

Curriculum Vitae

Christopher R. Friesen, Ph.D.

School of Biological Sciences

Faculty of Science, Medicine and Health

University of Wollongong NSW 2522 Australia

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EDUCATION

Oregon State University (OSU) **Ph.D. in Zoology** Conferred 22 March 2013

- Dissertation title: *Patterns and Mechanisms: Postcopulatory sexual selection and sexual conflict in red-sided garter snakes*

- Dissertation adviser: Professor Robert T. Mason, J.C. Braly Curator of Vertebrates

- Committee members: Profs. S. Arnold; S. Estes; D. Froman; T. Garcia; D. Warrick

Oregon State University **B.S. Summa Cum Laude in Philosophy** March 2006

Oregon State University **B.S. Summa Cum Laude in Zoology w/Chemistry minor** March 2006

APPOINTMENTS

April 2018-2021 **Vice Chancellor's Postdoctoral Research Fellow**, University of Wollongong

Aug. 2016-March 2018 **Postdoctoral Fellow (level B)**, University of Sydney, with Prof. Rick Shine

Aug. 2015-July 2016 **Postdoctoral Fellow (level B)**, University of Sydney, with Prof. Mats Olsson

Aug. 2013-Aug. 2015 **NSF International Postdoctoral Research Fellow**, working with Prof. Mats Olsson and Dr Simon de Graaf at The University of Sydney.

June-July 2013 **Lab Instructor**, Human Anat. and Physiology, Oregon State University, Corvallis, OR

2010, 2011, and 2012 **Lecturer of record***, Human Anat. & Physiology (Reproduction, Nervous and Endocrine Systems), Z 332, Oregon State University, Corvallis OR.

Sept-Dec 2012 **Lecturer of record***, Vertebrate Biology and Evolution, Z 371, Oregon State University

Sept 2006 – 2012 Graduate **Teaching Assistant (GTA)****, Dept. of Zoology, Oregon State University

2007-2012 **Graduate Research Assistant (GRA)†**, Dept of Zoology, Oregon State University April–June, Chatfield Research Station, Chatfield, Manitoba, Canada

1998-2003 **Project manager, Journeyman Electrician**, City Electric & Supply Co. Portland, OR

* **Lecturer of record**: I developed course materials (lectures, in-class/online activities, exams, and assignments); graded exams, assignments and assigned final course grade; coordinated with GTAs to ensure that lab and lecture learning objectives aligned.

** **GTA**: taught lab/recitation courses (usually two sections per term with 24-30 students in each); developed short in-lab lectures, exams, quizzes; graded all exams, quizzes, and assignments and assigned final course grade.

† **GRA**: is a research only position and I conducted research for professors including research related to my thesis.

FUNDING, AWARDS AND SPECIAL RECOGNITION

FUNDING

2018-21	Vice Chancellor's Postdoctoral Research Fellowship University of Wollongong	AU\$459,000
2013-15	National Science Foundation, International Postdoctoral Fellowship in Biology	US\$151,200
2011-12	College of Science Travel Award (OSU)	US\$ 1000
2010	National Science Foundation, Doctoral Dissertation Improvement Grant	US\$14,000
2010-11	Zoology Research Funds (OSU)	US\$1000
2005	Howard Hughes Medical Institute (HHMI) Undergraduate Research Fellowship	US\$1800
2005	OSU Undergraduate Research Innovation, Creativity, & Scholarship grant	US\$1800

AWARDS AND SPECIAL RECOGNITION

2017	Best early career researcher presentation, Australasian Assoc. for the Study of Animal Behaviour
2012	OSU, Zoology Dept. award for Outstanding Graduate Student Service
2011	Best oral paper presentation, Biology of the Spermatozoa Conference, England
2010	Frolander Award for Outstanding Graduate Teaching Assistant at Oregon State Univ.
2010	Research Advances in Fisheries, Wildlife and Ecology Symposium, Best Presentation Award
2006	Dept. of Philosophy Nominee for College of Liberal Arts Outstanding Senior Award at OSU
2005	Honorable mention best oral presentation at HHMI Summer Research Symposium

REFEREES *indicates supervisor

Professor Robert Mason*

Professor of Integrative Biology
J.C. Braly Curator of Vertebrates
Department of Integrative Biology
3029 Cordley Hall
Oregon State University
Corvallis, OR 97331-2914
masonr@science.oregonstate.edu

Professor Donald Powers

Holman Professor of Biology
Biology & Chemistry Department
George Fox University
414 N. Meridian St. #6116
Newberg, OR 97132
dpowers@georgefox.edu

Professor Mats Olsson*

Professor of Evolutionary Biology
Department of Biological and Environmental
Sciences, University of Gothenburg
Box 463, SE 405 30 Gothenburg, Sweden
Ph: +46 31 786 3971
mats.olsson@bioenv.gu.se

Professor Rick Shine* AM FAA FRZS

Laureate Fellow of the Australian Research
Council
School of Life and Environmental Sciences,
Heydon-Laurence Building A08
The University of Sydney NSW 2006 Australia
Ph 61-2-9351-3772;
rick.shine@sydney.edu.au

PUBLICATIONS IN PEER REVIEWED JOURNALS

21 publications; total citations 103/145; h-index 6/7; m-index 1.2/1.4 (Scopus/Google Scholar)

*student coauthors; †corresponding author; (citations Scopus/Google Scholar | 5 year impact factor of journal)

£^{rank} Five papers in Top 15 journals in Biology (Incites Journal Citation Reports 2016)

1. Chen W[†], L Peng, L Jiang, DA Pike, **CR Friesen**, G Brown. **2018**. High altitude frogs (*Rana kukonoris*) adopt a diversified bet-hedging strategy in the face of environmental unpredictability. *Asian Herpetological Research* (0/0 | 0.60)
2. Hurley LL[†], CS McDiarmid, **CR Friesen**, SC Griffith, M Rowe. **2018**. Experimental heatwaves negatively impact sperm quality in the zebra finch. *Proceedings of the Royal Society B: Biological Sciences* (0/0 | 5.42) £⁹
3. Olsson M[†], E Wapstra, **CR Friesen**. **2018**. Ectothermic Telomeres: it's time they came in from the cold (Invited review). *Special Issue on telomere biology in Philosophical Transactions of the Royal Society B* (4/4 | 6.92) £⁶
4. **Friesen, CR** [†], EJ Uhrig, E Bentz*, L Blakemore*, RT Mason. **2017**. Correlated evolution of sexually selected traits: interspecific variation in ejaculates, sperm morphology, copulatory mate-guarding and body size in two sympatric species of garter snakes. *Behavioral Ecology and Sociobiology* (0/0 | 2.92)
5. **Friesen, CR** [†], Johansson, R*, Olsson M. **2017**. Morph-specific metabolic rate and the timing of reproductive senescence in a color polymorphic dragon. *Journal of Experimental Zoology Part A: Ecological and Integrative Physiology* (0/0 | 1.28)
6. Olsson M[†], E Wapstra, **CR Friesen**. Evolutionary Ecology of Telomeres: a Review. **2017**. *Annals of the New York Academy of Sciences* (NA/2 | 4.71)
7. **Friesen, CR** [†], DR Powers, RT Mason. **2017**. Using whole-group metabolic rate and behaviour to assess the energetics of courtship in red-sided garter snakes. *Animal Behaviour* (0/2 | 3.28)
8. McDiarmid C*, **CR Friesen** [†], C Ballen, M Olsson. **2017**. Sexual colouration and sperm performance in the Australian painted dragon lizard, *Ctenophorus pictus*. *Journal of Evolutionary Biology* (0/1 | 2.79)
9. Rollings N*, EJ Uhrig, RW Krohmer, HL Waye, RT Mason, M Olsson, CMWhittington, **C R Friesen** [†]. **2017**. Age-related sex differences in body condition and telomere dynamics of red-sided garter snakes. *Proceedings of the Royal Society B: Biological Sciences* (5/6 | 5.42) £⁹
10. **Friesen CR** [†], MR Wilson, N Rollings*, J Sudyka*, CM Whittington, M Giraudeau, M Olsson. **2017**. Conditional handicaps in exuberant lizards: Bright color in aggressive males is correlated with high levels of free radicals. *Frontiers in Ecology and Evolution* 5 (Invited chapter) (1/2 | 1st year IF na)
11. Rollings, N*, **CR Friesen**, J Sudyka*, CM, Whittington, M Giraudeau, M Olsson[†]. **2017**. Telomere dynamics in a lizard with morph-specific reproductive investment and self-maintenance. *Ecology and Evolution* (2/4 | 2.44)
12. Giraudeau, M[†], **CR Friesen**, J Sudyka*, N Rollings*, MRWilson, M Olsson. **2016**. Aging and the cost of maintaining coloration in the Australia painted dragon. *Biology Letters* (5/8 | 3.33)
13. **Friesen, CR** [†], EJ Uhrig*, RT Mason, PLR Brennan. **2016**. Female behaviour and the interaction of male and female genital traits mediate sperm transfer during mating. *Journal of Evolutionary Biology* 952-964 (6/7 | 2.79)
14. **Friesen, C.R.** [†], M. Olsson. **2016**. Ed. Richard M. Kliman. Polyandry and female postcopulatory choice. 307-316 in *Encyclopedia of Evolutionary Biology; Elsevier*. (Invited)

15. **Friesen, CR[†]**, DR Powers, PE Copenhaver*, RT Mason. **2015**. Size-dependence in non-sperm ejaculate production quantified by measuring daily energy expenditure and resting metabolic rate. *Journal of Experimental Biology* 218:1410-1418 (8/11 | 3.48) £¹¹
16. **Friesen, CR[†]**, EJ Uhrig*, and RT Mason. **2014**. Females remate more frequently when mated with sperm-deficient males. *Journal of Experimental Zoology Part A: Ecological Genetics and Physiology* 321:603-609 (4/7 | 1.30)
17. **Friesen, CR[†]**, AR Kerns*, RT Mason. **2014**. Factors influencing paternity in multiply mated female red-sided garter snakes and the persistent use of sperm stored over winter. *Behavioral Ecology and Sociobiology* 68(9): 1419-1430 (9/10 | 2.92)
18. **Friesen, CR[†]**, MK Squire*, and RT Mason. **2014**. Intra-population variation of ejaculate traits and sperm depletion in red-sided garter snakes. *Journal of Zoology* 292: 192-201 (10/15 | 2.15)
19. **Friesen, CR[†]**, RT Mason, SJ Arnold, and S Estes. **2014**. Patterns of sperm use in two populations of red-sided garter snake with long-term female sperm storage. *Canadian Journal of Zoology* 92: 33-40 (12/16 | 1.52)
20. **Friesen, CR[†]**, EJ Uhrig*, MK Squire*, RT Mason, and PLR Brennan. **2013**. Sexual conflict over mating in red-sided garter snakes (*Thamnophis sirtalis*) as indicated by experimental manipulation of genitalia. *Proceedings of the Royal Society B: Biological Sciences* 281.1774:20132694 (18/23 | 5.42) £⁹
21. **Friesen, CR[†]**, R Shine, RW Krohmer, and RT Mason. **2013**. Not just a chastity belt: the functional significance of mating plugs in garter snakes, revisited. *Biological Journal of the Linnean Society* 109:893-907 (19/26 | 2.28)

CONFERENCE PROCEEDINGS, PRESENTATIONS AND UNIVERSITY SEMINARS

CONFERENCE PAPERS

November 2017 Hobart, TAS, Australia. Australasian Evolution Society. Interspecific variation in sexually selected traits in two sympatric species of garter snakes. (Oral)

July 2017 Melbourne, VIC, Australia. The Australasian Society for the Study of Animal Behaviour. Trade-off between pre- and postcopulatory traits: The effect of superoxide, superoxide dismutase and condition on sperm performance. (Oral) *Won award for Best Oral paper by an Early Career Researcher*

April 2017 Chicago, IL, USA. American Association of Anatomists (**Invited Symposium presentation**). It takes two to tango: The interaction of male and female genital traits mediate sperm and ejaculate transfer during mating.

December 2016 University of Western Sydney, Richmond, NSW, Australian and New Zealand Society for Comparative Physiology and Biochemistry. Sex and death in the Canadian Bush: Sex-specific telomere dynamics in the red-sided garter snake.

August 2016 Exeter, UK. International Society for Behavioral Ecology. The effect of exercise and oxidative stress on sperm traits. (Oral)

July 2016 Katoomba, NSW, Australia. The Australasian Society for the Study of Animal Behaviour. Dehydrated males are less likely to dive into the mating pool, but when they do, they leave wet plugs. (Oral)

February 2016 Launceston, TAS, Australia. Australian Society of Herpetologists. Exercise makes the sperm go faster: The effect of exercise and oxidative stress on sperm traits in the colour polymorphic painted dragon lizard. (Oral)

January 2016 Portland OR. Society for Integrative and Comparative Biology. Tradeoff between pre- and postcopulatory traits: The effect of exercise and oxidative stress on sperm traits in the color polymorphic painted dragon lizard. (Oral)

January 2016 Portland OR (**Invited presentation**) Society for Integrative and Comparative Biology. Female behavior and the interaction between male and female genital traits mediate copulatory success. (Symposium: The Morphological Diversity of Intromittent Organs)

September 2015 Sheffield, UK. Biology of the Spermatozoa Conference. Potential trade-offs between pre- and post-copulatory sexually selected traits: The effect of oxidative stress on sperm motility in the painted dragon lizard. (Poster).

August 2015 Cairns, QLD, Australia. Behaviour. Female behaviour and the interaction between male and female genital traits mediate copulatory success. (Oral)

January 2015 Eildon, VIC, Australia. Australian Society of Herpetologists. The effect of oxidative stress on sperm traits in the painted dragon lizard. (Oral)

August 2014 New York, NY, USA. International Society for Behavioral Ecology. “Shooting blanks”: Females remate more frequently when mated with sperm-deficient males. (Oral)

July 2014 Sydney, NSW, Australia. Genetics Society of AustralAsia. Persistent use of sperm stored over winter in multiply-mated female garter snakes. (Oral)

January 2014 Canberra, ACT, Australia. Australian Society of Herpetologists. Genital manipulation affects copulation duration and sperm transfer in red-sided garter snake. (Oral)

January 2014 Austin, TX, USA. Society for Integrative and Comparative Biology. Interspecific variation in traits associated with postcopulatory sexual selection in garter snakes. (Oral)

January 2014 Austin, TX, USA. Society for Integrative and Comparative Biology. The effect of oxidative stress on sperm motility of painted dragon lizards. (Poster)

September 2013 Sheffield, UK. Biology of the Spermatozoa Conference. Genital manipulation affects copulation duration and sperm transfer in red-sided garter snake (*Thamnophis sirtalis parietalis*) (Poster)

January 2013 San Francisco, CA, USA. Society for Integrative and Comparative Biology. Sexual conflict during mating in red-sided garter snakes as evidenced by genital manipulation. (Oral)

January 2013 San Francisco, CA, USA. Society for Integrative and Comparative Biology. The effect of mating with vasectomized males on subsequent mating behavior in female red-sided garter snakes. (Poster)

December 2012 Oregon State University, Dept. Zoology, PhD defense seminar. Patterns and Mechanisms: Postcopulatory sexual selection and sexual conflict in a novel mating system. (Oral)

August 2012 Lund, Sweden. International Society for Behavioral Ecology. Asymmetric gametic isolation between two populations of red-sided garter snake. (Oral)

December 2011 Seattle, WA, USA. National Science Education Association (**Invited presentation**). Building Phylogenetic Trees by Modeling Change through Time. (Oral)

September 2011 Sheffield, UK. Biology of the Spermatozoa Conference. (**Invited presentation**) Not just a chastity belt: the role of copulatory plugs in Red-sided garter snakes revisited *Won the Best Oral paper award*

January 2011 Salt Lake City, UT, USA. Society for Integrative and Comparative Biology. Not just a chastity belt: the role of copulatory plugs in red-sided garter snakes revisited. (Oral)

September 2010 Perth, WA, Australia. International Society for Behavioral Ecology. Sperm competition, mate order effects, and the potential for female influence on paternity in red-sided garter snakes (Poster)

June 2010 Portland, OR, USA. Evolution. Sperm competition, mate order effects, and the potential for female influence on paternity in red-sided garter snakes (Oral)

January 2010 Seattle, WA, USA. Society for Integrative and Comparative Biology. Sperm competition and mate order effects in red-sided garter snakes (Poster)

July 2009 Portland, OR, USA. Joint Meetings of Ichthyologists and Herpetologists. Sperm precedence in a snake: *Thamnophis sirtalis parietalis* (Oral)

June 2009 Moscow, ID, USA. Evolution. Inter-population Asymmetry in Male Mate Preference & Size Dependent patterns of paternity in a garter snake. (Oral)

January 2009 Boston, MA, USA. Society for Integrative and Comparative Biology. Cost of male courtship: Using whole group metabolic rate to assess cost of courtship. (Poster)

January 2008 San Antonio, TX, USA. Society for Integrative and Comparative Biology. Metabolic costs of courtship & mate searching using doubly-labeled water (DLW). (Poster)

INVITED DEPARTMENTAL SEMINARS

September 2017 Australian National University. Sex and death in the Canadian Bush: Energetics, sexual conflict and sex-specific telomere dynamics in the red-sided garter snake.

November 2016 University of Tasmania, School of Biological Sciences. Sex and death in the Canadian Bush: Energetics, sexual conflict and sex-specific telomere dynamics in the red-sided garter snake.

November 2016 University of Sydney, School of Environmental and Life Sciences. Sex and ageing: reproductive tradeoffs mediated by ecology, energetics and oxidative stress.

August 2016 University of Wollongong, School of Biological Sciences. Sex and ageing: Inter- and intrasexual reproductive trade-offs mediated by ecology, energetics and oxidative stress.

November 2014 University of Sydney, Faculty of Veterinary Science. Patterns and Mechanisms: Postcopulatory sexual selection and sexual conflict in garter snake mating systems. (Oral)

March 2014 University of Sydney, School of Biological Sciences. Patterns and Mechanisms: Postcopulatory sexual selection and sexual conflict in garter snake mating systems. (Oral)

March 2012 George Fox University, Oregon, USA. Guest Lecture in Ornithology. Sperm competition in birds. (Oral)

August 2009 University of Minnesota at Morris, USA. Vertebrate Biology: Energy and the Evolution of Mating Systems. (Oral)

PRESENTATIONS GIVEN BY MY STUDENTS

July 2016 Gold Coast, QLD, Australia. Genetics Society of AustralAsia. Snakes, plugs and mating balls: Differences in telomere dynamics in red-sided garter snakes. (*PhD student, Nicky Rollings' oral presentation; Won The Mayo Prize for best PhD student presentation for the second year in a row*)

July 2016 Katoomba, NSW, Australia. The Australasian Society for the Study of Animal Behaviour. Pre-Copulatory Sexual Selection in the Australian Painted Dragon. (*Honours student, Callum McDiarmid's oral presentation*)

February 2016 Launceston, TAS, Australia. Australian Society of Herpetologists. Metabolism and ageing of the Australian painted dragon (*Ctenophorus pictus*). (*Masters student, Rasmus Johansson's oral presentation*)

February 2016 Launceston, TAS, Australia. Australian Society of Herpetologists. Pre-Copulatory Sexual Selection in the Australian Painted Dragon. (*Honours student, Callum McDiarmid's oral presentation; Won best honours student presentation*)

February 2016 Launceston, TAS, Australia. Australian Society of Herpetologists. Colour-coded telomere dynamics in a polymorphic lizard. (*PhD student, Nicky Rollings' oral presentation; Won best PhD student presentation*)

June 2015 Adelaide, SA, Australia. Genetics Society of AustralAsia. Colour-coded telomere dynamics in a polymorphic lizard. (*PhD student, Nicky Rollings' oral presentation; Won The Mayo Prize for best PhD student presentation*)

January 2015 Eildon, VIC, Australia. Australian Society of Herpetologists. Dragons and the fountain of youth: transgenerational epigenetics and their effects on life history traits in painted dragons (*Ctenophorus pictus*). (*PhD student, Nicky Rollings' oral presentation*)

January 2015 Eildon, VIC, Australia. Australian Society of Herpetologists. What could make Australian painted dragon (*Ctenophorus pictus*) age faster? (visiting *PhD student, Joanna Sudyka's oral presentation*)

SERVICE, MENTORSHIP AND SCIENTIFIC OUTREACH

PROFESSIONAL SERVICE

I serve on the Board of Councillors of Australasian Society for the Study of Animal Behaviour Service as a peer-reviewer for 21 journals:

Peer-reviewed journals: Current Zoology; PlosOne; BMC Evolutionary Biology; Biological Journal of the Linnaean Society; Canadian Journal of Zoology; Behaviour; Animal Behaviour; Behavioral Ecology; Behavioral Ecology and Sociobiology; Physiological and Biochemical Zoology; Integrative and Comparative Biology; The Science of Nature (formerly Naturwissenschaften); The Anatomical Record; Copeia; Journal of Herpetology; Ethology, Ecology & Evolution; Conservation Physiology, Behaviour; Ecology and Evolution; Evolutionary Ecology; Molecular Ecology.

External reviewer: for Honors thesis, Medical School, University of Otago, New Zealand; Honours thesis, School of Life and Environmental Sciences, University of Sydney

DEPARTMENTAL SERVICE

8 June 2017 **Invited guest lecture**, “Sex and Death in garter snakes” for Animal Behaviour, University of Sydney

27 February 2017 **Invited guest lecture**, “Ecophysiology” for Tropical Wildlife Ecology course, University of Sydney

2017 **Organised** the Ecology, Evolution and Environment cluster seminar series, School of Life and Environmental Sciences, University of Sydney

In 2010 I was awarded the **Zoology Department Award for Outstanding Graduate Student Service, Mentoring and Supervision** for the following reasons:

- 2006-11 I served on **five separate tenure and promotion committees, and on one hiring committee as the graduate student representative** for the Stress and Aging position in the Zoology department.
- 2010-11 I served on the **organising committee** for the annual Biology Graduate Student Symposium.
- 2007-2008 **I served as chair** on the Graduate Student Invited Speaker organising committee.
- 2011 I **designed and implemented an emergency power outage plan** and coordinated with OSU electrical services department to supply the properly sized electrical cords and distribution boxes to Cordley Hall to prevent loss of critical biological samples during frequent power loss events. (I was asked to do this job because, before graduate school, I was a licensed electrician).
- 2007 I **organised and taught** a graduate seminar on the Philosophy of Science.
- 2009-2011 I was the **lecturer of record** for the Human Anatomy and Physiology (Z332) intensive summer lecture course (**I gave four, two hour lectures each week for four weeks, 3 years in a row**).

- 2007-2009 I **completely overhauled the vertebrate biology lab course (Z372)** from one that solely used rote memorization to identify local species to one that now uses local species to understand key concepts in ecology and evolution.
- With the support of faculty and my students, **I won the University-wide competition for the 2010 Frolander Award for Outstanding Graduate Teaching Assistant** for the Zoology Department.
- **I had consistently high scores on my student evaluations** (5.4/6.0 points on overall instructor contribution to the course averaged across all courses I taught from 2006-2011).
- **I am passionate about and have demonstrated consistent dedication to mentoring students.**

MENTORING AND SUPERVISION

2014-Present Associate Supervisor for:

PhD student Nicky Rollings; School of Life and Environmental Sciences, University of Sydney, NSW Australia. (Expected completion of PhD: May 2018).

Honours Student Callum McDiarmid, School of Life and Environmental Sciences, University of Sydney, NSW Australia. (Received First Class Honours, June 2016)

Masters Student, Rasmus Johansson, University of Gothenburg, Sweden. (Received the equivalent of High Distinction for his Masters, July 2016)

2006-2012

Mentored six undergraduates through the Howard Hughes Medical Institute summer research program: Ehren Bentz 2012; Mattie K. Squire*, 2010; King Yabut, 2009; Christina Lackey, 2008; Amelia Kerns* 2007 and Andy Frasier, 2007.*

Primary mentor and committee member for Honors student, Amelia R. Kerns* 2007-2008

Numerous (>10) undergraduate volunteers for research and husbandry 2006-2012

MEMBERSHIP OF PROFESSIONAL SOCIETIES

International Society of Behavioral Ecology; Society for Integrative and Comparative Biology; Genetics Society of AustralAsia; Australasian Society for the Study of Animal Behaviour ; Australian Society of Herpetologists; Society for the Study of Amphibians and Reptiles; Australian and New Zealand Society for Comparative Physiology and Biochemistry

COLLABORATORS

- Stevan J. Arnold (Oregon State U., USA)
- Patricia L. R. Brennan (Mt Holyoke Col., USA)
- Phillip Byrne (Univ. of Wollongong, Australia)
- Matthew Dean (Univ. Southern California, USA)
- Nathan Clark (Univ. Pittsburg, USA)
- Suzanne Estes (Portland State Univ., USA)
- Dave Froman (Oregon State Univ., USA)
- Mathieu Giraudeau (Univ. of Exeter, UK)
- Simon de Graaf (Univ. of Sydney, Australia)
- Simon Griffith (Macquarie Univ., Australia)
- Mark Hutchinson (South Australia Museum)
- Randolph W. Krohmer (St. Xavier Univ., USA)
- Willow Lindsay (Univ. of Gothenburg, Sweden)
- Deborah I. Lutterschmidt (Portland State Univ., USA)
- Robert T. Mason (Oregon State Univ., OR, USA)
- Shinichi Nakagawa (U. of New South Wales, NSW, Australia)
- Jane Melville (Museum Victoria)
- Daniel Noble (U. of New South Wales, NSW, Australia)
- Mats Olsson (U. of Gothenburg, Sweden)
- Denis O’Meally (Beckman Research Institute, USA)
- Donald R. Powers (George Fox Univ., USA)
- Rick Shine (Univ. of Sydney, NSW, Australia)
- Emily J. Uhrig (Linköping Univ., Sweden)
- Erik Wapstra (Univ. of Tasmania, Australia)
- Heather L. Wayne (Univ. of Minnesota, USA)
- Geoff While (Univ. of Tasmania, Australia)
- Martin Whiting (Macquarie Univ., Australia)
- Camilla M. Whittington (Univ. of Sydney, Australia)
- Mark R. Wilson (Univ. of Wollongong, Australia)

OUTREACH ACTIVITIES

November 2016 Spectacular Science 2016, University of Sydney, NSW. **Invited Guest Lecture** “Animal Mating Systems”

November 2016 Australian Herpetological Society, NSW. **Invited Guest Lecture.** “Sex and Death in the Canadian Bush: The sex lives of garter snakes”

July 2015 Orange Anglican School, Orange, NSW. **Presented my teaching module** “The Evolution of Mating Systems” to two classes of elementary school students and helped to facilitate a “Leaf Litter Ecology” practical module in collaboration with Dr Camilla Whittington (University of Sydney).

Fall 2011 **Invited Guest lecturer** Evolution and Ecology Workshop, Energy and the Evolution of Mating systems, organised by OSU's STEPs (Scientists and Teachers in Education Partnerships) program to foster interest in the life sciences for high school students.

2009-2011 Designed and Taught module: “Energy and the Evolution of Mating Systems” OSU’s Winter Wonderings Precollege Program for TAG (talented and gifted) students 6-8th grade organised by OSU's Office of Precollege Programs. **(I designed a module ‘Duck, Dunnock, Goose’ game to teach Bateman’s gradients in different mating systems).**

2008-2010 Graduate student mentor for the Life Sciences Club at OSU (outdoor activities focused on understanding the biological world)

2008-2009 Outreach: Reptile & Amphibian Presentations at Avery Nature House OR, USA

MEDIA COVERAGE OF OUR RESEARCH

--On our article “Aging and the cost of maintaining coloration in the Australia painted dragon”

<https://cosmosmagazine.com/biology/for-lizards-looking-good-can-be-lethal>

--On our article “Age-related sex difference in body condition and telomere dynamics of red-side garter snakes”

Why do female red-sided garter snakes live longer than males?, viewed >10,000 times

<https://www.facebook.com/sydneyuni/videos/vb.5755052206/10155128410772207/>

<http://www.smh.com.au/technology/sci-tech/shortterm-sex-strategy-for-male-garter-snakes-connected-to-shorter-brutish-life-20170404-gvdcp4.html>

<http://news.nationalgeographic.com/2017/04/red-sided-garter-snakes-mate-themselves-to-death-telomeres/>

<http://www.news.com.au/technology/science/animals/male-snakes-pay-the-price-for-frenzied-snake-orgies/news-story/ceabaac5919c9c130ffedc4667b47f04>

<http://www.canberratimes.com.au/technology/sci-tech/shortterm-sex-strategy-for-male-garter-snakes-connected-to-shorter-brutish-life-20170404-gvdcp4.html>

<http://www.dailymail.co.uk/news/article-4381200/Male-garter-snakes-live-shorter-three-week-orgy.html>

<http://www.iflscience.com/plants-and-animals/male-garter-snakes-enjoy-orgies-so-much-they-will-almost-die-for-them/>

<https://nypost.com/2017/04/05/male-snakes-orgy-themselves-to-death/>

<http://www.ibtimes.co.uk/sex-frenzies-no-good-male-snakes-leading-ageing-early-death-1615461>

<https://uk.news.yahoo.com/sex-frenzies-no-good-male-092442801.html>

<https://in.finance.yahoo.com/news/sex-obsession-knocking-years-off-male-snakes-lives-005459354.html>

<http://www.sciencetimes.com/articles/11633/20170405/sex-obsession-shortens-the-lifespan-of-a-male-garter-snake.htm>

<http://www.ibtimes.com/animal-sex-evolution-how-sex-obsessed-snakes-birds-are-hurting-themselves-2523415>

“Why sex obsession is a long-term killer for male snakes – Sydney Morning Herald

“Sex frenzy a deadly affair for male snakes” – Age

“Male snakes pay the price for frenzied snake orgies” – Daily Telegraph

–On our article “Not just a chastity belt: the functional significance of mating plugs in garter snakes, revisited”

http://www.nature.com/scitable/blog/accumulating-glitches/dueling_genitals?isForceDesktop=Y

http://www.sciencemag.org/news/sifter/stressed-snakes-starve-themselves-sex?utm_campaign=news_daily_2017-04-05&et rid=17100973&et_cid=1257756

–On our article “Size-dependence in non-sperm ejaculate production quantified by measuring daily energy expenditure and resting metabolic rate.”

Cover and featured in Journal of experimental Biology's "Inside JEB" 2015.

<http://askabiologist.asu.edu/animals-taiga>

<https://news.yahoo.com/male-snakes-spend-mega-calories-mate-151408019.html>

<http://throb.gizmodo.com/in-a-snake-orgy-ejaculate-can-get-expensive-1703536966>

<http://phys.org/news/2015-05-seminal-red-sided-garter-snakes-dearly.html>

–On our article “Sexual conflict over mating in red-sided garter snakes (*Thamnophis sirtalis*) as indicated by experimental manipulation of genitalia”

Pennisi, E. 2016. Female organs revealed as weapons in sexual arms race. *Science* 351: 214-215.

<http://science.sciencemag.org/content/351/6270/214>

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[Zoey Wickens – writing up for www.cageandaviarybirds.co.uk](http://www.cageandaviarybirds.co.uk)

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(TEACHING LIST NEXT PAGE)

TEACHING LIST

Student evaluations of “Instructor’s contributions to the course” across all these courses mean 5.4/6.0; range 4.8-5.9/6.0.

INSTRUCTIONAL SUMMARY (COURSES I HAVE TAUGHT)		† INDICATES LECTURE COURSE		
Term/Year	Course #	Course Title (Lead = instructor of record)	Credit Hours	Class Size
June 2013	Z342	Human Anatomy & Physiology (Lead)	2	23
June 2013	Z342	Human Anatomy & Physiology (Lead)	2	24
Fall/2012	Z371	Vertebrate & Evolutionary Biology†(Team)	3	~110
Summer/2012	Z 332	Human Anatomy & Physiology† (Lead)	3	105
Winter/2012	Z 422/522	Comparative Vert. Anatomy lab (Lead)	2	18
Summer/2011	Z 332	Human Anatomy & Physiology† (Lead)	3	101
Winter/2011	Z 422/522	Comparative Vert. Anatomy lab (Lead)	2	24
Fall/2010	Z 372	Vertebrate Biology Lab (Lead)	2	24
Fall/2010	Z 372	Vertebrate Biology Lab (Lead)	2	24
Summer/2010	Z 332	Human Anatomy & Physiology† (Lead)	3	84
Winter/2010	Z 442/542	Human Anatomy & Physiology (Lead)	2	24
Winter/2010	Z 442/542	Human Anatomy & Physiology (Lead)	2	11
Fall/2009	Z 372	Vertebrate Biology Lab (Lead)	2	24
Fall/2009	Z 372	Vertebrate Biology Lab (Lead)	2	24
Summer/2009	Z342	Human Anatomy & Physiology (Lead)	2	24
Winter/2009	Z442	Human Anatomy & Physiology (Lead)	2	24
Winter/2009	Z 442/542	Human Anatomy & Physiology (Lead)	2	24
Fall/2008	Z 372	Vertebrate Biology Lab (Lead)	2	23
Fall/2008	Z 372	Vertebrate Biology Lab (Lead)	2	24
Summer/2008	Z441/541	Human Anatomy & Physiology	2	~20
Winter/2008	Z342	Human Anatomy & Physiology	2	~20
Winter/2008	Z 442/5442	Human Anatomy & Physiology	2	~20
Fall/2007	Z 372	Vertebrate Biology Lab (Lead)	2	~20
Fall/2007	Z 372	Vertebrate Biology Lab (Lead)	2	~20
Winter/2007	BI 212	Introductory Biology (Lead on Team)	2	~48
Winter/2007	BI 212	Introductory Biology (Backup on Team)	2	~48
Fall/2006	BI 211	Introductory Biology (Lead on Team)	2	~48
Fall/2006	BI 211	Introductory Biology (Backup on Team)	2	~48

Course numbers: 200 level course 2nd yr students; 300 level 3rd yr majors; 400 level 4th yr majors; 500-600 level 1-2nd yr postgrads.

EDUCATION: RELEVANT COURSE WORK I HAVE COMPLETED AT THE UNDERGRADUATE AND GRADUATE LEVEL*

General Biology I, II, & III	Integral Calculus	Invertebrate Biology Lab
General Chemistry I, II, & III	Statistical Methods I, & II	General Microbiology
General Physics I, II, & III	Ecology	Genetics
Organic Chemistry I, & II	Vertebrate Biology	Biochemistry I, II & III
Organic Chemistry Lab	Vertebrate Biology Lab	Bioanalytical Chemistry
Differential Calculus	Invertebrate Biology	Cell and Molecular Biology
Evolution	Paleobiology	Population Genetics*
Principles of Physiology I & II*	Biology of Mammals	Evolutionary Biology: Tools of the trade*
Environmental Physiology	Biology of Amphibians & Reptiles	Quantitative Genetics*
Philosophy of Science	Systematic Herpetology	Phylogenetics*
Philosophy of Biology	Environmental Physiology of Fishes*	Comparative Anatomy*
Philosophy of Mind	Behavioral Ecology*	Success in the College Classroom*
Deductive Logic	Methods of Data Analysis and Experimental design I & II*	Scientific Teaching and Lab Design*
Environmental Ethics		
Ethics of Diversity		
History of Evolutionary Theory		

* Denotes Graduate Course