

Katherine Ruth Goodrich, Ph.D.

Associate Professor of Biology

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EDUCATIONAL BACKGROUND:

- 2008** **Ph.D. Plant Biology**, University of South Carolina, Columbia, SC
1998 **Bachelor of Arts**, Franklin Pierce University, Rindge, NH

PROFESSIONAL EXPERIENCE:

- 2015-present** **Associate Professor**, Widener University (PA)
2009—2015 **Assistant Professor**, Widener University (PA)
2008—2009 **Post-Doctoral Research Associate**, Muhlenberg College (PA)
2008 **Adjunct Professor**, Cedar Crest College (PA)
2002—2007 **Teaching Assistant & Research Assistant**, University of South Carolina

WIDENER COURSE OFFERINGS:

- *Biological Concepts I: Principles of Ecology and Evolution* Lecture (BIOL 161)
- *Biological Concepts I: Principles of Ecology and Evolution* Lab (BIOL 165)
- *Biological Concepts II: Plant and Animal Structure and Function* Lecture (BIOL 162)
- *General Botany* (BIOL 308)
- *Plant Physiology* (BIOL 311)
- *Plant-Animal Interactions* (BIOL 312)
- *Principles of Biological Systems* (BIOL 101)
- *Science, Sex and Ideology* (ASC 400)
- *Biological Perspectives on Human Identity* (GLS 588)

PUBLICATIONS:

*Student authors

†Published since coming to Widener

- 2017[†]** Goodrich, KR, A Jürgens. **Pollination systems involving floral mimicry of fruit: aspects of their ecology and evolution.** *New Phytologist*. *In Press*
- 2016[†]** Goodrich, KR, LA Ortiz* & DJ Coughlin. **Unusual twig “twistiness” in pawpaw (*Asimina triloba*) provides biomechanical protection for distal foliage in high winds.** *American Journal of Botany*. 103 (11): 1872-1879.
- 2016[†]** Mercer*, E, B Griffin*, J Steele*, KR Goodrich & C Bush. **Phylogenetic relationships of *Asimina* and *Deeringothamnus* (Annonaceae) based on morphology, floral scent chemistry, and ISSR data.** *Journal of the Torrey Botanical Society*. 143(1): 58-68.

- 2015[†] VanBramer SE & KR Goodrich. **Determination of plant volatiles using Solid Phase Microextraction GC-MS.** *Journal of Chemical Education.* 92(5): 916-919.
- 2012[†] Goodrich, KR. **Floral scent in Annonaceae.** *Botanical Journal of the Linnean Society.* 169: 262—279.
- 2009 Goodrich, KR & RA Raguso. **The odor component of floral display in *Asimina* and *Deeringothamnus* (Annonaceae).** *New Phytologist.* 183(2): 457-469
- 2007 Goodrich, KR. **Does your pawpaw smell flowery or fermented?** *Palmetto.* 24(4): 12—15.
- 2006 Goodrich, KR, ML Zjhra, CA Ley & RA Raguso. **When flowers smell fermented: the chemistry and ontogeny of yeasty floral scent in pawpaw (*Asimina triloba*: Annonaceae).** *International Journal of Plant Sciences.* 167(1): 33—46.

RESEARCH SEMINARS & PROFESSIONAL TALKS: (* student presenter)

- 2017 Goodrich KR. **Floral mimicry of fruit within Annonaceae.** International Botanical Congress XIX, Shenzhen, China. July 23-29, 2017.
- 2016 Goodrich KR. **The 'volatile' language of plants: From attraction to deterrence and back again.** Wageningen University invited speaker. Wageningen, Netherlands. 23 May 2016.
- 2015 Goodrich KR & RA Raguso. **Floral phenotypes of *Asimina triloba*, *Asimina parviflora*, and putative natural hybrids.** BOTANY 2015. Edmonton, Alberta, Canada. 24-30 July 2015.
- 2015 Butko* AK & KR Goodrich. **Cataloging local flora as a resource for undergraduate field labs and the local community.** BOTANY 2015. Edmonton, Alberta, Canada. 24-30 July 2015.
- 2015 Butko* AK & KR Goodrich. **Making a list and checking it twice: Generating a plant catalogue for the surrounding community is nice.** Lehigh Valley Ecology & Evolution Symposium. April, 2015.
- 2015 Goodrich KR. & DJ Coughlin. **Biomechanical properties of distal woody twigs in pawpaw (*Asimina triloba*).** Society for Integrative and Comparative Biology. West Palm Beach, FL. January 2015.
- 2014 Doran A*, DJ Coughlin & K.R. Goodrich. **Cross-sectional tissue composition in distal twigs of pawpaw, tulip tree, and hickory.** Widener Student Projects Day, April, 2014.
- 2013 Goodrich, KR. **Plant chemical communications and biomechanics.** Guest lecture for Widener SCI 188 *Introduction to Scientific Research.* September 26, 2013.
- 2013 Goodrich KR, LA Ortiz, DJ Coughlin. **Twisty twigs: Biomechanics of storm resistance in distal branches of pawpaw (*Asimina triloba*).** BOTANY 2013. New Orleans, LA. 27-31 July 2013.
- 2013 Mercer E, B Griffin*, J Steele, KR Goodrich, C Bush. **The phylogeny of *Asimina* and *Deeringothamnus*.** BOTANY 2013. New Orleans, LA. 27-31 July 2013.
- 2013 Fisher*, KE & KR Goodrich. **Multiple Food Choice Preference Tests Throughout the Lifespan of *Epimecis hortaria*.** Widener Student Projects Day. April 19th, 2013.
- 2012 Goodrich, KR. **Floral scents, color and architecture: a look at the floral phenotypes of Pawpaws (*Asimina*: Annonaceae).** Guest lecture at Temple University. September 25, 2012

- 2012 Mercer*, E, B Griffin, J Steele, KR Goodrich & C Bush. **The phylogeny of *Asimina* and *Deeringothamnus* (Annonaceae) using ISSR and morphological data.** BOTANY 2012. Columbus, OH. July 2012.
- 2012 Moir*, C, KE Fisher, MJ Colgan, LA Ortiz, KR Goodrich, JL Krumm. **You are what you eat: Larval success of *Epimecis hortaria* due to host plant diet.** Lehigh Valley Ecology & Evolution Symposium. April 14, 2012.
- 2011 Jones*, A, K Hy*, J Krumm & KR Goodrich. **Impact of host plant species on larval success of *Epimecis hortaria*.** Widener University Honors Week. March 2011.
- 2010 Goodrich, KR. **Floral scents, color, and architecture: A look at the floral phenotypes of Pawpaws.** Philadelphia Botanical Club. Philadelphia, PA. December 2010. (Invited speaker)
- 2010 Goodrich, KR & RA Raguso. **Patterns of floral phenotype in *Asimina* and *Deeringothamnus* (Annonaceae).** Widener Science Division Seminar Series. December 2010.
- 2010 Goodrich, KR & RA Raguso. **Patterns of floral phenotype in *Asimina* and *Deeringothamnus* (Annonaceae).** BOTANY 2010. Providence, RI. August 2010.
- 2009 Goodrich, KR. **Floral scents of the Annonaceae.** Annonaceae Workshop of the European Union Systematics Association Conference. Leiden, the Netherlands. August 2009. (Invited speaker)

POSTER PRESENTATIONS:

(* student author/presenter)

- 2016 Goodrich KR. **Chemical similarities between fermenting fruit and “fruity” floral aromas of some Annonaceae (Las similitudes químicas entre los aromas de frutas fermentadas y los aromas florales de algunas anonáceas).** 6° Congreso Internacional de Anonáceas. Nuevo Vallarta, Nayarit, Mexico. 19-23 October 2016.
- 2015 Mai KM*, KR Goodrich. **Floral scent diversity of three co-blooming species of milkweed.** Widener Summer Research Symposium. September 2015
- 2015 Staudt R*, J Roane*, KR Goodrich. **Plant volatile signals and tritrophic interactions with parasitoids.** Widener Summer Research Symposium. September 2015.
- 2014 Mele E*, G Scotto*, KR Goodrich. **Summer pollination networks at Taylor Arboretum.** Widener Summer Research Symposium. September 2014.
- 2013 Goodrich KR, RA Raguso. **Hybrid floral phenotypes in *Asimina*.** BOTANY 2013. New Orleans, LA. 27-31 July 2013.
- 2013 Ortiz* LA, DJ Coughlin, KR Goodrich. **Twisty twigs: Twig biomechanics of Pawpaw (*Asimina triloba*: Annonaceae).** Widener Student Projects Day. April 2013.
- 2013 Ortiz* LA, DJ Coughlin, KR Goodrich. **Twisty twigs: Twig biomechanics of Pawpaw (*Asimina triloba*: Annonaceae).** Society of Integrative and Comparative Biology. San Francisco, CA. January 2013.
- 2012 Fisher* KE, KR Goodrich. **Host plant preference of the tulip tree beauty moth (*Epimecis hortaria*).** Widener Arts & Sciences Summer Research Symposium. September, 2012.
- 2012 Colgan* MJ, KE Fisher*, CA Moir*, LA Ortiz*, KR Goodrich, JL Krumm. **Hungry, hungry caterpillars: Food preference in the tulip tree beauty moth.** Lehigh Valley Ecology & Evolution Symposium. April 14, 2012.

- 2011 Fisher* K, L Ortiz*, C Moir*, M Colgan*, K Hy*, J Krumm, K Goodrich. **Impact of host plant species on larval success of *Epimecis hortaria***. Widener Arts & Sciences Summer Research Symposium. September 2011.
- 2011 Moir* C, M Colgan*, L Ortiz*, K Fisher*, J Krumm, K Goodrich. **Impact of host plant species on food preference of *Epimecis hortaria***. Widener Arts & Sciences Summer Research Symposium. September 2011.
- 2011 Moir* C, K Fisher*, M Colgan*, L Ortiz*, KR Goodrich, J Krumm. **Host plant choice and larval success of *Epimecis hortaria***. Ecological Society of America annual conference. Austin, TX. August 2011.
- 2011 Jones* A, KE Fisher*, CA Moir*, KL Hy*, KR Goodrich & J Krumm. **Impact of host plant species on larval success of *Epimecis hortaria***. Mid-Atlantic Ecological Society of America regional conference. Montclair, NJ. April, 2011. **** 1st prize for undergraduate poster presentation.****
- 2011 Hy* K, A Jones*, C Moir*, K Fisher*, J Krumm & K Goodrich. **Impact of host plant species on larval success of *Epimecis hortaria***. Society of Integrative and Comparative Biology. Salt Lake City, UT. January 2011
- 2010 Hy* K, K Fisher*, C Moir*, A Jones*, J Krumm, KR Goodrich. **Impact of host plant species on larval success in *Epimecis hortaria***. Widener Arts & Sciences Summer Research Symposium. August 2010.
- 2010 Jones* A, C Moir*, K Hy*, K Fisher*, J Krumm, KR Goodrich. **Do floral spiders limit pollination rate in Pawpaw?** Widener Arts & Sciences Summer Research Symposium. August 2010.
- 2010 Tiedeken* EJ, KR Goodrich, C Ingersoll, RA Niesenbaum. **Volatile specificity as an inducible defense: An investigation of volatile chemistry as a form of “top down regulation” of herbivory in *Lindera benzoin***. Ecological Society of America annual conference. Pittsburgh, PA. August 2010.

FELLOWSHIPS AND GRANTS:

- 2016 **Widener Faculty Development Grant 2017-2018** “International collaborative work on Annonaceae” Grant funded part of travel costs to the XIX International Botanical Congress in Shenzhen, China. 22-30 July, 2017.
- 2016 **Netherlands Fellowship Programmes (funded by Dutch Ministry of Foreign Affairs)** “Fragrant flowers and perceptive pollinators – floral scent and the evolution of rain forest hyperdiversity” – Submitted October 10 2016 (€80,000.00). Not funded.
- 2016 **The Canopy Foundation (Stichting Het Kronendak) Dutch Funding Agency** “Floral scent and fruit mimicry in Annonaceae” – Submitted May 30 2016; **Not funded**. (€12,500.00)
- 2015 **Widener Provost Grant 2016-2017** “Ecological and evolutionary dynamics of hybridization between species of *Asimina*” Grant will fund spring field work (2017) at hybrid field sites in SC.
- 2015 **Widener Faculty Development Grant 2016-2017** “Chemical communication of plants” Grant funded supplies and equipment for GC/MS at Widener University
- 2014 **Widener Provost Grant 2015-2016** “Intraspecific variation across the geographic range of *Asimina triloba*” Grant supported travel and field work for Topeka, KS, Normal, IL, and Niles, MI.

- 2014 Widener Faculty Development Grant 2015-2016** “Molecular phylogenetic relationships within the genus *Asimina*” Grant supported sabbatical travel and collaborative work at Wageningen University, Netherlands
- 2013 Widener Provost Grant 2014-2015** “Floral Design and Pollination Ecology” Grant supported summer research student stipend & associated field supplies.
- 2013 Widener Faculty Development Grant 2014-2015** “Evolution and inheritance of floral traits in species and hybrid lines of pawpaw (*Asimina*)” Grant supported travel to SC and GA.
- 2012 Widener Faculty Development Grant 2013-2014** “Expression of floral traits in hybrid lines of pawpaw” Grant supported travel and equipment for field work in Berryville, VA in Spring, 2014.
- 2011 Widener Provost Grant 2012-2013** “Floral Phenotype Evolution in *Asimina* and *Deeringothamnus*” Grant supported my travel to Valdosta State University for collaborative work with Catherine Bush in her lab.
- 2011 Widener Faculty Development Grant 2012-2013** “Impact of Initial Host Plant Diet on Feeding Preferences of *Epimecis hortaria*” Grant towards summer research student stipend & associated field supplies.
- 2010 Widener Faculty Development Grant 2011-2012** “Impact of host plant choice on larval success of *Epimecis hortaria*” Collaborative grant w/ Janice Krumm, towards summer research student stipends & associated field supplies.
- 2010 Widener Provost Grant 2010-2011** “Phylogenetic Analysis of the Genus *Asimina* (Annonaceae)” Grant towards molecular phylogenetic work at Widener University.
- 2009 Widener Faculty Development Grant 2010-2011** “Reproductive Biology for Species of Annonaceae (Soursop Family)” Grant towards botanical research in Peru, Spring 2011.
- 2007 Taber Travel Fellowship** from Univ. of South Carolina, towards Gordon Conference registration and travel to Les Diablerets, Switzerland.

TEACHING EXPERIENCE:

Majors Courses – BIOLOGY

Biological Concepts I (BIOL 161): co-taught with Hemlata Mistry. Topics include micro- and macroevolution, ecological mechanisms of evolution, Hardy-Weinberg equilibrium, and broad ecological concepts. **Fall** 2015, 2016

Biological Concepts I Laboratory (BIOL 165): Laboratory course for majors, focusing on student-designed field projects emphasizing ecology and evolution in local ecosystems. **Fall** 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016 (**revised course design 2016**)

Biological Concepts II (BIOL 162; plant half): Lecture course for first-year majors. Topics (for plant half of the semester) include plant evolution, plant form and function, and plant ecology. **Spring** 2010, 2011, 2012, 2013, 2014, 2015

General Botany (BIOL 308): Upper division botany course for majors. Topics include plant evolution, some plant anatomy and physiology, and plant taxonomy. Lab includes observations of plant form and function, plant tissues, and plant identification. **Spring** 2010, 2012, 2014

Plant Physiology (BIOL 311): Upper division organismal elective course for majors. Topics include plant physiology and anatomy as it relates to physiological functions, from a cellular level, whole-plant level, and an ecological level. **Spring** 2011, 2013, 2015

Plant-Animal Interactions (BIOL 312; formerly BIOL 388): Upper division interorganismal elective course for majors. Topics focus primarily on angiosperms and insects, examining plant-pollinator relationships and plant-herbivore relationships. **Fall** 2010, 2012, 2014, 2015

Other Widener Courses

Biological Aspects of Human Identity (GLS 588): Master of Liberal Studies course. Examines biological aspects of “human identity” including evolution of body structure, evolution of the species *Homo sapiens*, and the impact of humans on the evolution of other organisms.

Science, Sex and Ideology (ASC 400): Senior Values Seminar, co-taught with Dr. Annalisa Castaldo. Examines the connection between objective science and subjective cultural/personal biases, particularly in the context of human biology and sex. **Fall** 2013

Principles of Biology I (BIOL 101): Lecture and laboratory course designed for non-majors, covering a broad spectrum of biological subjects. **Fall** 2009, 2010, 2011, 2012, 2013

Courses at other institutions

Ecology of Plant-Insect Interactions (BIO 480; Muhlenberg College): Seminar course for upper level students, addressing topics of pollination ecology (taught with Dr. Sprayberry) **Spring** 2009

Principles of Biology II Lab: (BIO 122L; Cedar Crest College) Course designed for majors covering a broad array of biological topics. **Spring** 2008.

Human Agenda Lab: (BIO 112L; Cedar Crest College) Course designed for non-majors, focusing on biological topics surrounding human anatomy and physiology. **Spring** 2008.

General Physiology Lab: (BIOL 460L; University of South Carolina) Course designed for majors. Topics include functional mechanisms of vertebrate organ systems. **Fall** 2006, **Spring** 2004, 2005, 2006, 2007.

Human Anatomy and Physiology Lab: (BIOL 244L; University of South Carolina) Course designed for nursing majors, covering topics of human anatomy and physiology. **Fall** 2003, 2004, 2005, **Spring** 2004, 2005.

Biological Principles II Lab: (BIOL 102L; University of South Carolina) Majors Biology laboratory for freshmen, covering a broad array of biological topics. **Fall** 2002, 2003, **Spring** 2003.

ACADEMIC SERVICE AT WIDENER:

University level GoTeam for Academic Rigor Strategic Goal for Strategic Plan Vision 2021
Faculty Council Academic Affairs Committee - A&S representative
Faculty Council Academic Affairs – Committee Chair
Faculty Council Executive Committee (as FCAAC chair)
University Council (formerly “Senior Leadership Team”) (as FCAAC chair)
Academic Review Board (as FCAAC chair)
Open Majors Committee (as FCAAC chair)
LGBT Faculty & Staff Network – Network Chair
LGBT Taskforce and Taskforce Steering Committee

	Institutional Animal Care and Usage Committee (IACUC) Pew Lecture Committee
College (A&S)	A&S Curriculum and Planning Committee (FCAAC representative) Gender & Women's Studies Committee (Science representative) GWS Women's History Month planning subcommittee
Science Division	Ad Hoc Science General Education Committee Science Division Safety Committee Science Course Evaluation Committee (Biology representative)
Biology Department	Treasurer for Biology Department Biology Core Curriculum Assessment Committee Search Committees 2010, 2011 (co-chair of 2011 search)

ACADEMIC SERVICE EXTERNAL TO WIDENER:

- **Session Chair** for panel on "Hybrids and Hybridization" at BOTANY 2015 international conference in Edmonton, Alberta, Canada (July 2015).
- **Session Chair** for panel on "Morphology and Performance" at the Society of Integrative and Comparative Biology national annual conference in West Palm Beach, FL (January 2015)
- **Reviewer** for 3 chapters of the textbook *Scientific American: Biology for a Changing World* through W.H. Freeman Publishing
- **Peer-reviewer** for the journals:
 - *Biotropica*
 - *Perspectives in Plant Ecology, Evolution and Systematics*
 - *Journal of Economic Entomology*
 - *Journal of the Torrey Botanical Society*
 - *Biology Letters*
 - *Frontiers in Plant Science*
 - *Plant Biology*
 - *Botanical Journal of the Linnean Society*
- **External reviewer** for candidate seeking tenure and promotion to Associate Professor at Saint Mary's College in Notre Dame, Indiana. Fall 2015
- **Outside committee member** and co-supervisor of Masters student Jeike van de Poel at Wageningen University, the Netherlands (defended October 2012)
- **Guest lecturer** for Philadelphia Botanical Club, December 16th, 2010, at the Academy of Natural Sciences.
- **Guest lecturer** for HORT 4896 (upper level horticulture course) at Temple University – Ambler campus (September 25, 2012)
- **Co-facilitated** (with Dave Coughlin, Bob Morris, and several Widener undergraduates) a field trip for 60 first graders to Heinz National Wildlife Refuge. Spring, 2010.

- **Co-facilitated** (with Janice Krumm) a “Girls in Science” presentation for girls in grades 4-8 as part of the “Girls in Science” Program at Chester Salvation Army Center. We spoke about the ecology of Heinz Wildlife Preserve and about our experience as female scientists. (November 1, 2010)
- Established a collaborative relationship with Delaware State Park employees for permitting and public outreach – shared field season results from Alapocas Run State Park pawpaw project for public tours (via Barbara Woodford, DNREC).
- Shared pollinator network results with Taylor Arboretum for public outreach (via Tom Kirk, Arboretum manager).

PROFESSIONAL MEMBERSHIPS:

- Botanical Society of America (BSA)
- American Society of Plant Taxonomists (ASPT)
- Philadelphia Botanical Club
- Ecological Society of America (ESA)
- Society for Integrative and Comparative Biology (SICB)