trial. Oral presentation at the Centenary College Research Forum.

### **Research in progress**

- Annual size fluctuations in an island population of monarch butterflies (*Daneus plexippus*).
- Population structure and diet of double-crested cormorants in northern Lake Michigan.
- Population monitoring of colonially nesting waterbirds in northern Lake Michigan.
- Analysis of plant communities associated with double-crested cormorant colonies in the Beaver Archipelago, Lake Michigan.
- Secondary plant succession in an abandoned beaver pond on Beaver Island, MI.
- Ecological factors affecting the occurrence and growth of the endangered cactus species *Peniocereus greggii* in a desert scrub community.
- Student satisfaction with an introductory biology studio-format class.
- Perception of evolution and evolutionary theory by students enrolled in an introductory biology class.

## Courses Taught

<u>Lower-level undergraduate</u>	<u>Upper-level undergraduate</u>	<u>Graduate</u>
Principles of Biology	Human Anatomy & Physiology	Behavioral Ecology
Principles & Methods of Biology	Animal Behavior	Field Techniques in Biology
General Zoology	Animal Physiology	Biodiversity
Medical Terminology	General Ecology	Field Methods in Ethology
Physical Anthropology	Exercise Physiology	Animal Behavior
Structure & Function of Organisms	Vertebrate Biology	
	Invertebrate Biology	
	Field Zoology	

## Teaching accomplishments

I have converted two standard lecture-laboratory classes in the Department of Biology to studio-format classes. The department's two introductory classes, Principles and Methods of Biology (Biology 101) and Structure and Function of Organisms (Biology 202) are now taught so that students are in class 2¾ hours twice a week, and laboratories and lectures are done simultaneously. As the instructor in the course explains a concept, students perform guided-inquiry experiments or look at microscope slides or anatomical specimens that reinforce the concept. Class size is limited to 24 students, and work is performed in groups of four to encourage interaction among students and the instructor. This form of active learning of science has led to a high level of student satisfaction (94.8% of the students enrolled in Biology 101 have rated the course as "good" or "excellent") and a low drop rate (less than 4% for Biology 101 and less than 2% for Structure and Function of Organisms).