



VILLANOVA
UNIVERSITY

DR. VIKRAM K. IYENGAR
ASSOCIATE PROFESSOR OF BIOLOGY

EDUCATION

Ph.D., Neurobiology and Behavior, Cornell University, Ithaca, NY. 2001.

Emphasis on behavioral and chemical ecology. Thesis title: "Sexual selection and its consequences in an Arctiid moth (*Utetheisa ornatrix*)."

Advisor: Dr. Thomas Eisner.

B.A. with Honors, Human Biology, Stanford University, Stanford, CA. 1993.

Honors Thesis title: "Pollen and Nectar Feeding: Foraging Behavior and Life History Strategies in *Heliconius charitonius*." Advisor: Dr. Carol Boggs.

SCHOLARSHIPS AND HONORS

Nomination for Excellence in Teaching Award, Villanova University, 2013.

Nomination for Excellence in Teaching Award, Villanova University, 2012.

Whiteley Center Scholar, Friday Harbor Laboratories, 2008.

National Science Foundation Minority Predoctoral Fellowship, 1996-1999.

Outstanding Teaching Assistant, Introductory Biology, Cornell University, 1999.

Sigma Xi Grant-in-Aid of Research, 1998.

SUNY Minority Fellowship through Cornell University, 1994-1995.

PROFESSIONAL AND TEACHING EXPERIENCE

Associate Professor of Biology: Aug 2004 – present [tenured/promoted 2010]

Villanova University – Villanova, PA.

Research: Sexual selection and chemical ecology in moths, Pest management of the hemlock woolly adelgid, Reproductive behavior in amphipods

Teaching: Animal Behavior (with laboratory), Introduction to Ecology (with laboratory), Entomology (with laboratory), General Biology (for non-majors)

Assistant Professor of Biology: Aug 2002 – Aug 2004

The College of Wooster – Wooster, OH.

Courses: Invertebrate Zoology, Ethology, Introduction to the Biology of Organisms (diversity and physiology), Introduction to the Biology of Populations (ecology and evolution)

Postdoctoral Fellow/Lecture Teaching Associate: Aug 2001 – Aug 2002

Cornell University – Ithaca, NY.

Research: Empirical tests of sexual selection models by quantifying the strength, heritability, and sex-linkage of female mating preferences in a moth.

Teaching: Wrote exams, delivered lectures, coordinated review sessions, and performed other administrative duties for Introductory Biology.

Cahill Distinguished Lecturer: June 2000

Hotchkiss Preparatory School – Lakeville, CT. Delivered a series of biology lectures and ran multiple laboratories/field trips over the course of a week.

Head Teaching Assistant, Introduction to Behavior: Aug 1999 – Dec 1999

Cornell University – Ithaca, NY. Wrote exams, delivered lectures, developed lesson plans for recitation sections, supervised other teaching assistants, and performed other administrative duties.

Teaching Assistant, Introductory Biology: Aug 1998 – May 1999
Cornell University – Ithaca, NY. Taught two 3-hour labs each week.

ADVISING AND MENTORING

Undergraduate Students at Villanova: Academic Advising (16),
Research Mentoring: Primary Advisor (2)
* Other institutions: College of Wooster (8), University of Washington (2)
Graduate Students at Villanova: Advisor (2); On Committee (7); Completed (16)

FUNDING

Villanova University Summer Research Fellowship & Support (2014),
summer stipend and research funds, \$12,500
Villanova University Summer Research Fellowship & Support (2011),
summer stipend and research funds, \$12,500
NSF Research Initiation Grant for Broadening Participation in the Sciences
(2007), “RIG: Chemical Ecology to Study Differential Reproduction.”
NSF Grant # 0720018. Two years of support, \$146,007.
Villanova University Summer Research Fellowship (2007),
summer stipend, \$9000
U.S. Department of Agriculture, U.S. Forest Service (2005-2007),
collaborator with Dr. Anthony Lagalante, \$75,000
Villanova University Research Support Grant (2005), summer research, \$2500
College of Wooster Faculty Development Fund (2004), research, \$3000

PUBLICATIONS

1. **Iyengar, V.K.**, Castle, T. & Mullen, S.P. (2014) Sympatric sexual signal divergence among *Calopteryx* damselflies is correlated with increased intra- and interspecific male-male aggression. *Behavioral Ecology and Sociobiology* 68(2): 275-282.
2. Conner, W.E. & **Iyengar, V.K.** (expected 2014) Male Pheromones and Courtship. In Allison, J.D. and Cardé, R.T. (eds.), *Pheromone Communication in Moths: Evolution, Behavior and Application*, University of California Press, CA.
3. Kelly, C.A., Norbutus, A., Lagalante, A.F. & **Iyengar, V.K.** (2012) Male courtship pheromones indicate genetic quality in an arctiid moth (*Utetheisa ornatrix*). *Behavioral Ecology* 23(5): 1009-1014.
4. **Iyengar, V.K.** & Reeve, H.K. (2010) Z-linkage of female promiscuity genes in the moth *Utetheisa ornatrix*: support for the sexy sperm hypothesis? *Evolution* 64(5): 1267-1272.
5. **Iyengar, V.K.** (2009) Experience counts: females favor multiply-mated males over chemically-endowed virgins in a moth (*Utetheisa ornatrix*). *Behavioral Ecology and Sociobiology* 63(6): 847-855.
6. **Iyengar, V.K.** & Starks, B.D. (2008) Sexual selection in harems: male competition plays a larger role than female choice in an amphipod. *Behavioral Ecology* 19(3), 642-649.
7. Bezzerides, A.L., **Iyengar, V.K.** & Eisner, T. (2008) Female promiscuity does not lead to increased fertility or fecundity in an arctiid moth (*Utetheisa ornatrix*). *Journal of Insect Behavior* 21(4): 213-221.

8. Bezzerides, A.L., **Iyengar, V.K.** & Eisner, T. (2005) Corematal function in *Utetheisa ornatrix*: interpretation in light of data from field-collected males. *Chemoecology* 15(3), 187-192.
9. **Iyengar, V.K.** & Eisner, T. (2004) Male indifference to female traits in an arctiid moth (*Utetheisa ornatrix*). *Ecological Entomology* 29(3), 281-284.
10. **Iyengar, V.K.**, Reeve, H. K. & Eisner, T. (2002) Paternal inheritance of a female moth's mating preference. *Nature* 419(6909), 830-832.
11. Eisner, T., Rossini, C., González, A., **Iyengar, V.K.**, Seigler, M.V.S. & Smedley, S.R. (2002) Paternal Investment in Egg Defense. In Hilker, M. and Meiners, T. (eds.), *Chemoecology of Insect Eggs and Egg Deposition*, Blackwell Verlag, Berlin, pp. 91-116.
12. **Iyengar, V.K.** & Eisner, T. (2002) Parental body mass as a determinant of egg size and egg output in an arctiid moth (*Utetheisa ornatrix*). *Journal of Insect Behavior* 15(3), 309-318.
13. **Iyengar, V.K.**, Rossini, C. & Eisner, T. (2001) Precopulatory assessment of male quality in an arctiid moth (*Utetheisa ornatrix*): hydroxydanaidal is the only criterion of choice. *Behavioral Ecology and Sociobiology* 49(4), 283-288.
14. Rossini, C., Hoebeke, E.R., **Iyengar, V.K.**, Conner, W.E., Eisner, M. & Eisner, T. (2000) Alkaloid content of the pupal parasitoids of an alkaloid-sequestering arctiid moth (*Utetheisa ornatrix*). *Entomological News* 111(4), 287-290.
15. Eisner, T., Eisner, M., Rossini, C., **Iyengar, V.K.**, Roach, B.L., Benedikt, E. & Meinwald, J. (2000) Chemical defense against predation in an insect egg. *Proceedings of the National Academy of Sciences, USA* 97(4), 1634-1639.
16. **Iyengar, V.K.** & Eisner, T. (1999) Female choice increases offspring fitness in an arctiid moth (*Utetheisa ornatrix*). *Proceedings of the National Academy of Sciences, USA* 96(26), 15013-15016.
17. **Iyengar, V.K.** & Eisner, T. (1999) Heritability of body mass, a sexually selected trait, in an arctiid moth (*Utetheisa ornatrix*). *Proceedings of the National Academy of Sciences, USA* 96(16), 9169-9171.
18. **Iyengar, V.K.**, Rossini, C., Hoebeke, E.R., Conner, W.E. & Eisner, T. (1999) First record of the parasitoid *Archytas aterrimus* (Diptera: Tachinidae) from *Utetheisa ornatrix* (Lepidoptera: Arctiidae). *Entomological News* 110(3), 144-146.
19. Meinwald, J., Huang, Q., Vrkoc, J., Herath, K.B., Yang, Z., Schroeder, F., Attygalle, A.B., **Iyengar, V.K.**, Morgan, R. C. & Eisner, T. (1998) Mirasorvone: A masked 20-ketopregnane from the defensive secretion of a diving beetle (*Thermonectus marmoratus*). *Proceedings of the National*

**SELECT
PRESENTATIONS**

Walsh, J.T. & **Iyengar, V.K.**, “Effects of size, sex and kinship on high-stakes caterpillar contests in the rattlebox moth.” Talk at the 51st Annual Meeting of the Animal Behavior Society (ABS) in Princeton, NJ, August 9-14, 2014.

Walsh, J.T. & **Iyengar, V.K.**, “Win, lose or draw: Effects of size, sex and kinship on high-stakes caterpillar contests in the rattlebox moth.” Talk at the Lehigh Valley Evolution and Ecology Symposium (LVEES) at Cedar Crest College, PA, March 29, 2014. First Prize, Best Graduate Student Talk.

Egan, A.L. & **Iyengar, V.K.**, “Siring success of sons based on their mother’s mating history: A test of the sexy-sperm hypothesis in the rattlebox moth.” Talk at the Lehigh Valley Evolution and Ecology Symposium (LVEES) at Cedar Crest College, PA, March 29, 2014. Second Prize, Best Graduate Student Talk.

Hack, N. & **Iyengar, V.K.**, “Big wigs and small wigs: the roles of size, sex and shelter in spatial distribution patterns in the maritime earwig *Anisolabis maritima*.” Poster presented at the Annual Meeting of the Society for Integrative and Comparative Biology (SICB) in Austin, TX, January 3-8, 2014.

Shapiro, D. **Iyengar, V.K.** & Summers, A.P. “Goldilocks and the three shells: when the home is just right for the hermit crab *Pagurus granosimanus*.” Poster presented at the Annual Meeting of the Society for Integrative and Comparative Biology (SICB) in Austin, TX, January 3-8, 2014.

Iyengar, V.K., Castle, T. & Mullen, S.P. “Sexual signal divergence among *Calopteryx* damselflies correlated with increased male-male aggression.” Talk at the 50th Annual Meeting of the Animal Behavior Society (ABS) in Boulder, CO, July 28 - August 1, 2013.

Iyengar, V.K., “Sexual selection among the spineless: tales of courtship, warfare, and promiscuity in two arthropods.” Invited talk at Muhlenberg College, Allentown, PA, September 10, 2012.

Iyengar, V.K., “Finicky females and macho males: the science of sexual selection.” Invited talk by Pennsylvania Science Teachers Association (PSTA) at their annual banquet in Hershey, PA, December 1, 2011.

Iyengar, V.K., “Sexual selection among the spineless: tales of courtship, warfare, and promiscuity in two arthropods.” Invited talk by Biology graduate students at the University of Pennsylvania, PA, October 28, 2011.

Iyengar, V.K., “Finicky females and macho males: sexual selection in two arthropods.” Invited talk at Adelphi University, NY, April 8, 2011.

Kelly, C.A., Norbutus, A., Lagalante, A.F. & **Iyengar, V.K.** “Male courtship pheromones indicate genetic quality in an arctiid moth.” Talk at the 47th

Annual Meeting of the Animal Behavior Society (ABS) in Williamsburg, VA, July 25-29, 2010.

Iyengar, V.K., “Finicky females and macho males: sexual selection in two arthropods.” Invited talk at University of Scranton, PA, April 16, 2009

Iyengar, V.K. & Reeve, H.K. “Z-linkage of female promiscuity genes in the moth *Utetheisa ornatrix*: support for the sexy sperm hypothesis.” Talk at the International Society for Behavioral Ecology (ISBE) Meeting in Ithaca, NY, August 9-15, 2008.

Iosue, F.V., **Iyengar, V.K.** & Lagalante, A.F. “The role of phytochemicals and leaf cushion morphology in host resistance to the hemlock woolly adelgid (*Adelges tsugae*).” Talk at the Lehigh Valley Evolution and Ecology Symposium (LVEES) at DeSales University, PA, April 14, 2007.

Iyengar, V.K. & Starks, B.D. “Male competition, female choice and differential spatial distribution among mixed-sex and single-sex groups in an amphipod (*Megalorchestia californiana*).” Poster at the International Society for Behavioral Ecology (ISBE) Meeting in Tours, France, July 23-29, 2006.

Calvosa, F., Mirzabergi, M., Lagalante, A.F., **Iyengar, V.K.**, Montgomery, M. & Shields, K. “Multivariate Statistical Analysis of Hemlock (*Tsuga*) Volatiles by SPME/GC/MS: Insights into the Phytochemistry of the Hemlock Woolly Adelgid (*Adelges tsugae* Annand).” Poster at the USDA Interagency Research Forum on Gypsy Moth and Other Invasive Species in Annapolis, MD, January 10-13, 2006.

Iyengar, V.K., “Bigger is better: sexual selection and its consequences in an arctiid moth (*Utetheisa ornatrix*).” Invited talk at Lehigh University in Bethlehem, PA, March 10, 2005.

Iyengar, V.K. “Male indifference to female traits in an arctiid moth.” Poster at the Society for Integrative and Comparative Biology (SICB) Meeting in New Orleans, LA, January 5-9, 2004.

Iyengar, V.K., “Communicating through chemistry: tales of love and war among insects.” Invited talk as part of the Faculty-at-Large seminar series at The College of Wooster in Wooster, OH in May 2003.

Iyengar, V.K. & Eisner, T. “Paternal inheritance of female mating preferences in an arctiid moth: evidence of sexual selection shaped by genetic architecture.” Talk at the International Society for Behavioral Ecology (ISBE) Meeting in Montreal, Canada, July 7-12, 2002.

Iyengar, V.K. & Eisner, T. “Direct, Fisherian and “good genes” benefits from female choice in an arctiid moth (*Utetheisa ornatrix*)” presented at the Animal Behavior Society (ABS) Meeting at Bucknell University, Lewisburg, PA, June 26-30, 1999.

Iyengar, V.K. & Eisner, T. “Heritability and sexual selection via female choice

in an arctiid moth (*Utetheisa ornatrix*).” Talk at the Society for the Study of Evolution (SSE) Meeting in Vancouver, Canada, June 20-24, 1998.

**PROFESSIONAL
SERVICE
ACTIVITIES**

Mellon Director - Blinks/BEACON/REU Undergraduate Research Program, Friday Harbor Laboratories, Summer 2013 and Summer 2014.

Served as faculty leader for a summer REU program designed to provide research experience for undergraduates in under-represented groups in biology. Also mentored an undergraduate from University of California Santa Cruz in a project regarding sexual selection in maritime earwigs.

NSF Animal Behavior Panel: April 14-16, 2014.

Served on a panel with 18 biologists to review Animal Behavior grants for the National Science Foundation in Washington, D.C.

External reviewer of tenure application, Hampshire College: August 2013

Invited as an expert in evolutionary biology to review tenure and promotion application of biologist at Hampshire College in Amherst, MA.

External reviewer of tenure application, San Francisco State Univ: Aug 2013

Invited as an expert in behavioral ecology to review tenure and promotion application of biologist at San Francisco State University in California.

Honors examiner of senior thesis student, Swarthmore College: May 2012

Invited as an external committee member for an undergraduate for whom I wrote a comprehensive written exam and conducted an oral exam in the field of behavioral ecology. Swarthmore, PA.

Judge/Speaker at North Museum Science & Engineering Fair: Mar 28, 2012

Invited by curator to judge high school science projects and give talks to both high school students and the general public in Lancaster, PA.

NSF Animal Behavior DDIG Panel: February 22-24, 2012

Served on a panel with 15 biologists to review Dissertation Improvement grants written by Ph.D. candidates in the field of Animal Behavior for the National Science Foundation in Washington, D.C.

External reviewer of tenure application, Bard College: September 2011

Invited as an expert in invertebrate biology to review tenure and promotion application of biologist at Bard College in Annandale, NY.

Graduate Research Grant Committee for ABS: February 2011

Invited to review over 20 proposals for graduate research fellowships offered by the Animal Behavior Society.

Regional Educators Teaching Conference: June 4, 2009

Participant/contributor in a workshop at Swarthmore College where professors from local colleges that teach animal behavior exchanged ideas regarding material and effective teaching strategies.

NSF Animal Behavior Panel: October 2-5, 2007

Served on a panel with 18 biologists to review Animal Behavior grants for the

National Science Foundation in Washington, D.C.

Manuscript Reviewing: Aug 2003 – present

Reviewed manuscripts for peer-reviewed scientific journals including Animal Behaviour, Behavioral Ecology, Behavioral Ecology and Sociobiology, Ecological Entomology, Entomological News, Proceedings of the National Academy of Sciences, Journal of Chemical Ecology, Journal of Insect Behavior.

Research Feature on National Geographic (TV): Oct 2002

Interviewed by Betsy Querna, production associate of the TV station, for a brief feature on my research.

PROFESSIONAL SOCIETIES

American Entomological Society (AES), member since 2010

Animal Behavior Society (ABS), member since 2005

International Society for Behavioral Ecology (ISBE), member since 2000

Sigma Xi, The Scientific Research Society, member since 2005

Society for Integrative and Comparative Biology (SICB), member since 2013

Xerces Society for Invertebrate Conservation, member since 2005

ACADEMIC SERVICE AND LEADERSHIP

Undergraduate Curriculum Committee, Dept. of Biology: Sept 2012 – present

Participation in discussing changes and adjusting the undergraduate curriculum to reflect changes at Villanova and in the sciences across the country.

Graduate Research Fellowship Committee, CLAS: Springs 2011-2014

Reviewed applications and selected Masters student recipients of summer research fellowships for the College of Liberal Arts & Sciences at Villanova.

Chair, Tenure & Promotion Committee, Dept. of Biology: Sept – Dec 2013

Coordinated the departmental assessment of the third year interim report of Dr. Adam Langley.

Chair, Tenure & Promotion Committee, Dept. of Biology: Sept – Dec 2013

Coordinated the departmental assessment of the application for tenure and promotion of Dr. Samantha Chapman.

Faculty Evaluation Committee, Dept. of Biology: August 2011 – June 2014

Evaluation of triennial reports of tenured faculty and annual reports of non-tenured faculty in Biology. Served as chair for academic year 2013-2014.

Research Fellowship Evaluation Committee, Dept. of Biology: May 2014

Reviewed applications and selected biology Masters student recipients of a research fellowship for the academic year 2014-2015.

Chair, Ecologist Search Committee, Dept. of Biology: Oct 2006 – March 2007

Coordinated the application and interview process for candidates for a tenure-track position in the field of Ecosystems Ecology.

Chair, Diversity Committee, Dept. of Biology: March 2006 – Aug 2006

Lead the departmental committee that wrote a policy statement reflecting our commitment to promoting diversity among our faculty and our students.

Research Fellowship Evaluation Committee, Dept. of Biology: May 2006
Reviewed applications and selected biology Masters student recipients of a research fellowship for the academic year 2006-2007.

Spousal Appointment Committee, CLAS: April 2006
Participation in the formulation of an official policy regarding the hiring of spouses in faculty positions in the College of Arts and Sciences at Villanova.

Presidential Scholarship Committee, CLAS: Feb 2006 – April 2006
Helped select recipients of 4-year scholarships to high school seniors about to enter the College of Arts and Sciences at Villanova University.

Barry M. Goldwater Fellowship Committee, CLAS: Oct 2005 – Dec 2005
Interviewed and nominated Villanova undergraduate candidates for a national fellowship to pursue graduate studies in the sciences.

Faculty Advisor for TriBeta, Dept. of Biology: Jan 2005 – May 2007
Served as a faculty liaison for the campus chapter of the national honors society for undergraduates in biology.

VQI Environmental Team, Sustainability Subcommittee: Aug 2004 – 2007
Participation in part of the Villanova Quality Improvement group devoted to running the university in a more environmentally-conscious, sustainable manner.

Mellon Faculty Fellow and Mentor, Blinks Program: Summers 2004 & 2005
Friday Harbor Laboratories, University of Washington – Friday Harbor, WA.
Served as faculty leader for a summer REU program designed to provide research experience for undergraduates in under-represented groups in biology.
Also mentored two participants in various research projects.

Residential Hall Director, NASA Sharp Plus Program: Summer 2001
Cornell University – Ithaca, NY.
Lived in a campus residence with 20 minority high school students who spent the summer doing research with professors in the sciences. Organized and led educational, volunteer and fun activities, both on and off campus.

President of Graduate Students, Neurobiology and Behavior: 1997-1998
Cornell University – Ithaca, NY.
Led and coordinated graduate student activities, including symposia, academic retreats, and meetings with faculty.

COURSES TAUGHT

Animal Behavior (Bio 3015): Springs 2014, 2012, 2010, 2009, 2007 & 2006
Introductory Ecology (Bio 3255): Falls 2012, 2010, 2008, 2006, 2005 & 2004
Entomology (Bio 3525): Fall 2013, Fall 2011, Fall 2009, Fall 2007, Spring 2005
Animal Behavior for Non-majors (MSE 2000): Springs 2013, 2011 & 2005
General Biology for C&F majors (Bio 1101): Fall 2004