

Josef C Uyeda

CURRICULUM VITAE

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Academic employment

2012- Postdoctoral Fellow. University of Idaho, Moscow, Idaho
Institute for Bioinformatics and Evolutionary Studies (IBEST)
Supervisor: Prof. Luke J. Harmon

Education

2006-2012 Ph.D. in Evolutionary Biology. Oregon State University, Corvallis, OR
Advisor: Prof. Stevan J Arnold

2002-2006 B.A. with honors, *summa cum laude* Willamette University, Salem, OR
Major: Biology Minor: Chemistry

Publications

- Uyeda, JC.** Quantitative genetics of evolutionary divergence and diversification. *Accepted (by invitation) in The Encyclopedia of Evolutionary Biology, edited by Richard Kliman.*
- Uyeda, JC, Caetano, DS, and MW Pennell.** 2015. Statistical and conceptual challenges to the comparative analysis of principal components. *Accepted in Systematic Biology*, <http://dx.doi.org/10.1101/007369>.
- Uyeda, JC, and LJ Harmon.** 2014. A novel Bayesian method for inferring and interpreting the dynamics of adaptive landscapes from phylogenetic comparative data. *Systematic Biology*, 63(6):902-918.
- Pennell, MW, Eastman, JM, Slater, GJ, Brown, JW, Uyeda, JC, Fitzjohn, RG, Alfaro, ME and LJ Harmon.** 2014. geiger v2.0: an expanded suite of methods for fitting macroevolutionary models to phylogenetic trees. *Bioinformatics*, doi:10.1093/bioinformatics/btu181.
- Pennell, MW, Harmon, LJ and JC Uyeda.** 2014. Speciation is unlikely to drive divergence rates. *Trends in Ecology and Evolution*, 29(2):72-3.
- Pennell, MW, Harmon, LJ and JC Uyeda.** 2013. Is there room for punctuated equilibrium in macroevolution? *Trends in Ecology and Evolution*, 29(1):23-32.
- Jones, AG, Bürger, R, Arnold, SJ, Hohenlohe, PA and JC Uyeda.** 2012. The effects of stochastic and episodic movement of the optimum on the evolution of the G-matrix and the response of the mean to selection. *Journal of Evolutionary Biology*, 25(11):2210-2231.
- Eddy, SL, Kiemiec-Tyburezy, KM, Uyeda, JC and LD Houck.** 2012. The influence of sequential male courtship behaviors on courtship success and duration in a terrestrial salamander, *Plethodon shermani*. *Ethology*, 118(12):1240-1250.
- Uyeda, JC, Hansen TF, Arnold SJ and J Pienaar.** 2011. The million-year wait for macroevolutionary bursts. *Proceedings of the National Academy of Sciences*, 108(38):15908-15913.
- Westphal, MF, Morey, SR, Uyeda, JC, and Morgan, TJ.** 2011. Molecular phylogeny of the subfamily Amphistichinae (Teleostei: Embiotocidae) reveals a convergent loss of red pigmentation in two rapidly evolving lineages of sand-dwelling surfperch. *Journal of Fish Biology* 79:313-330.
- Uyeda, JC, Arnold, SJ, Hohenlohe, PA, and LS Mead.** 2009. Drift promotes speciation by sexual selection. *Evolution* 63(3):583-594.
- Uyeda, JC, Drewes, RC, and BM Zimkus.** 2007. The California Academy of Sciences

- Gulf of Guinea Expeditions (2001, 2006) VI. A new species of *Phrynobatrachus* from the Gulf of Guinea islands and a reanalysis of *Phrynobatrachus dispar* and *P. feae* (Anura: Phrynobatrachidae). Proceedings of the California Academy of Sciences, 58(18):367-385.
- Uyeda, JC**, and SR Kephart. 2007. Detecting species boundaries and hybridization in *Camassia quamash* and *C. leichtlinii* (Agavaceae) using allozymes. *Systematic Botany*, 31(4):642-655.

Grants and Fellowships

- 2011** Outreach Grant (Co-PI S. Eddy, \$800)
Society for the Study of Evolution
- 2011** Outreach Grant (Co-PI S. Eddy, \$800)
Precollege Programs, Oregon State University
- 2010** Doctoral Dissertation Improvement Grant (\$14,961, Co-PI S.J. Arnold)
National Science Foundation (Award No. 1011352)
“Determining the effects of hybridization on the evolvability of phenotypic traits using genomic markers”
- 2010** Outreach Grant (\$1000; Co-PI S. Eddy)
Precollege Programs, Oregon State University
“Darwin’s Legacy Workshop”
- 2009** Nordic research supplement (~\$20,000; Co-Sponsors T.F. Hansen and T. Schweder)
NSF/ Research Council of Norway (Project No. 194945/V11)
“Modeling the Tempo and Mode of Phenotypic Evolution”
- 2009** Zoology Research Fund (\$500)
Oregon State University
- 2007** Predoctoral Fellowship (\$130,500)
National Science Foundation (July 2007-July 2010)

Teaching Experience

- 2015** SSB Model Based Molecular Systematics Workshop, Guaruja, Brazil
- 2011** Lecturer, Oregon State University, Biology 445/545 (Evolution)
- 2011, 2012** Lecturer, Oregon State University, Biology 211 (Principles of Biology- Summer Term)
- 2011-2014** Teaching Assistant & Invited Lecturer, National Evolutionary Synthesis Center (Evolutionary Quantitative Genetics Workshop with SJ Arnold & J Felsenstein)
- 2010-2011** Teaching Assistant, Oregon State University, Biology 211, 212 & 213
- 2006-2007** Teaching Assistant, Oregon State University, Biology 211, 212 & 213
- 2009-2012** Undergraduate Research Mentor, Oregon State University, Zoology 401
- 2013** Invited Lecturer, University of Idaho, Biology 489 (Herpetology)
- 2012** Invited Lecturer, Oregon State University, Biology 445 (Evolution)
- 2009** Invited Lecturer, Oregon State University, Biology 370 (Ecology)
- 2006** Teaching Assistant, Willamette University, Biology 352 (Plant Sys & Evol)
- 2005** Teaching Assistant, Willamette University, Biology 355 (Vertebrate Zoology)
- 2004-2005** Teaching Assistant, Willamette University, Biology 125 (Ecology, Evol & Diversity)

Professional Service

Reviewer *Evolution, The American Naturalist, Molecular Ecology, Systematic Biology, Methods in Ecology and Evolution, Scientific Reports, Proceedings Royal Society B*

Community Outreach

March 2-5, 2015 Darwin Day Roadshow, Craigmont & Moscow, ID (~200 students, 2 schools)
April 21, 2013 Palouse Discovery Science Center, Pullman, WA (60 students)
October 24, 2011 “Evolution and Ecology Workshop”, Corvallis, OR (80 students, 4 teachers)
July 22, 2011 “GEAR UP” Latino student outreach panel, Corvallis, OR (30 students)
December 2, 2010 “Discovery Nights” -Wilson Elementary School, Corvallis, OR (50 students)
November 10, 2010 Philomath High School presentation, Philomath, OR (30 students)
September 20, 2010 “Darwin’s Legacy Workshop”, OSU (65 students, 7 teachers)
July 2, 2010 Evolution Teacher workshop, OSU (14 high school teachers)
May 18, 2010 West Albany High School visit to OSU (35 students)
April 15, 2010 Illinois Valley High School visit to OSU (35 students)
2010-2011 Dallas High School, (2 visits to 3 classes, ~60 students)
March 7, 2009 Science Potpourri, OSU (20 students)
January 22, 2009 Mountain View Elementary School, Corvallis, OR (23 students)
Spring, 2008 Fir Grove Elementary School (30 students)
2007-2011 Myers Elementary, Salem, OR (annual visits, 300 students)
2007 & 2008 SMILE tours, OSU (3 tours to middle school classes)
2007-2009 Avery House Volunteer, Corvallis, OR (3 events, 60 participants)
Spring, 2005 Earthwatch assistant (helped lead ~15 volunteers), Salem, OR

Professional Seminars/Talks

June 2015 Evolution 2015, Guaruja, Brazil. The evolution of energetic scaling relationships across the vertebrate tree of life. (contributed talk)
Nov 2014 Modern Phylogenetic Comparative Methods, Seville, Spain. *A novel Bayesian method for identifying adaptive shifts on phylogenies*. (contributed talk)
August 2014 Evolutionary Quantitative Genetics, NIMBIOS, Knoxville, TN. *From micro- to macroevolution: Waiting for evolutionary bursts* (invited lecture)
June 2014 Evolution 2014, Raleigh, NC. *Detecting billion year old rate shifts in microbial evolution*. (contributed talk, co-authors Carrine Blank, Lisa Moore and Luke Harmon)
April 2014 EVO-WIBO, Port Townsend, WA. *Bayesian modeling of adaptive evolution on phylogenies*.
August 2013 Evolutionary Quantitative Genetics, NESCENT, Durham, NC. *From micro- to macroevolution: Waiting for evolutionary bursts* (invited lecture)
http://academy.nescent.org/wiki/EOG_Lecture_6.1:_Testing_stochastic_models_with_microevolutionary_time-series_and_phylogenetic_data
July 2013 Evolution 2013, Snowbird, UT. *Better interpretation of patterns of trait evolution using a novel reversible-jump method of detecting adaptive regimes from phylogenetic comparative data* (contributed talk)

- July 2012** Evolution 2012, Ottawa, ON. *A classic example of stasis? Macroevolutionary patterns of body temperature evolution in mammals* (poster, co-authors TF Hansen, G. Bloom and J Pienaar)
- March 2012** Invited Lecture, Willamette University, Salem, OR. *The Evolutionary Blunderbuss: Connecting micro and macroevolution*
- August 2011** Evolutionary Quantitative Genetics, NESCENT, Durham, NC. *From micro- to macroevolution* (invited lecture)
[http://academy.nescent.org/wiki/EOG_Lecture_6.1: Testing stochastic models with microevolutionary, time-series and phylogenetic data](http://academy.nescent.org/wiki/EOG_Lecture_6.1:_Testing_stochastic_models_with_microevolutionary_time-series_and_phylogenetic_data)
- July 2011** Evolution 2011, Norman, OK. *How can evolutionary process models simultaneously explain micro- and macroevolutionary patterns? And How to study big evolutionary divergence databases* (contributed talk, co-authors TF Hansen, SJ Arnold and J Pienaar)
- July 2010** Evolution 2010, Portland, OR. *The Elephant in the Dark: Resolving Evolutionary patterns across timescales* (contributed talk, co-authors TF Hansen, SJ Arnold and J Pienaar)
- April 2010** EVO-WIBO, Port Townsend, WA. (Poster- Top Poster Award)
- Sept 2009** CEES annual conference, Holmen Fjordhotell, Norway. (contributed talk)
- July 2009** Joint Meetings of Ichthyology and Herpetology, Portland, OR. (Poster)
- June 2009** Evolution 2009, Moscow, ID. (Poster)
- June 2008** Evolution 2008, Minneapolis, MN. *Speciation by drift in female mating preferences* (contributed talk, co-authors SJ Arnold, PA Hohenlohe and LS Mead)
- April 2008** EVO-WIBO, Port Townsend, WA. (contributed talk, co-authors SJ Arnold, PA Hohenlohe and LS Mead)

Synergistic Activities

- (1) I am collaborating on the Arbor project as part of the Assembling, Visualizing and Analyzing the Tree of Life (AVAToL) program (<http://www.arborworkflows.com/>). Together with a team of software developers and biologists, our goal is to provide an extensible and scalable platform for analyzing and visualizing phylogenetic comparative data. My duties include incorporating and developing novel comparative methods for implementation in the Arbor software, collaborating with researchers analyzing phylogenetic comparative data across the AVAToL project, and working with software developers to develop flexible and extensible tools for biologists interested in using or developing comparative methods.
- (2) I co-founded a cross-departmental graduate student outreach organization at OSU called BIO-GradS (Broader Impacts and Outreach by GRADuate Students). As co-PI, I have obtained 3 outreach grants totaling \$2600 (Society for the Study of Evolution and Precollege Programs, OSU) and conducted two workshops for rural and underserved high schools in Oregon as well as a graduate level seminar on developing outreach (>15 separate events, >700 students and >40 teachers). I have focused on the development of modules to teach evolutionary quantitative genetics and/or molecular phylogenetics.
- (3) I taught three courses at Oregon State University as instructor, Biology 211 (twice) and Evolution 445/545. I developed my own lectures, activities and exams for these courses. In addition, I have taken 3 terms of teaching seminars at OSU to improve my teaching and mentoring abilities. A bioinformatics laboratory I developed has been implemented into the laboratory for Biology 213 at Oregon State University. This course reaches approximately 1000 students a year.
- (4) I have been a course instructor and TA for Joe Felsenstein and Stevan J Arnold's course on Evolutionary Quantitative Genetics at NESCENT and NIMBioS. My tasks included assisting in

the development and implementation of computational exercises and giving a lecture on the connection between microevolutionary and macroevolutionary patterns. The course spans topics from quantitative genetics to comparative methods.

https://academy.nescent.org/wiki/Evolutionary_quantitative_genetics