Clayton E. Cressler

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Education

Ph.D.	University of Michigan Ecology & Evolutionary Biology Advisor: Dr. Aaron King	2011
B.S.	Hope College Mathematics, Hope College	2003

Employment

Assistant Professor of Biology, University of Nebraska	2015 –
Postdoctoral Fellow, Depts. of Biology and Mathematics & Statistics, Queen's University	2011 – 2015

Research Grants

Coleman Postdoctoral Fellowship ($84,000)	2014 – 2015
NSF Postdoctoral Research Fellowship in Biology: Intersections of Biology and Mathematical Sciences ($123,000)	2011 – 2013
Queen's University SARC Postdoctoral Fellowship ($30,000)	2010 – 2011

Scholarships and Awards

Lotka Award *For best poster on theory research at the Ecological Society of America meeting*	2008
Albert E. Lampen Award *For outstanding mathematics graduate at Hope College*	2003
Sigma Xi Senior Research Award	2003
NSF Research Experience for Undergraduates	2001 – 2003
Trustees Scholarship, Hope College (6 awarded)	1999 – 2003

Publications

In press

Cressler, C. E., D. V. McLeod, C. Rozins, J. van den Hoogen, and T. Day. 2015. The adaptive evolution of virulence: a review of theoretical predictions and empirical tests. *Parasitology.*

Cressler, C. E., M. A. Butler, and A. A. King. 2015. Detecting adaptive evolution in phylogenetic comparative analysis using the Ornstein-Uhlenbeck model. *Systematic Biology.*

Cressler, C. E., A. L. Graham, and T. Day. 2015. Evolution of hosts paying manifold costs of defense. *Proceedings of the Royal Society B.*

Cressler, C. E., W. A. Nelson, T. Day, and E. McCauley. 2014. Starvation reveals the cause of infection-induced castration and gigantism. *Proceedings of the Royal Society B.* **281**: 20141087.
Press coverage: *Science News* and the University of Calgary

Cressler, C. E., W. A. Nelson, T. Day, and E. McCauley. 2014. Disentangling the interaction among host resources, the immune system, and pathogens. *Ecology Letters* **17**: 284-293.

Peacor, S. D. and **C. E. Cressler**. 2012. The implications of adaptive prey behavior for ecological communities: a review of current theory. In: *Evolution and Ecology of Trait-Mediated Indirect Interactions: Linking Evolution, Community, and Ecosystem* (eds. T. Ohgushi, O. Schmitz, and R. D. Holt). Cambridge University Press.

Cressler, C. E., A. A. King, and E. E. Werner. 2010. Interactions between behavioral and life-history trade-offs in the evolution of integrated predator-defense plasticity. *American Naturalist* **176**: 276-288.

In review or revision

Cressler, C. E. *In revision.* One size does not fit all: responses to selection on body size depend on consumer life history and behavior. *Journal of Evolutionary Biology.*

Bengtson, S. P. A. M.*, **C. E. Cressler***, and W. A. Nelson. *In revision.* Fast ecology with slow evolution - the unexpected impact of non-genetic demographic heterogeneity in *Daphnia*. *American Naturalist.* (*authors contributed equally)

In preparation

Mueller, R., M. A. Butler, and **C. E. Cressler**. A phylogenetic perspective on adaptive evolution of genome size in salamanders. Target: *Evolution.*

Nelson, W. A. and **C. E. Cressler**. Experimental evidence for stoichiometrically driven switching between alternative stable states. Target: *Ecology Letters.*

Searle, C. L, **C. E. Cressler**, M. A. Duffy, & S. R. Hall. *In prep.* Transient gigantism: dueling effects of parasitism on host energetics. Target: *Ecology.*

Teaching Experience

Mathematical Modeling in Biology (Queen's University)

Logistics	3 1-hr. lectures per week. 85 undergraduate and graduate students across academic disciplines, including mathematical, physical, and life sciences.
Responsibilities	Responsible for all aspects of course design, including preparing and delivering lectures, creation of online tutorials, and assessment of student performance through homework, exams, and a group modeling project and presentation.

General Ecology (University of Michigan, 4 semesters)

Logistics	3 3-hr. discussion section per week. 30 undergraduate biology students per section.
Responsibilities	Responsible for all aspects of discussion sections, including designing supplementary lectures and exercises and choosing contemporary, accessible primary literature for discussions. Guest lecturer on a range of topics (stoichiometry, life history evolution, foraging theory, competition, and consumer-resource interactions).

Introductory Biology (University of Michigan, 2 semesters)

Logistics	1 3-hr. discussion section and 1 3-hr. lab per week. 30 undergraduate biology students per lab section.
Responsibilities	Responsible for developing supplementary tutorials, facilitating group discussion of lecture material or assigned readings, leading inquiry-based learning activities, and providing feedback on student writing. Responsible for lab prep, assisting students with data collection and analysis, and marking lab notebooks and reports.

Evolution (University of Michigan, 1 semester)

Logistics	3 3-hr. discussion sections per week. 25 undergraduate biology students per lab section.
Responsibilities	Responsible for facilitating student discussion of primary literature, organizing and evaluating student presentations, and providing feedback on student writing.

General Ecology (University of Tennessee, 1 semester)

Logistics	2 3-hr. lab sections per week. 25 undergraduate biology students per lab section.
Responsibilities	Responsible for leading labs focusing on applying fundamental ecological concepts, experimental design, and hypothesis testing in both the field and laboratory. Developed and implemented new field labs on island biogeography theory and forest succession.

Biodiversity (University of Tennessee, 1 semester)

Logistics	2 3-hr. lab sections per week. 25 undergraduate biology students per lab section.
Responsibilities	Responsible for developing and teaching short tutorials complementing lecture material, creating lab and lecture quizzes, and assisting students with labwork (microscopy, culturing, live specimen examination, and dissection).

Professional Development

SGS 901: Teaching and Learning in Higher Education (Centre for Teaching and Learning, Queen's University)

- This is a one-term course focused on developing a skilled, thoughtful, and confident approach to post-secondary teaching. Weekly meetings were structured around readings from the primary literature in education research but emphasized activities and discussion of best practice teaching. There was a significant "hands-on" component to the course, involving small-group teaching, guest lecturing, and peer evaluation.

Certificate Program in University Teaching and Learning (Centre for Teaching and Learning, Queen's University)

- Certificate in Foundations
- Certificate in Practical Experience
- Certificate in Scholarship

Accessible Instruction for Educators (Equity Office, Queen's University)

- An online module focused on strategies for making courses accessible to all students, from disseminating lecture materials to the environment of the classroom.

Mentoring

2014 – 2015	Caleb Axelrod and Roisin Donohue: Honours Thesis projects studying within-host dynamics of *Pasteuria* and host immune response across host genotypes and environments.
2013	Erik Lingley, Melissa Lucas and Morgann Reid: summer research experience projects studying at *Daphnia* genetic variation for physiological traits and *Daphnia-Pasteuria* host-parasite interactions. Melissa Lucas has gone on to a M.Sc. position in ecology at Western University.
2012 – 2013	Catherine Byrne: Honour's Thesis project developing epidemiological theory to study how immune suppression shapes the coevolution of hosts and parasites. Won the Biology Department award for Best Thesis Presentation. Ms. Byrne has gone on to a M.Sc. position in mathematical biology at the University of British Columbia.
2012	Catherine Byrne and Morgann Reid: summer research experience projects studying *Daphnia-Pasteuria* host-parasite interactions.

Meetings

Invited presentations

Princeton University Dept. of Ecology & Evolutionary Biology	06/30/2015
Canadian Mathematical Society Winter Meeting	12/06/2014
Queen's University EEB seminar series	03/13/2014
Queen's University EEB seminar series	02/14/2012
Hope College Biology seminar	04/01/2011
Hope College Mathematics colloquium	03/31/2011
Univ. of Michigan Center for the Study of Complex Systems Conference	05/16/2009

Contributed presentations

Ecology and Evolution of Infectious Disease Meeting	06/04/2014
Ecological Society of America Annual Meeting	08/08/2013
Ecology and Evolution of Infectious Disease Meeting	05/21/2013
Joint Congress on Evolutionary Biology	07/08/2012
Ecology and Evolution of Infectious Disease Meeting	05/24/2012
Ecology and Evolution of Infectious Disease Meeting	06/19/2011
Evolution Joint Meeting	06/27/2010
Ecological Society of America Annual Meeting	08/05/2009
Ecological Society of America Annual Meeting	08/05/2008
Society for Mathematical Biology Annual Meeting	07/13/2002
American Mathematical Society Annual Meeting	01/09/2002

Other meetings and workshops

RAPIDD Workshop on Simulation-based Inference Using Mechanistic Models	07/2012

Professional Service

Reviewer for the National Science Foundation, *American Naturalist* (6), *Ecology*, *Ecology Letters* (3), *Evolution*, *Functional Ecology*, *Journal of Animal Ecology* (2), *Parasitology*, *Proceedings of the Royal Society B* (2), *Trends in Parasitology*

Professional Societies

Ecological Society of America
American Society of Naturalists
Canadian Society for Ecology and Evolution

References

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