Tenure Promotion

Ecology & Evolutionary Biology

Dr. Brian O'Meara

Fall 2014

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A. SUMMARY

Summary Sheet

Recommendations for Promotion and/or Tenure

Name of faculty member: Brian O'Meara

Present rank: Assistant Professor

Department: Ecology and Evolutionary Biology Highest degree earned: Ph.D.

Original UTK rank: Assist. Prof. Subsequent promotions (year, rank): _____

UTK RECORD

Date of original UTK appointment as a full-time probationary faculty member: 1 August 2009

Years of full-time teaching experience at instructor rank or above before UTK probationary period: 0

Years of full-time teaching at UTK, as of the May 31st prior to the review: 5

Total years of teaching: 5 Latest year for tenure review as stipulated in appointment letter: 2014-2015

RECOMMENDATIONS

DEPARTMENTAL FACULTY
Date of departmental discussion: 3 December 2008
Result of discussion: For: 9 Against: 0 Abstain: 0
Recuse (attach explanation for conflict of interest): N/A
Is there a dissenting report? [ ] Yes (please attach) [X] No
Is there a response from the candidate? [ ] Yes (please attach) [X] No

INTERDISCIPLINARY COMMITTEE OR DIRECTOR (where appropriate)
For: _____ Against: _____(*Provide letter*)

DEPARTMENT HEAD [X] Recommend approval [ ] Do not recommend approval
Provide a statement on the professional record and a summary recommendation.

COLLEGE COMMITTEE
For: _____ Against: _____ Abstain: _____
Recuse (attach explanation for conflict of interest): _____

A copy of the report of the departmental and college committees must also be attached. In cases where this report disagrees in any substantial way with the departmental recommendation, this report must go beyond a listing of the vote to indicate as fully as possible the reasons for the differences.

DEAN [ ] Approve [ ] Disapprove (*Provide letter*)

CHIEF ACADEMIC OFFICER [ ] Approve [ ] Disapprove (*Provide letter*)

CHANCELLOR'S RECOMMENDATION TO THE PRESIDENT
[ ] Approve [ ] Disapprove (*Provide letter*)

Educational History and Employment History

Candidate Name: Brian Christopher O'Meara

Educational History

Institution	Program or Degree	Dates in Program	Degree
University of California, Davis	Ph.D.	2002-2008	Ph.D.
Harvard University	B.A. with magna cum laude and highest honors in biology	1997-2001	B.A.

Employment History

Ranks Held	Institution	Department	Effective Date of Rank
Assistant Professor	University of Tennessee	Ecology and Evolution	2009- present
Postdoc	NESCent		2008 – 2009

Department of Ecology and Evolutionary Biology

Statement of Responsibilities

Dr. Brian O'Meara

I. Teaching

To receive tenure, a member of the faculty of the Department of Ecology and Evolutionary Biology (EEB) is expected to develop excellence in teaching at either or both of the undergraduate and graduate levels. It is expected that the teaching load of an individual faculty member be reviewed periodically in order to adjust for different levels of research and service activities. There is no set teaching load.

Dr. O'Meara initiated 400-level course in Macroevolution in his first year and has offered it every year since. It has grown from eight students to approximately thirty, including graduate students from the Geology and Ecology & Evolutionary Biology departments as well as undergraduate students majoring in Chemistry, Geology, Ecology & Evolutionary Biology, and Animal Science. This class features a mixture of lecture, clicker questions, discussions, student presentations, and use of statistical software for simulations. He has also taught in EEB511, the team-taught core course in evolution, every fall (and is one of only three faculty in our department to have done so). In Fall 2013 he was the instructor of record for this course. He has also taught Biology 130, Biodiversity, in Spring 2012 and in Spring 2014, and has been involved in discussions regarding restructuring this course to meet core learning objectives of Biology. Dr. O'Meara has been an instructor in EEB607 twice, EEB503 twice, EEB504, and EEB511 twice. He has also guest lectured in courses in Sweden, Austria, North Carolina, Tennessee, and Switzerland (in addition to research talks).

II. Research

A junior member of the faculty of EEB is expected to develop a significant, externally funded program of original research in his or her area of expertise. Regular publication is expected, with at least some papers being in high-quality journals.

Dr. O'Meara conducts research about macroevolutionary processes leading to current diversity. Much of his research involves the development and testing of phylogenetic methods. He has published numerous peer-reviewed papers in high impact journals (*Nature*, *PNAS*), including invited syntheses of the field in journals such as the *Annual Review of Ecology, Evolution, and Systematics*. His software implementing new methods has been broadly used. He has participated in five working groups at NESCent and NIMBioS. He has received grants of $132,345, $138,590, and $98,252 (sole recipient) from the iPlant Collaborative (NSF-sponsored), a grant of $141,143 from NSF as Co-PI ($28,228 for his use), a grant of $320,000 from NSF as PI (with additional funds going to Co-PI Bryan Carstens), a grant of $520,000 from NSF as PI (the grant total includes funding for Co-PI Gilchrist), plus various smaller awards, generally to researchers he mentors, from places such as Google Summer of Code and the Encyclopedia of Life.

III. Service

A junior member of the faculty of EEB is expected to develop a record of service to the department and the profession.

Locally, Dr. O'Meara serves on the web committee as sole faculty representative as well as the graduate admissions committee and the department head search committee; in the past he has also served on the undergraduate education committee. He served as a member of the Dean's Advisory Council for three years. He organized a multi-department speaker series on women in science using Haines-Morris funds. Dr. O'Meara is faculty advisor for Darwin Day Tennessee. Dr. O'Meara has mentored ten postdocs while at Tennessee, including approximately 19% of all NIMBioS postdocs.

Internationally, he is an elected member of the Society of Systematic Biologists Council, a member of the Phylotastic Hackathon leadership team, organizer of lightning talks for the Evolution 2013 meeting in Snowbird, Utah (1400 participants from three international societies), co-organizer of the Evolution 2014 meeting in Raleigh, NC (nearly 2000 participants from three international societies), member of the Steering Committee for the iEvoBio meetings, and an associate editor for *Methods in Ecology and Evolution*. He has reviewed for journals and organizations such as NSF, *Science*, *Evolution*, *Systematic Biology*, and many more. Dr. O'Meara is the Society of Systematic Biologists' liaison to three-society initiative for removing barriers to women in science and pursues other work on removing barriers for women in science). He has also taught and organized numerous workshops in phylogenetics and computing, nationally and internationally.

APPENDIX to the DEPARTMENTAL BYLAWS

Department of Ecology & Evolutionary Biology
University of Tennessee, Knoxville

Criteria for Retention, Tenure, and Promotion

The department expects that all members of its faculty contribute with respect to research, teaching, and service. A clear record of accomplishments and potential in these areas is absolutely necessary for positive tenure and promotion actions. It is recognized that the level of contribution and achievement in each of these areas may not be equal. Accordingly, limited achievement in one area may be offset by excellence in the others. The following metrics of professional ability and accomplishment, not presented in rank order, will be among the key factors included in deliberations regarding annual retention review of tenure-track Assistant Professors, awarding of tenure and promotion to the rank of Associate Professor, promotion to the rank of Professor, and for annual and accumulative post-tenure reviews.

Metrics

Teaching ability and effectiveness

- compilations of student evaluations
- reports from peer teaching review committees
- comments by colleagues (including external reviewers) who have first-hand knowledge of the faculty member's teaching performance and/or communication skills
- written comments of students
- curriculum or pedagogical activities and accomplishments
- national and/or local teaching activities
- level of contribution to the teaching mission of the department

Research and Scholarly Activities

- level of external support (relative to peers in equivalent or similar scientific areas)
- significance of comments by professional peer reviewers
- national/international awards and recognition
- significance and number of publications in refereed journals, as well as contributions to scientific monographs and textbooks
- invited presentations at scientific meetings
- contributed presentations and involvement in contributed presentations
- invitations to organize symposia, prepare monographs, edit volumes, etc.
- local awards

Service

- participation in departmental Faculty Meetings
- participation in departmental, College, and University committee activities
- participation in professional outreach, including involvement with K-12 schools, regional industry, and community organizations
- contributions to national, regional, and local agencies
- membership and participation in professional organizations
- participation in meetings and symposia as organizer or chairperson
- reviewing and editorship efforts

Criteria by Academic Rank

I. Retention

A non-tenured Assistant Professor should:

A. hold a doctorate in an appropriate field
B. have an active research program with the goal of establishing a strong record of accomplishment involving the factors listed above by the time of consideration for tenure and promotion
C. demonstrate a strong commitment to teaching and clear promise of excellence in classroom performance
D. participate significantly in professional activities in the discipline beyond formal teaching and research

II. Tenure and Promotion to Rank of Associate Professor (and Expectations of an Associate Professor undergoing Annual or Cumulative Review)

An Assistant Professor applying for tenure and promotion to the rank of Associate Professor, or an Associate Professor undergoing annual or cumulative review, should:

A. hold a doctorate in an appropriate field
B. normally have served as an Assistant Professor for a minimum of four years
C. have a strong internationally-recognized record of research and scholarly activity, as measured by the metrics listed above, with clear promise that promotion to Professor is likely at some point in the future
D. successfully mentored M.S. and/or Ph.D. students
E. show clear evidence of competent teaching
F. have a reasonable and balanced record of contributions to meeting the service needs of the University, the discipline, and the community

III. Promotion to Rank of Professor (and Expectations of a Professor undergoing Annual or Cumulative Review)

An Associate Professor applying for promotion to the rank of Professor, or a Professor undergoing annual or cumulative review, should:

A. hold a doctorate in an appropriate field
B. normally have served as an Associate Professor for at least four years
C. have acquired an international record of research and scholarly activity according to the factors listed above that is indicative of continuous and progressive professional development since appointment to the faculty of the University
D. have successfully mentored Ph.D. students
E. have achieved a demonstrated record as an conscientious and effective teacher in his/her field
F. have contributed significantly and substantially in some combination to meeting the service responsibilities of the University, the discipline, and the community

STATEMENT OF CRITERIA FOR PROMOTION AND TENURE
COLLEGE OF ARTS AND SCIENCES
UNIVERSITY OF TENNESSEE, KNOXVILLE

(Revised Fall, 1996)

Recommendations for promotion and tenure by the College of Arts and Sciences shall be made in full accordance with established policies and procedures of the University of Tennessee, Knoxville, as outlined in Sections 2.13 and 2.14 of the September, 1996, Edition of the Faculty Handbook. College criteria for faculty promotion and tenure are varied and complex. They recognize that each faculty position has its own distinctive requirements and that the missions of academic units within the college are highly diverse. Moreover, advancement in academic rank and/or the award of tenure must be based on a faculty member's demonstrated proficiency in fulfilling his/her particular role and in contributing to the performance of the unit mission.

Beyond these specific considerations, the College expects all faculty members to make significant contributions in three general areas of academic life: (a) teaching and corollary activities; (b) research, scholarship, and creative accomplishment; and (c) service to the College, University, public and profession. It is recognized that individual contributions may not be equal in these three areas. Accordingly, more limited achievement in one area may be offset by unusual excellence in the other two areas. Any such differentiation among the three dimensions of faculty participation must be consistent with the commitment of the University of Tennessee, Knoxville, to a distinctive research mission. Successful faculty members will share that commitment. A clear record of continuing accomplishment and potential in this area is, therefore, absolutely necessary for positive promotion and tenure consideration.

It is the view of the College that the excitement and inspiration of active research and creative accomplishment are essential to sustained enthusiasm for teaching and effectiveness in the classroom. Recognizing the critical importance of the teaching mission in higher education, the College seeks excellence of instruction not only as a goal but also as a demonstrated fact. Systematic documentation of teaching quality and effective results is expected of all faculty under consideration for promotion and/or tenure.

Finally, it is assumed that all members of the Faculty will contribute to non-teaching service in their Departments, the College and the University, as well as to their professions and the public. They will be expected to provide documentation of such service at the time of promotion and/or tenure consideration.

More specific criteria by academic rank may be summarized as follows:

PROFESSOR

1. Should hold the doctorate or other terminal degree in the discipline, or possess outstanding experience and expertise appropriate to the particular appointment;
2. should normally have served as an Associate Professor for at least five years;
3. should have acquired an established national professional reputation demonstrated through a record of research, scholarship, or creative accomplishment, indicative of continuous and progressive professional development since faculty appointment in the University;
4. should have achieved a demonstrated record as an accomplished teacher in his/her field; and
5. should have contributed significantly and substantially in some combination to meeting the needs of the University, the community, and the profession. Service expectations are greater for Full Professors than for individuals holding lesser ranks.

ASSOCIATE PROFESSOR

1. Should hold the doctorate or other terminal degree in the discipline, or possess outstanding experience and expertise appropriate to the particular appointment;
2. should normally have served as an Assistant Professor for at least four years;
3. should have a strong record of research, scholarship, or creative accomplishment with clear promise that promotion to Professor is likely at some point in the future. Appropriate evidence would be publication of a book-length manuscript or comparable contributions to the profession; and
4. should show evidence of excellence in teaching, including one or more evaluations by peer visitation of classes prior to consideration of promotion to Associate Professor.

ASSISTANT PROFESSOR

5. Should hold the doctorate or other terminal degree in the discipline, or possess outstanding experience and expertise appropriate to the particular appointment;
6. should have established an active research/creative achievement program with the goal of publishing a book-length manuscript or equivalent research contributions, or making comparable contributions to creative achievement by the time of consideration for promotion and tenure;
7. should demonstrate strong interest in teaching and clear promise of classroom excellence in performance; and
8. should participate significantly in professional activity in the discipline beyond formal teaching and research.

B. TEACHING ABILITY AND EFFECTIVENESS

Statement of Teaching Philosophy and Description of its Implementation

My overall teaching goal is to create students who have the skills of creative, skeptical scientists, curious about evolutionary processes, while being grounded with deep knowledge of biological patterns and mechanisms. This is accomplished through teaching a mixture of large introductory lecture courses, graduate seminars and courses, and most centrally, a mixed upper level undergraduate/introductory graduate student course in macroevolution.

My Macroevolution course (EEB464) was started in my first year here and has been growing since. The class explicitly targets four Biology degree-level learning outcomes ("Evolution: Populations of organisms and their cellular components have changed over time through both selective and non- selective evolutionary processes", "Formulate empirically-testable hypotheses", "Interpret visual representations (figures and diagrams)", and "Evaluate data and come to a conclusion (with evidence) (formulate an argument)"). The class is a mixture of lecture, small group discussions, class discussions, and investigations, both computational and empirical. Technology (laptops, clickers, homemade interactive white board, embedded videos) is used as appropriate to engage students and assess progress, but students also get hands on experience looking at fossils or other biological specimens. Lectures are recorded for students to review later if needed. For class discussions, I often will have them break into small groups to talk about an issue and then come together for an entire class discussion, so that students may try out their ideas on one or two peers before voicing them to the entire class. I also encourage class discussions to feature dialog with each other, rather than just response to me. Over the course of a semester the class covers various topics in macroevolution such as differential diversification and the history of life on earth. I emphasize how we know about these things, how to perform experimental tests of these ideas, and current work on the topics, so students see science as an ongoing process of discovery rather than a static set of facts. Students are assessed through clicker questions (some reviewing past topics, some based on a list of key taxa students are assigned to learn, some just to have students commit to hypotheses about data presented in class), essay-based tests, a report on a topic including what work still has to be done on it, and a pair presentation covering a graduate-level research proposal. In addition to positive reviews and growing numbers, one measure that shows the class's impact is the number of graduate students from the EEB and Geology departments who are encouraged by their committees to take it. Committees justifiably want to protect students from taking courses at the cost of their research, but several faculty feel that the content in this course is worth the time it takes for students to take it.

I do extensive teaching at the graduate level. Some of this is for classes that are reading groups, while another is for a shared multiple lab discussion group. This started as simply a joint meeting of four small labs (for example, my lab was originally just me) but is now an active discussion group with students from at least seven lab groups enrolled. It covers a mixture of work in progress as well as recent relevant papers to students' research. My goal in all these classes is to encourage students to focus on the questions being addressed by their work or others: it is easy for students to adopt popular methods without considering whether those are the best way to address their questions. I have also been heavily involved in our Evolution core course, being one of only three faculty to teach in the Evolution or Ecology core each of the past six years. I have been working in that course to have students focus on understanding the questions that can be addressed and why someone might want to rather than focusing on the minutia of current

methods. I try to teach students to see the connections across methods (for example, all the methods that use a discrete state transition matrix, even though some are for inferring trees while others are for investigating biogeographic history). We have also worked to make the core an early way for students to get feedback on their projects before they even set up their committees, which may have some role in EEB's remarkable success at getting NSF graduate research fellowships or honorable mentions. My work in the core generally comes on top of regular teaching; for example, this semester (Fall 2014), I am teaching EEB607: Speciation (15 students), EEB464: Macroevolution (28 students), co-organizing the discussion seminar EEB504: HOFF (9 students), and teaching a month of EEB511: Core (12 students).

In 2012 and 2014 I taught the large introductory biology class Bio130, Biodiversity. I use readings, clicker questions, MasteringBiology assignments, and parts of lectures to teach basic material, and the remaining parts of lectures to having students learn to think about the material at higher levels of understanding. In addition to anonymous feedback during the class (see below), I embedded observers in the class to see how students were taking notes and engaging with the lectures. I have also been involved in the ongoing discussion regarding class structure and content organized by Beth Schussler to align with the overall Biology framework.

Due to my expertise in the field I have frequently been asked to teach in short workshops (this is in addition to research talks). I often give these virtually to prevent disruption of regular duties as well as the expense and hassle of travel. I have taught in Sweden, Austria, North Carolina, and Switzerland. I also organized and taught at a workshop at NIMBioS on computational resources for phylogenetics. This course included students from around the world and had a fairly even gender balance.

I have certain approaches I try to extend across all my classes. One is real time assessment of my teaching: I give students a link to an anonymous form (http://www.brianomeara.info/feedback) they can use to give feedback on any part of the class at any time. This allows me to improve the class for the students in it rather than just waiting for SAIS reports at the end. I also try to use all the time students are in the room to promote learning, rather than just the assigned class times. For example, some students may show up half an hour early for some classes, and I typically have an educational video relevant to the day's focal topic running they can learn from while waiting. One consistent theme in student reviews is my enthusiasm for the subject matter. Based on student reactions, my classes are also seen as a safe place to ask questions about confusing material. I also assess knowledge, including using standard reference questions to measure content acquisition during a course; information about the baseline knowledge of our department's grad students, for example, comes from assessments I write and grade.

Mentoring of graduate students and postdocs is also an important part of my teaching. I have had ten postdocs come through my lab: some from internal funds (startup or NSF) and others as co-mentored NIMBioS postdocs. I also advise three graduate students and co-advise a fourth. In addition to my own students, I have served on the committees of eleven other graduate students in three graduate programs at UTK and one at Vanderbilt. With all of them, my goal has been to help the student or postdoc achieve her or his professional goals. This may require more teaching experience for some and more work on programming skills for others. I try to create a supportive environment where people are encouraged to propose new ideas but also know that they will receive constructive, honest feedback.

Summary of Teaching Assignments for Review Period

Semester	*Dept. Course #*	*Course Title*	*Credit Hours*	*14-day enrlmnt*	*% Respon*	*Lec (L)/ Lab (B)*	*# GTAs assisting*	Honors Y/N
Fall 2009	EEB511*	Core	4	7	13	L	0	N
Spring 2010	EEB409	Perspectives	3	13	100	L	0	N
Spring 2010	EEB607	Speciation	1	13	100	L	0	N
Fall 2010	EEB511*	Core	4	8	13	L	0	N
Spring 2011	EEB503	Seminar	1	35	100	L	0	N
Spring 2011	EEB607	Speciation	1	9	100	L	0	N
Fall 2011	EEB464	Macroevolution	3	24	100	L	0	N
Fall 2011	EEB504*	HOFF	1	7	25	L	0	N
Fall 2011	EEB503	Seminar	1	44	100	L	0	N
Fall 2011	EEB511*	Core	4	12	13	L	0	N
Spring 2012	Bio130	Biodiversity	3	206	100	L	1	N
Fall 2012	EEB464	Macroevolution	3	22	100	L	0	N
Fall 2012	EEB511*	Core	4	14	25			
Fall 2012	EEB504*	HOFF	1	5	25	L	0	N
Spring 2013	EEB607*	HOFF	1	8	25	L	0	N
Fall 2013	EEB464	Macroevolution	3	30	100	L	0	Y
Fall 2013	EEB504*	HOFF	1	11	25	L	0	N
Fall 2013	EEB511*	Core	4	19	50	L	0	N

Spring 2014	**EEB602**	**Phyloseminar**	**1**	**24**	**100**	**L**	**0**	**N**
Spring 2014	**EEB607**	**HOFF**	**1**	**6**	**25**	**L**	**0**	**N**
Spring 2014	**Bio130**	**Biodiversity**	**4**	**93**	**100**	**L**	**0**	**N**
Fall 2014	**EEB464**	**Macroevolution**	**3**	**28**	**100**	**L**	**0**	**Y**
Fall 2014	**EEB504**	**HOFF**	**1**	**9**	**33**	**L**	**0**	**N**
Fall 2014	**EEB511**	**Core**	**4**	**12**	**40**	**L**	**0**	**N**
Fall 2014	**EEB607**	**Speciation**	**1**	**15**	**100**	**L**	**0**	**N**

*My responsibility for the Core course varies from 13% to 50%. My involvement for the HOFF course varies from 25% to 33%.

SAIS Reports

Sem/ Year	Course/ Hrs	No. of Students	No. of Responses	Course Overall	Course Content	Instructor's Contribution	Teaching Effectiveness
Spring 2010	**EEB409/3**	**13**	**11**	**3.55**	**3.73**	**4.09**	**3.55**
Spring 2010	**EEB607/1**	**9**	**6**	**3.67**	**3.83**	**4.00**	**3.83**
Fall 2011	**EEB464/3**	**24**	**17**	**4.24**	**4.18**	**4.35**	**4.24**
Fall 2011	**EEB503/1**	**44**	**18**	**4.00**	**3.88**	**4.25**	**4.25**
Spring 2012	**Bio130/3**	**206**	**102**	**3.05**	**3.14**	**3.04**	**2.67**
Fall 2012	**EEB464/3**	**22**	**14**	**4.36**	**4.29**	**4.64**	**4.36**
Spring 2013	**EEB607/1***	**5**	**5**	**4.80**	**4.80**	**5.00**	**5.00**
Fall 2013	**EEB511/4***	**19**	**11**	**2.64**	**2.91**	**3.55**	**3.27**
Fall 2013	**EEB464/3**	**30**	**15**	**4.00**	**4.20**	**4.40**	**4.20**
Spring 2014	**Bio130/3**	**93**	**28**	**3.04**	**3.14**	**3.43**	**3.07**
Spring 2014	**EEB602/1**	**24**	**8**	**4.38**	**4.50**	**4.88**	**4.75**

Range: 0-5; 5 = excellent, 0 = very poor

***Courses with asterisks are team-taught.**

Peer Review of Teaching

Sandy Echternacht has reviewed my teaching; Randy Small has also attended one of my lectures for Bio130. In Spring 2014 Mike Gilchrist, Ed Schilling, and Sally Horn evaluated my teaching.

Summary of Student Comments

To be supplied by Dept. Head.

Graduate Supervision

Summary of Graduate Dissertation (Doctoral) Supervision

Name	***Graduation Year***	***Dissertation Title***	**Placement**
Katie Massana	Started Fall 2012	Statistical biogeography	
Jen Bosco (advisor Riechert; I am co-advisor)	Started Fall 2012	Evolution of spider behavioral traits	
Orlando Schwery	Started Fall 2014	Phylogenetic methods	

Summary of Graduate Dissertation (Masters) Supervision

Name	***Graduation Year***	***Dissertation Title***	**Placement**
Sam Borstein	Started Fall 2013	Cichlid evolution	

Graduate Committees

Name	*Dept.*	*Degree*	*Project Title*	Date Completed
Jeremy Blaschke	Entomology and Plant Pathology	PhD	Phasiinae phylogenetics	
Phillip Hollingsworth	EEB	PhD	Fish evolution	May 2014
Ivan Juric	EEB	PhD	Population evolution	Dec 2013
Leonidas Salichos	Vanderbilt	PhD	On the identification of factors influencing phylogenetic accuracy	June 2014
Will Atwood	Geology	PhD	Examining Pentremitidae: Species Discrimination, Systematics, and Ontogeny	May 2014
Mauricio González Forero	EEB	PhD	Major evolutionary transitions mediated by manipulation	
Sharon Clemmensen	EEB	PhD	Fish evolution	
Will Howell	EEB	PhD	Protein evolution	
Max Rupp	EEB	Masters	Fish evolution and behavior	
Troy Fadiga	Geology	PhD	Echinoderm evolution	
Geetha Saarunya S	GST	PhD	Function and evolution of permafrost bacteria	
Jordan Utley	GST	Masters	Rapid detection of pathogens	May 2014
Marisol Sanchez	EEB	PhD	Fungal systematics	

Postdoctoral Mentees

Name	*Funding*
Hugo Alamillo	Startup
Barb Banbury	iPlant
Jeremy Beaulieu	NIMBioS
JJ Chai	NIMBioS
Nathan Jackson	NSF
Tony Jhwueng	NIMBioS
Sandy Kawano	NIMBioS
Michelle Lawing	NIMBioS
Ryan Martin	NIMBioS
Nick Matzke	NIMBioS

C. RESEARCH, SCHOLARSHIP, CREATIVE ACTIVITY

Candidate's Statement

My research addresses key questions in macroevolution to understand the processes leading to present diversity and disparity. I do this through construction and extensive testing of new approaches and the implementation of these in user-friendly software, as well as by examination of particular biological examples. These papers aim to be major works that move the field rather than mere examples of things we already know. One focus in my work has been dealing with heterogeneity of biological processes. The factors affecting oak tree evolution probably differ from those affecting water lily evolution, but nearly all methods apply the same set of parameters to all taxa being investigated. My work on dealing with different evolutionary rates (O'Meara et al. 2006) has been cited 241 times and has been used for things as varied as fish jaw evolution and flower size. This work has continued to deal with heterogeneity of multiple parameters for a single trait on a tree (Beaulieu et al. 2012). Work on discrete characters (O'Meara 2007) has also been extended to deal with hidden rates (Beaulieu et al. 2013). In the lab we have also created a general forward in time simulation model that was featured in an invited Evolution symposium in 2012. I have also coauthored other publications using or testing various phylogenetic methods (Farrell et al. 2001; Driskell et al. 2004; Collar et al. 2009; Smith and O'Meara 2009; Collar et al. 2010; Abercrombie et al. 2011; Hulsey et al. 2013; Soltis et al. 2013; Jhwueng et al. 2014; Williams et al. 2014).

I have also worked on species delimitation (O'Meara 2010). An NSF grant based on using these techniques, with others, on fungal datasets, with PI Karen Hughes and me as one of the CoPIs, was recently funded. I have continued to develop the method, which was presented at a different Evolution symposium in 2013. I was also PI on a preproposal and proposal based on this work which resulted in a grant of $340,000 for UTK as well as additional funds for my CoPI Bryan Carstens. This is funding another postdoc in my lab; we are currently finishing simulations for a manuscript we will submitting to *PNAS*.

Another aspect of research effort has been on extending phylogenetic models. From collaborations with JJ Chai, a NIMBioS postdoc, and Mike Gilchrist, a faculty member in EEB at UTK, I have helped to create codon and amino acid models which use explicit parameters about optimal amino acids, strength of selection, and amino acid similarities to create transition matrices for phylogenetic inference with realistic features such as different rates for different optimal amino acids and unequal gain and loss rates for amino acids or codons (it is more likely to evolve towards a codon representing the optimal amino acid than away from it, for example). We have recently been awarded $520K from the NSF to continue this work (me as PI, Dr. Gilchrist as Co-PI) and are readying a publication on the approaches. Our source code for the model is an R package available on github.

Another creative activity has been making sure that other biologists can do analyses. This has resulted in papers on re-usability of trees (Stoltzfus et al. 2012), hackathons to create new tools (Stoltzfus et al. 2013), and cyberinfrastructure for phylogenetics (Goff et al. 2011), for which my lab received a total of $369,187 from three sets of funding. We have also received $50,000 from the Encylopedia of Life as a Rubenstein fellowship to Barb Banbury with summer funding for me as well for an R interface to the Encyclopedia of Life (Banbury and O'Meara 2014). Work has also involved developing fast algorithms for analyses (Smith and O'Meara 2012) and new implementations of my software (Stack et al. 2011) (funded by Google Summer of Code).

I have also been involved in reviews, often invited, of comparative methods or phylogenetics, including a review of methods for the *Annual Review of Ecology, Evolution, and Systematics* (O'Meara 2012) (which was the most downloaded paper in the journal), a chapter on phylogenetic reconstruction in the *Encylopedia of Theoretical Ecology* (Hastings and Gross 2012), a review of phylogenetic methods in R (O'Meara 2014), and book chapters (Beaulieu and O'Meara 2014; O'Meara and Beaulieu 2014) as well as other invited works in prep.

There is other work in the pipeline that is not listed here. For example, I am lead author on a manuscript on floral evolution that pioneers use of multiple characters simultaneously to look at their joint effect on diversification and transition and show the importance of non-equilibrium processes in structuring life; this was reviewed and rejected for *PNAS* and is being revised for a mid-tier journal. I am revising a manuscript for *Systematic Biology* on extending comparative methods for a network. By the time this tenure packet is evaluated (November 2014), I expect to have a manuscript about settlement bias of plants on Hawaii and a manuscript about a new general diversification model also submitted. A paper questioning the widespread belief that extinction cannot be estimated from neontological phylogenies is currently being revised *Evolution*.

I have also participated in five different NESCent or NIMBioS working groups while a faculty member here, ranging in topics from evolution of play in animals to gene tree species tree incongruence. Some of these have resulted in papers, manuscripts in prep, or grant proposals; others are still in progress.

C2. Research And Scholary Publications

In the articles listed below, I am only an author if I contributed substantially to a paper. I have advised several grad students and postdocs on work that led to a publication, but even if they are in my lab group, I am not automatically an author. Standards for this vary dramatically in the field; in some groups, the PI is an author on any publication leaving her or his lab, while others have a stricter criterion for authorship; I am on the stringent end of the spectrum.

C2a. Articles Published in Refereed Journals

My work is highly cited, with 1138 citations overall, 925 since 2009 alone.

Abercrombie, J. M., B. C. O'Meara, A. R. Moffatt, and J. H. Williams. 2011. Developmental evolution of flowering plant pollen tube cell walls: callose synthase (CalS) gene expression patterns. EvoDevo 2:14.

Banbury, B. L. and B. C. O'Meara. 2014. Reol: R interface to the Encyclopedia of Life. Ecology and Evolution.

Beaulieu, J. M., D.-C. Jhwueng, C. Boettiger, and B. C. O'Meara. 2012. Modeling Stabilizing Selection: Expanding the Ornstein-Uhlenbeck Model of Adaptive Evolution. Evolution 66:2369-2383.

Beaulieu, J. M., B. C. O'Meara, and M. J. Donoghue. 2013. Identifying hidden rate changes in the evolution of a binary morphological character: the evolution of plant habit in campanulid angiosperms. Systematic biology.

Collar, D. C., B. C. O'Meara, P. C. Wainwright, and T. J. Near. 2009. Piscivory Limits Diversification of Feeding Morphology in Centrarchid Fishes. Evolution 63:1557-1573.

Collar, D. C., J. A. Schulte, B. C. O'Meara, and J. B. Losos. 2010. Habitat use affects morphological diversification in dragon lizards. Journal of Evolutionary Biology 23:1033-1049.

Cornwell, W. K., M. Westoby, D. S. Falster, R. G. FitzJohn, B. C. O'Meara, M. W. Pennell, D. J. McGlinn, J. M. Eastman, A. T. Moles, and P. B. Reich. 2014. Functional distinctiveness of major plant lineages. Journal of Ecology 102:345-356.

Driskell, A. C., C. Ane, J. G. Burleigh, M. M. McMahon, B. C. O'Meara, and M. J. Sanderson. 2004. Prospects for building the tree of life from large sequence databases. Science 306:1172-1174.

Farrell, B. D., A. S. Sequeira, B. C. O'Meara, B. B. Normark, J. H. Chung, and B. H. Jordal. 2001. The evolution of agriculture in beetles (Curculionidae : Scolytinae and Platypodinae). Evolution 55:2011-2027.

Goff, S. A., M. Vaughn, S. McKay, E. Lyons, A. E. Stapleton, D. Gessler, N. Matasci, L. Wang, M. Hanlon, A. Lenards, A. Muir, N. Merchant, S. Lowry, S. Mock, M. Helmke, A. Kubach, M. Narro, N. Hopkins, D. Micklos, U. Hilgert, M. Gonzales, C. Jordan, E. Skidmore, R. Dooley, J. Cazes, R. McLay, Z. Lu, S. Pasternak, L. Koesterke, W. H. Piel, R. Grene, C. Noutsos, K. Gendler, X. Feng, C. Tang, M. Lent, S.-J. Kim, K. Kvilekval, B. S. Manjunath, V. Tannen, A. Stamatakis, M. Sanderson, S. M. Welch, K. A. Cranston, P. Soltis, D. Soltis, B. O'Meara, C. Ane, T. Brutnell, D. J. Kleibenstein, J. W. White, J. Leebens-Mack, M. J. Donoghue, E. P. Spalding, T. J. Vision, C. R. Myers, D. Lowenthal, B. J. Enquist, B. Boyle, A. Akoglu, G. Andrews, S. Ram, D. Ware, L. Stein, and D. Stanzione. 2011. The iPlant Collaborative: Cyberinfrastructure for Plant Biology. Frontiers in plant science 2:34-34.

Hulsey, D. C., B. P. Keck, H. Alamillo, and B. C. O'Meara. 2013. Mitochondrial genome primers for Lake Malawi cichlids. Molecular ecology resources 13:347-353.

Jhwueng, D.-C., S. Huzurbazar, B. C. O'Meara, and L. Liu. 2014. Investigating the performance of AIC in selecting phylogenetic models. Statistical applications in genetics and molecular biology.

O'Meara, B. C. 2007. Estimating Different Rates of Gene Loss on a Tree. Genetics 177:1415-1416.

O'Meara, B. C. 2010. New Heuristic Methods for Joint Species Delimitation and Species Tree Inference. Systematic Biology 59:59-73.

O'Meara, B. C. 2012. Evolutionary Inferences from Phylogenies: A Review of Methods. Annual Review of Ecology, Evolution, and Systematics 43.

O'Meara, B. C., C. Ane, M. J. Sanderson, and P. C. Wainwright. 2006. Testing for different rates of continuous trait evolution using likelihood. Evolution 60:922-933.

Smith, S. A. and B. C. O'Meara. 2009. Morphogenera, monophyly, and macroevolution. Proceedings of the National Academy of Sciences of the United States of America 106:E97-E98.

Smith, S. A. and B. C. O'Meara. 2012. treePL: Divergence time estimation using penalized likelihood for large phylogenies. Bioinformatics.

Soltis, D. E., M. E. Mort, M. Latvis, E. V. Mavrodiev, B. C. O'Meara, P. S. Soltis, J. G. Burleigh, and R. Rubio de Casas. 2013. Phylogenetic Relationships and Character Evolution Analysis of Saxifragales Using a Supermatrix Approach. American Journal of Botany 100:916-929.

Stack, J. C., L. J. Harmon, and B. O'Meara. 2011. RBrownie: an R package for testing hypotheses about rates of evolutionary change. Methods in Ecology and Evolution 2:660-662.

Stoltzfus, A., H. Lapp, N. Matasci, H. Deus, B. Sidlauskas, C. M. Zmasek, G. Vaidya, E. Pontelli, K. Cranston, R. Vos, C. O. Webb, L. J. Harmon, M. Pirrung, B. O'Meara, M. W. Pennell, S. Mirarab, M. S. Rosenberg, J. P. Balhoff, H. M. Bik, T. A. Heath, P. E. Midford, J. W. Brown, E. J. McTavish, J. Sukumaran, M. Westneat, M. E. Alfaro, A. Steele, and G. Jordan. 2013. Phylotastic! Making tree-of-life knowledge accessible, reusable and convenient. Bmc Bioinformatics 14.

Stoltzfus, A., B. O'Meara, J. Whitacre, R. Mounce, E. L. Gillespie, S. Kumar, D. F. Rosauer, and R. A. Vos. 2012. Sharing and re-use of phylogenetic trees (and associated data) to facilitate synthesis. BMC research notes 5:574-574.

Williams, J. H., M. L. Taylor, and B. C. O'Meara. 2014. Repeated evolution of tricellular (and bicellular) pollen. American Journal of Botany 101:559-571.

Zanne, A. E., D. C. Tank, W. K. Cornwell, J. M. Eastman, S. A. Smith, R. G. FitzJohn, D. J. McGlinn, B. C. O'Meara, A. T. Moles, P. B. Reich, D. L. Royer, D. E. Soltis, P. F. Stevens, M. Westoby, I. J. Wright, L. Aarssen, R. I. Bertin, A. Calaminus, R. Govaerts, F. Hemmings, M. R. Leishman, J. Oleksyn, P. S. Soltis, N. G. Swenson, L. Warman, and J. M. Beaulieu. 2014. Three keys to the radiation of angiosperms into freezing environments. Nature 506:89-92.

C2b. Contributions to Edited Volumes

O'Meara, B. C. and J. M. Beaulieu. 2014. Modelling Stabilizing Selection: The Attraction of Ornstein–Uhlenbeck Models. Pp. 381-393 in L. Z. Garamszegi, ed. Modern Phylogenetic Comparative Methods and Their Application in Evolutionary Biology. Springer-Verlag, Berlin.

Beaulieu, J. M. and B. C. O'Meara. 2014. Hidden Markov Models for Studying the Evolution of Binary Morphological Characters. Pp. 395-408 in L. Z. Garamszegi, ed. Modern Phylogenetic Comparative Methods and Their Application in Evolutionary Biology. Springer-Verlag, Berlin.

O'Meara, B.C. 2012. "Phylogenetic Reconstruction" in Hastings, A. and L. J. Gross. 2012. Encyclopedia of theoretical ecology. University of California Press

C2j. Other Publications (Lab Manuals and Non-peer Reviewed Articles)

O'Meara, B. C. 2014. CRAN Task View: Phylogenetics. Version 2014-07-17, URL http://cran.r-project.org/web/views/Phylogenetics.html.

C6. Participation in seminars and workshops

March 2008 – March 2010: Floral assembly: quantifying the composition of a complex adaptive structure. NESCent Working Group, four separate meetings. Participant

Oct. 13-15, 2010: High Performance Computing for Phylogenetic, NIMBioS Tutorial. Lead organizer.

Dec. 2-4, 2010: Species Delimitation. NIMBioS Working Group. Participant

Dec. 12, 2010: Species Delimitation Course, Gothenberg, Sweden. Invited instructor (attended virtually).

Dec. 16-18, 2010: Gene tree / species tree reconciliation. NIMBioS Working Group. Participant

Dec. 2010 – Dec. 2012: Tempo and mode of plant trait evolution: synthesizing data from extant and extinct taxa. NESCent Working Group, four separate meetings. Participant

Aug. 10-12, 2011: Gene tree / species tree reconciliation. NIMBioS Working Group. Participant

Sept. 22-24, 2011: Species Delimitation. NIMBioS Working Group. Participant

Nov. 30 – Dec. 2, 2011: Play, Evolution, and Sociality. NIMBioS Working Group. Participant

Oct. 29 - 31, 2012: Play, Evolution, and Sociality. NIMBioS Working Group. Participant

Oct. 30 – Nov. 1, 2012: Play, Evolution, and Sociality. NIMBioS Working Group. Participant

Nov. 26-29, 2012: Gene tree / species tree reconciliation. NIMBioS Working Group. Participant

July 3-10, 2013: eFLOWER summer school, Vienna, Austria. Invited instructor (attended virtually)

Aug. 5-10, 2013: Evolutionary Quantitative Genetics, NESCent Academy. Invited instructor

Oct. 1-4, 2013: Markov Processes, Lausanne, Switzerland. Invited instructor

April 6-8, 2014: Computing in the Cloud, NIMBioS Tutorial. Organizer

Aug. 4-9, 2014: Evolutionary Quantitative Genetics, NIMBioS Tutorial. Invited instructor

C7. Papers Presented

July 7, 2012: Invited symposium talk at Evolution on "Approximate Bayesian computation for continuous characters"

July 9, 2012: Talk at iEvoBio on "DateLife: When lineages meet"

June 22, 2013: Invited symposium talk at Evolution on "Simulated likelihood for species delimitation and phylogeography"

June 23, 2014: "Estimating how contemporary taxa will evolve in the future to understand how island communities were assembled in the past" talk at Evolution 2014; lead author and speaker was Jeremy Beaulieu, coauthor was Brian O'Meara.

June 23, 2014: "Non-null effects of a null range: Exploring parameter estimation in the dispersal-extinction-cladogenesis model" talk at Evolution 2014; lead author and speaker was Katie Massana (grad student), coauthors were J. Beaulieu, B. O'Meara, and N. Matzke.

June 24, 2014: "Phylogeographic model selection using approximated likelihoods" talk at Evolution 2014 meeting; lead author and speaker was Nathan Jackson, other authors were A. Garcia, B. Carstens, and B. O'Meara.

June 24, 2014: "Non-equilibrium dynamics lead to long-term persistence of ancestral floral forms in ancestral floral forms in modern angiosperms" talk at Evolution 2014 meeting; coauthors were S Smith, W SArmbruster, L Harder, C Hardy, L Hileman, L Hufford, A Litt, S Magallon, S Smith, P Stevens, C Fenster, P Diggle.

Projects, Grants, Commissions, and Contracts

Since starting at UTK a bit over five years ago, I have turned in 28 grants through Tera-PAMS; this includes 21 I have submitted through NSF Fastlane (this includes 16 full proposals and 5 preproposals). Of full NSF proposals which have had decisions (several are pending), I have a 23% success rate; for preproposals, I have a 60% success rate. While at UTK I have been awarded two NSF grants as a PI, one as a Co-PI, plus $369,187 in funding from the NSF-sponsored iPlant Collaborative as a working group lead, totaling $1.4M in NSF-derived funds as an assistant professor. NSF funding rates are between five and ten percent in the programs I apply to, so this represents an unexpected string of successes. I have also been responsible for mentoring other proposals to Encyclopedia of Life (funded) and Google Summer of Code (funded). Funds for working groups at NIMBioS and NESCent (five while an assistant professor), funds for workshops or hackathons not part of research grants, and large group proposals in which I am not at least a Co-PI (such as a recent grant to NSF's ADVANCE program) are not included in that total or below.

External Funding

Completed

2013: Encyclopedia or Life: "Reol, an R interface to Encyclopedia of Life data." PI Barb Banbury, Subcontractor Brian O'Meara. **$50,000.**

2010-2012: NSF/iPlant: "iPlant-iPToL" PI Mike Sanderson, Co-PIs Michael Donoghue, Pam Soltis, Doug Soltis, Val Tannen, Alexis Stamatakis, Todd Vision. I ran the trait evolution working group, which included two months of summer salary for me and funding for a postdoc for this year and next year. Note that I was not part of the initial proposal (thus not an official PI/co-PI), but was invited to become part of it once it was funded and I function as a co-PI. Funds from NSF via iPlant via University of Arizona. $132,345 to UTK in year 1, $138,590 in year 2 for **$270,935** in total.

2012-2013: NSF/iPlant: "rPlant" funding for a postdoc and summer salary based on a white paper I submitted. **$98,252**

2012: Google: "Optimizing R code for approximate Bayesian computing" Google Summer of Code 2012. **$5000** by Google to pay for U of Nebraska graduate student Daniel Gates to work on speeding up code I wrote. Note that my postdoc, Barb Banbury, and a colleague at U. of Arizona, Derrick Zwickl, handled the mentoring. Funds went directly to the student, not through UTK.

2010: Google: "Ancestral State Reconstruction in R" Google Summer of Code 2010. **$5000** by Google to pay for Penn State graduate student Conrad Stack to work on putting my program Brownie into the R programming language. I was primary mentor, Luke Harmon was co-mentor. Funds went directly to the student, not through UTK.

Funded and In Progress

2014: NSF: "Population Genetics-based Codon Models." PI Brian O'Meara, Co-PI Mike Gilchrist. Amount for UTK: **$520,000**. Funding years 2014-2016.

2013: NSF: "Phylogeographic inference using approximated likelihoods." PI Brian O'Meara, Co-PI Bryan Carstens. Amount for UTK: **$340,000**. Funding years 2013-2015.

2012: NSF: "Historical naming traditions and cryptic speciation bias biodiversity estimates in transatlantic agaric fungi." PI: Ronald Petersen. Co-PIs Brian O'Meara and Karen Hughes. Amount requested for UTK: **$141,143** [though note that the bulk of this goes to Petersen and Hughes, with just summer salary going to me]. Funding years 2012-2014

Under review

2014: NSF: "CAREER: Reducing barriers for comparative methods" $738,298.

2014: NSF: "Collaborative research: ABI Development: An open infrastructure to disseminate phylogenetic knowledge" $148,101 to UTK

2014: NSF: "DISSERTATION RESEARCH: Behavioral and morphological evolution at small and large scales" [DDIG for my co-advised student, Jenn Bosco]. $14,164.

Successful Pre-proposals

Some NSF programs now require a preproposal to be approved before a full proposal is invited; invitation rates are approximately 25%.

2013: NSF: "Preproposal: Population Genetics-based Codon Models". PI Brian O'Meara, Co-PI Mike Gilchrist, Co-PI Russell Zaretzki.

2011: NSF: "Preproposal: Phylogeny and diversification of Lake Malawi Cichlid Flock". PI Darrin Hulsey, Co-PI Brian O'Meara.

2011: NSF: "Preproprosal: Phylogeographic inference using approximated likelihoods". PI Brian O'Meara, Co-PI Bryan Carstens.

Unsuccessful grant proposals

2013: Templeton Foundation: Evolution of Play. PI Gordon Burghardt, Co-PI Brian O'Meara. Declined. Budget: $199,912.

2012: NSF: "Phylogeny and Diversification of Lake Malawi Cichlid Flock". PI Darrin Hulsey, Co-PI Brian O'Meara. Declined. Budget: $626,470.

2012: Templeton Foundation: Evolution of Play. PI Gordon Burghardt, Co-PI Brian O'Meara. Declined. Budget: $263,763.

2011: NSF: "Collaborative Research: Phylogeographic Inference using approximated likelihoods" PI Brian O'Meara, Co-PI Bryan Carstens. Declined. Amount requested for UTK: $329,790

2012: NSF: "Collaborative Research: Assembly the Tree of Life: Interactive Heuristics in Tree Search (inHits)". PI Michael Sanderson, Co-PI Michelle McMahon, Co-PI Derrick Zwickl, Co-PI Brian O'Meara, Co-PI Oliver Eulenstein, Co-PI David Fernandez-Baca, Co-PI Stephen Smith. Declined. Amount requested for UTK: $220,115 (approx. $2M in funding for entire grant)

2011: NSF: "Making comparative methods as easy as ABC" PI: Brian O'Meara. Declined. Amount requested for UTK: $301,016

2011: NSF: "Preproposal: Participation in AVAToL ideas lab" PI Brian O'Meara. Declined.

2011: NSF: "Dimensions: Collaborative Research: How do Plant-Insect Interactions Generate Biodiversity? -A Case Study of Euphorb Vines (Euphorbiaceae: Plukenetieae) and Their Insect Associates" proposal to NSF Dimensions of Biodiversity. Modification and resubmission of above grant. PI Scott Armbruster, Co-PI Bruce Baldwin. Senior collaborators: André Freitas, Niklas Wahlberg, Silvana Buzato, Narcísio Costa Bigio, Ricardo Secco, Lynn Gillespie, Christophe Pélabon, Thomas Hansen, Hans Stenoien , Terry Griswold, Bryan Danforth, Brian O'Meara. Declined. Amount requested for UTK: $298,826

2010: NSF "SI2-SSE: Phylogenetic needs discovery environment". PI: Brian O'Meara. Declined. Amount requested for UTK: $454,353

2010: NSF: "Phylogeny and Diversification of Lake Malawi Cichlid Flock" PI Darrin Hulsey, Co-PI Brian O'Meara. Declined. Amount requested for UTK: $527,895

2010: NSF: "Making comparative methods as easy as ABC" PI: Brian O'Meara. Declined. Amount requested: $275,288

2010: NSF: "Dimensions: Collaborative Research: How do Plant-Insect Interactions Generate Biodiversity? -A Case Study of Euphorb Vines (Euphorbiaceae: Plukenetieae) and Their Insect Associates" proposal to NSF Dimensions of Biodiversity. PI Scott Armbruster, Co-PI Bruce Baldwin. Senior collaborators: André Freitas, Niklas Wahlberg, Silvana Buzato, Narcísio Costa Bigio, Ricardo Secco, Lynn Gillespie, Christophe Pélabon, Thomas Hansen, Hans Stenoien , Terry Griswold, Bryan Danforth, Brian O'Meara. Declined. Amount requested for UTK: $205,836

Other Evidence of Research or Scholarship

I am the maintainer for the CRAN Phylogenetics Task View. This is an overview of the implementations of phylogenetic methods in the popular programming language R. According to statistics compiled by Bob Muenchen, R is used in over 14,000 scientific papers per year and its help list has over 13,000 subscribers. I am one of only 33 maintainers of task views for all these users.

While many people who develop new techniques merely publish them, one focus of my research is making well-tested software implementations available. This software is all open source, allowing others to improve upon it. Some of this software includes:

Lampyr: A web app for teaching about biodiversity. http://lampyr.org
corHMM: R package for dealing with discrete trait evolution. http://cran.r-project.org/web/packages/corHMM/index.html
OUwie: R package for dealing with continuous trait evolution. http://cran.r-project.org/web/packages/OUwie/
Brownie: C++ software for species delimitation and trait evolution. http://brianomeara.info/brownie
DateLife: Web service and underlying software for estimating divergence dates for taxa. http://datelife.org/
Reol: R package for extracting information from the Encyclopedia of Life. http://reolblog.wordpress.com/
rPlant: R package to interact with NSF-sponsored high performance computing. http://cran.r-project.org/web/packages/rPlant/index.html
phrapl: R software for testing phylogeographic hypotheses. https://r-forge.r-project.org/projects/phrapl/

Public Talks

Please also see the discussion of workshops taught for other talks; this section only includes scientific talks about my research, not teaching at other venues.

May 13, 2014: "Dealing with the heterogeneity of life for comparative methods" Smithsonian Phylopizza (attended by biologists throughout the DC area, including NSF; this was their best-attended seminar to date)

Aug 17, 2012: Invited talk on "Making comparative methods as easy as ABC" to the U. of Georgia Institute of Bioinformatics

April 17, 2012: Invited talk on "Making comparative methods as easy as ABC" at the Smithsonian.

April 16, 2012: Invited talk on "Making comparative methods as easy as ABC" as one of three speakers for U. of Maryland's "Organismal Biology Day"

Oct. 3, 2011: Invited departmental talk on "Making comparative methods as easy as ABC" at U. of Florida

Sept. 15, 2011: Invited departmental talk on "Making comparative methods as easy as ABC" at U. of Alabama

May 1, 2011: Invited talk on "Phylogenetics" to Rationalists of East Tennessee

March 30, 2011: Invited talk on "Making comparative methods as easy as ABC" at phyloseminar.org (meeting hosted online)

Nov. 8, 2010: Invited talk on "Phylogenetics" at iPlant site visit by NSF

May 24, 2010: Invited talk on "Phylogenetics" at iPlant community outreach meeting in Las Vegas.

April 26, 2010: "Species delimitation": Invited departmental talk at Louisiana State University.

November 3, 2009: Invited talk on "Species delimitation" at National Institute for Biological and Mathematical Synthesis

Oct. 14, 2009: Invited talk on my history in Science at National Institute for Biological and Mathematical Synthesis

D. INSTITUTIONAL, DISCIPLINARY, AND/OR PROFESSIONAL SERVICE

Candidate's Statement

I contribute to service within the department, throughout the University, and in the broader academic community. Within the department I serve as the head of the web committee, and for years maintained the department website personally, including 76 blog posts with department news. I was the point contact for the recent move of the department web site to new templates by the UT Communications group, and I continue to oversee our website, including our extension into social media. While doing this service, I have also served on the undergraduate curriculum committee and, currently, on the graduate admissions committee. I am also an active participant in departmental questions such as the search for the next head (serving on committee) or ways to improve our core course.

In the College and University, I contributed through serving on the Dean of Arts and Sciences' Advisory Committee, both by giving feedback on various questions the Dean poses as well as, when appropriate, communicating ideas from the Dean to our department's faculty. I also am the faculty advisor for Darwin Day Tennessee, a long-running student-organized event that successfully educates students and members of the local community about evolution and related topics. Two years ago we invited Nobel Prize winner Camille Parmesan to campus to talk about evolution and climate change, while also educating local teachers through a workshop; last year, we invited Harvard's Andrew Berry to talk about Wallace. I organized a cross-department discussion and speaker series about women in science issues, funded via an internal Haines-Morris grant.

I contribute extensively to service in the broader scientific community. I am an elected member of the Council for the Society of Systematic Biologists, publisher of one of the most highly cited journals in evolutionary biology (impact factor 11.5; in comparison, *PNAS*' impact factor is 9.8). I am a member of the Phylotastic hackathon leadership team, a group that arranges funding for developers to meet to work together on coding solutions to problems in evolutionary biology. I have been in two invited symposia at our field's major international meetings, the Evolution meetings. I initiated and organized the lightning talks at the most recent Evolution meeting and have been asked to do it at the next Evolution meeting. I have recently been asked to join the leadership team of the iEvoBio meeting, a meeting that overlaps with the Evolution meeting and which focuses on bioinformatics research for evolutionary biology. I review for NSF, *Science*, and many other journals. I also have a strong online media presence as a scientist, with 138 YouTube videos of my talks and lectures, 1,124 followers on Twitter, and prominent placement on search results for phylogenetic and statistical methods.

Institutional Service

Record of committee work at department, college, and university levels

Served on strategic planning committee

Served on seminar planning committee

Served on website committee: created department blog, updated website.

Served on undergraduate curriculum committee

Served on graduate admissions committee

Wrote and received grant for laptop teaching cart for EEB

Dean's Advisory Committee

Head search committee

Darwin Day Advisor

Disciplinary Service

Record of membership and active participation in professional societies

Society of Systematic Biologists, elected member of Council

Botanical Society of America, member

Evaluation of peer research

I have been a reviewer for *Science,* NSF*, Systematic Biology, Bioinformatics, Evolution, Nucleic Acids Research, Ecology,* and iEvoBio, among others.

Applications Editor for *Methods in Ecology and Evolution*

Professional Service

Lightning talk organizer, Evolution 2013

Conference co-organizer and lightning talk organizer, Evolution 2014

Phylotastic leadership team

iEvoBio leadership team

Organizer of Fast, Free Phylogenies: HPC for Phylogenetics tutorial at NIMBioS

Instructor at Evolutionary Quantitative Genetics workshop, 2014 (NIMBioS), 2013 (NESCent)

Maintainer of Phylogenetics Task View for R

E. APPENDICES

All comments from classes with electronic SAIS returns (classes 2012 or later), and at least 5 responses (which excludes three HOFF classes only) are listed below.

Key to color scheme:

Bio130: Biodiversity (2014 and 2012)
EEB602: Phyloseminar (2014)
HOFF (2013)
EEB464: Macroevolution (2013 and 2012)
EEB511: CORE Evolution (2013). Note that this was team taught: the SAIS scores reflect the average for the team, while the comments have been pruned to only include those referring to my section.

Year	Semester	Course	Question	Response
2014	Spring	Bio130	1: Intellectually stimulating	yes
				Yes. The information that was presented offered new insight on topics that I learned in high school
				It did stimulate my mind. It made me think about all living things as a whole, and everything be affected by greater causes (like evolution, genetics, etc.).
				yes. yes.
				Yes and Yes
				This class was intellectually stimulating, but was more fact-based, rather than concept-based.
				It was a very intriguing and complicated subject, great teacher though
				This class was intellectually stimulating and it required that I applied what I learned.
				Yes, excellent examples, everything was explained really well and relative to contemporary Biology. Enthusiasm was good, and in general had a helpful attitude.
				Not too much. it was pretty basic concepts, but sometimes I was asked to think outside the box
				It was intellectually stimulating, yes. I enjoyed learning more about how living things came to be and how they continue to develop.
				yes, I especially like when he opens the class up for discussion.
				Biology does not really interest me that much. Biology in humans is somewhat interesting but definitely the biology of plants.
				it was but it was still some what difficult to understand.
			2: Greatest contribution to learning	content
				The instructor was very animated and took time to explain key concepts within the course material. The online questions were also beneficial to fully understanding the current topics.

		Reading the book contributed most to my learning.
		lecture
		Conversing with the teacher
		Studying for tests.
		Dr. O'Meara showed us videos before class and used some as examples of concepts which I found really helpful. They are both interesting and informative.
		The teacher is phenomenal
		Studying and going to lab.
		Tying what we were learning to what actual Biologists do today (but I just enjoy that kind of thing). Also, that review questions before exams really helped so I knew what I didn't know.
		The open dialogue we had in every lecture
		The entire course rounded out and brushed me up on my biology.
		The study guide was probably the most helpful thing even though about 3/4 of the questions were not on the exam.
	3: Detracted from learning	what we learned did not show on the slides
		Too many power points
		Sometimes the professor talked too fast, but when addressed, this problem was fixed.
		The lectures themselves seemed disorganized and confusing. I had trouble following along during class.
		speed
		The labs
		The speed with which the instructor spoke.
		Some parts of lecture felt boring and unnecessary. I would rather hear about examples or more information than take ten minutes to "discuss" basic concepts with people in the class.
		Not being able to understand what Dr. O'Meara was saying.
		Sometimes, the lectures would go a little too specific and I would have trouble paying attention. I think a little more general and maybe more rapid movement through the material might have worked better for me.
		Sometimes the slides were really boring
		Other students not paying attention or talking while the professor is teaching.
		nothing
		The professor mumbled a lot and talked really fast so it made it hard to understand him. He would also cough a lot into the microphone.
	4: Suggestions	studyguide
		Examinations should be over less chapters. Then exams are also not as general as they should be when covering a mass amount of information.
		Have more clear, concise lectures.
		Work on speech clarity
		Make the class and lab separate

				There is too much information on the slides. Almost like they contain as much information as the book. It's almost impossible to follow along.
				Get rid of normal curve. It does not make sense - logically or morally - and is especially frustrating for trying to figure out grades.
				A different microphone or speaking slower.
				Maybe a little more warning before the exams, and a little more help preparing, or emphasis for things to look at (like memorizing a plant phylogeny). I studied a lot and they were still really difficult. Also, as I said ^^ maybe lectures that don't go into detail about such specific topics.
				less words on the slides. and slowing down wayyyy more.
				Excellent class overall!
				I wish that the week could consist of going over the chapters and then on Friday we would have an open discussion over all the chapters we read. I understand that this might be an unreasonable suggestion due to scheduling.
				Talk slower
				I think that you should have more clicker questions to encourage students to come to class and the powerpoints that you upload maybe leave some parts blank to also encourage attendance and insure that they are following along.
				I feel like most of the exam is not talked about in class. We covered so much information and then had to learn and retain all that information. It was too much for this class. I think the amount of information should be cut down so that it can be further explained and better learned.
2014	Spring	EEB602	1: Intellectually stimulating	Yes, this class was effective in getting me familiar and thinking about different methods in phylogenetics that I haven't used before.
				I was able to learn more about how systematics was done especially in computer based techniques. It really opened my eyes to areas in which I need to gain further understanding and ability.
				Yes, some of the topics were new and I learned a lot
				Yes, the course was intellectually stimulating. It made me think of different ways we could use phylogenetics to answers questions of scientific interest. The class was awesome and I wish it would continue. The instructor is very knowledgeable and helpful with clarifying doubts and ambiguities from the publications.
				This course exposed me to a world of paleogeographic/biogeographic/phylomimetic/phylogenetic models that I never would have been exposed to had I not taken this course. Drs. O'Meara, [and two postdocs, names redacted] displayed extraordinary knowledge of the subject matter and this instilled much confidence in those taking the course of the quality of the course being taken. The topics discussed were challenging to me, as I am not a phylogeneticist by training. However, I am happy to have taken the course and believe that I can use what I have learned to improve upon my own research and this makes me happy.
			2: Greatest contribution to	Enjoyed the discussions, to be sure. I learned a lot both from listening and asking questions.

learning	The fact that there were people from several disciplines and levels of understanding all asking questions from different viewpoints. Also, toward the end of the semester we looked at some papers that were applying the methods to different disciplines, so i think that everyone got quite a bit out of this course for relatively little time commitment.
	The dicussions clarified most of the readings. A couple of times the readings and the discussion topics were beyond any of my prior experience, but It was still worth sitting on the periphery of those discussions and eventually receive a modicum of comprehension.
	The explanations given during the class, reading amazing papers
	Reading through the publications and discussing them afterward.
	Multiple times, great detail was given to discussing the mechanism of a tree-building algorithm or evolutionary model and this made using the algorithm or model in context of the research article much clearer.
3: Detracted from learning	not having enough time to read the papers. often sent out too late to do more than a thorough skim, as opposed to reading them well.
	Nothing
	while extemporaneous discussions about various aspects of the papers produces a good discussion, I would have occasionally liked a more structured discussion with some topics from the papers to discussed layed out beforehand, and occasionally some better direction through the discussions.
	None
	There were participants in the class that at times detracted from my learning with random interruptions, or criticism that was not constructive.
	At various times during each discussion, the discussion tended to stray from the main points at hand and would be longer than I would have liked. Certain aspects of the underpinnings of a tree-building algorithm or evolutionary model were discussed in some detail, but at other times this was lacking and detracted from take-home message to be had from the article (e.g., is this appropriate for my research, and if not, how could I adapt it to be). Dr. O'Meara is brilliant but sometimes speaks very swiftly. Quick replies made it hard to understand what he had said. He has answered the question asked, but it was so quick that many times I missed what I would have liked to have heard because it was probably worth its weight in gold.
4: Suggestions	A little more structure would have been helpful, set learning goals for the week or so.
	Nothing that I can think of. Offer it again!
	Make sure all students contribute to discussions. I felt a core group of students contributed to discussions, but there were a number of students who may have spoken only once in the semester and a small few who never contributed.
	It is good the way it is, continue organizing this type of seminars, they are very helpful

				I would suggest to send out the publication or publications of interest at least 3-4 days beforehand. It was hard to find time to read everything and understand it when the reading material was sent 1-2 days before. Also, maybe allow people enrolled in the class to suggest papers (they need not be selected, but nice if this option is available). It would be good to have objectives that we should get from each paper (not necessary though).
				Make an outline of the key points that need to be discussed for the paper, get through them, and then if there needs to be extra discussion let people have a free for all. It seemed a bit chaotic and disorganized as times because of the lack of progression in the discussion.
2013	Spring	EEB607	1: Intellectually stimulating	Yes-there is a wide range of content we discuss, and a diverse group of participants who bring up details more specific to their own background. this makes the discussions very stimulating typically.
				Yes-Yes, this discussion group/lab meeting was stimulating, and challenged me to think about things "outside the box," so to speak. We read papers and discussed their strengths and weaknesses which helped better myself as a scientist. Brian always tries and succeeds in making the discussions intellectually stimulating.
				Yes-It is always nice to see what other people are doing
			2: Greatest contribution to learning	content and format (ie discussions rather than presentations)
				Discussing research project ideas and picking apart papers really helped me learn more about current methods and interesting hypotheses in science.
				I was able to bounce some ideas off peers for my research
			3: Detracted from learning	NA
				Nothing in particular detracted from my learning.
				The class time was not great. By 5 pm everyone is slowing down and wants to be doing something else. Also, I got sick of trees. The bifurcating kind.
			4: Suggestions	keep it open as a class section and continue to allow anyone to show up. i think this helps bring in more students than just HOFF lab members.
				-Sending out papers (if a person is presenting one) earlier than 1-2 days ahead. -Having discussion questions to keep the discussion going.
				Switch the timing. Early is better than late.
2013	Fall	EEB464	1: Intellectually stimulating	It did! I enjoyed your class very much. Your lectures are engaging and the material is good-I like your use of journal articles to teach real examples and applications. I love how much effort you put into it!
				Yes, Lots of good examples and opportunities for critical thinking and discussion
				Yeah, I actually learned quite a bit in this class, it just sucked a lot of the time some of the material was a bit new and I had not much to say most of the time or it was discussing data types not previously encountered and I did not always know how to interpret the data.
				Yes, although much of what was in the course was stuff that I had been taught before.
				There were concepts approached in ways that I had not thought about before. I enjoyed the class discussions.

		It was a great class.
		Yes, I had to switch gears from a case by case kind of study in Animal Science to a much broader, more encompassing thought process. It was definitely different from what I am used to.
		Yes, this was my first evolution course at UT, and I felt it addressed topics relevant in the field today. It was difficult for me to think in terms of evolution, as I primarily study ecology.
		Yes, great powerpoints and discussion.
		The course did present many new topics and the way it was run required you to come up with many of your own ideas.
		Yes it was and yes it did.
	2: Greatest contribution to learning	The lectures were helpful, but I feel when we discussed the material I learned much more.
		The lecture part of the class without the frequent student contributions.
		Your enthusiasm really makes this class easy to learn! you always sound so excited about the topic, so it in turn makes me want to learn about it too!
		I really liked the presentations where we voted on the topic that we wanted to learn about. I liked the one on building models, because it made you think of different ways of testing hypotheses.
		Class discussions
		The lecture format was great. Dr. O'Meara was a great professor
		Listening to the other students helped tremendously since I had very little background in EEB.
		Examples, running through simulations, learning macroevolutionary study techniques
		How well the teacher broke down the material.
	3: Detracted from learning	I feel like there were a few irrelevant topics that made me kind of bored and not really wishing to pay attention. I think Darwin and the other people we have discussed should have had there material discussed not so much their lives.
		I don't think as much time should be devoted to the students voicing ideas in each class period. A separate class period, or one per week might be beneficial to have as an open discussion lecture in which the students can share thoughts, ideas, and ask questions. It seems like a lot of each period was filled with quietly asked questions that sometimes had no answer other than acknowledgement of the response being correct, or periods of silence.
		Too many questions trying to get student involvement. A lot of time can get wasted waiting for students to answer...I like letting students participate a lot, but I think there can be too much. I know this is tough, but sometimes your enunciation is difficult to understand. You speak very quickly, which is fine, but the words can often run together
		Lack of powerpoints to review after class/lag time in uploading of presentations. Open ended assignment directions, so I didn't know how much or how little was expected of me. The in-class discussions were interesting, but not always necessary. Often we don't respond to questions because it seems silly to state the obvious.

	Not having specific background reading. I did enjoy researching certain things on my own, but some concepts would have been better with background reading.
	Maybe the amount of participation involved.
	None that I can think of.
	Occasionally, Dr. O'Meara was difficult to understand because he spoke quickly and sometimes without articulating fully.
	Group presentation preparation period was a bit rushed (we were assigned partners less than 2 weeks before presentation)
	I could almost NEVER understand the professor. He speaks very fast and mumbles. He does recored the lectures and put them on line which is nice of him but often during the lecture he walks away from his computer so you cannot hear anything he his saying. Also a lot of the class involves discussion where he will as a general question and get a response from students. This is a good way to stimulate thinking but I very often could not hear other students responses and Dr. O'Meara's response would be something vague like yes or why? but I could get nothing out of it because if I understood his original question I likely didn't understand the other students response. Also questions were often posed that were not clearly answered. I understand that it is a discussion class but if no one give a good answer it would be beneficial to have the professor provide useful information. Finally, the requirements for most assignments were very vague and hard to judge exactly what needed to be done and grading of assignments was very slow so it was hard to judge how you were doing in class and if there was anything you needed to improve upon.
	No aspect distracted me.
4: Suggestions	Maybe a readings folder for further readings for the students relevant to the class topic should they want to learn more.
	A peer review for the papers might be useful so students can develop their ideas better. Maybe some short essay homework assignments to reinforce main ideas in macroevolution in some digital form or online discussion group via Blackboard (these are frequently suggested as a method to increase participation for many classes, but rarely used as a graded part which might encourage its utility).
	I'd like to suggest making the class a bit more challenging. I enjoyed it- but the assignments given were very minimal. I was really looking forward to coding in class like we talked about, or getting really into the topic review- but there wasn't enough space. I had a hard time getting motivated to spend so much time researching new things for a 1,000 word review. I know there are time-limits to your grading, but this is where I'd suggest to the university that for a class this size, you deserve a TA to help with grading! Also, I was a bit disappointed over the clickers-a lot of us had to purchase them for this class only and it's near impossible to get one used, so I had to pay 50 at the bookstore to use it a very limited number of times. I'd suggest either making their use mandatory and much more frequent, or stick to paper quizzes.

				Instead of skimming the surface of a lot of topics, go into topics in more detail. Actually building a model in R probably made lots of people confused if they were not familiar with it. I would not spend class time writing code, but instead focus on conceptually how you would build one (on paper). The parameters of the model you created and what it was doing was not obvious.
				Add assigned reading for difficult topics and do more with R (and get everyone involved like was planned). Also, maybe have a graded topic earlier in the semester... I was stressed out until I got my midterm back! Clickers are the devil.
				More lecturing less group work.
				I think it would be beneficial if the student answers were recorded in the posted lectures. It would certainly help when reviewing them if we could hear both halves of the conversation.
				At the beginning of the course, detail how macroevolution is studied, giving concrete examples: showing packages, softwares, and using real data. I struggled to understand HOW to address macroevolutionary questions because the methods were always unclear to me.
				More groupwork
				Please speak more clearly. This is by far my biggest and most important recommendation. Also providing more assignments or spreading out the current assignments so they are not all in the second half of the semester would be helpful in the learning process. And providing more and quicker feedback would be very helpful.
				Keep doing what you're doing.
2013	Fall	EEB511	1: Intellectually stimulating	This class was intellectually stimulating.[comments about other instructor(s) redacted] Brian's section of the class has been really great. I am getting something from it, and it actually seems interesting to me (a surprise).
				Yes, it was very stimulating as it offered relevant knowledge for modern research in evolution and phylogenetics.
				[comments about other instructor(s) redacted] Phylo: Intellectually stimulating in that concepts were applied to real scenarios, but I wouldn't say it stretched my thinking per-say (maybe because I already had a background in phylogenetics)
				It was, Both the Population Genetics and Phylogenetics was new material to me.
				Yes. [comments about other instructor(s) redacted] Brian's section seemed more organized, clear, and challenging. [comments about other instructor(s) redacted]
				No
				Yes
				Yes and no. Brian O'Meara and [postdoc assisting this section] did an excellent job at this. The material they taught was intellectually challenging yet had very clear goals, applications and usefulness. [comments about other instructor(s) redacted]
			2: Greatest contribution to	Brian's section, where we did more "real life" examples.
				Lectures and quizzes

	learning	[comments about other instructor(s) redacted] Phylo: Examples used in lecture. Thought questions given during lecture to evaluate understanding before moving on to other material. Clear learning objectives and immediate feedback about quiz answers.
		[comments about other instructor(s) redacted] The powerpoint slides used by Brian were intuitive and a great learning aide. Having a group of people to look over my NSF GRFP was a great component of this class. All instructors were very helpful in one-on-one meetings with me. They were all willing to schedule times outside of normal office hours. Brian in particular made it very easy to come and talk to him by posting his weekly schedule online.
		There were two professors who co-taught this class, each with their specialty subject: [other faculty member] and O'Meara (phylogenetics). I put fair on all the evaluations because I would grade these two teachers very differently. For O'Meara's portion I would put excellent or very good on everything. He is organized and prepared for each lecture and clearly communicates the learning objectives and requirements. Always willing to engage students, O'Meara offered unique methods to encouraging class participation and was willing to assist our learning in any way he could. He also encouraged feedback and discussion. The subject is a difficult one, but O'Meara communicated complex topics in a very understandable way. In short, he is a great teacher with many great qualities (organized, attentive, intelligent but relatable).
		The phylogenetics portion of this class was very informative and useful. [comments about other instructor(s) redacted] Just listening to and reading the slides or board from both instructors was by far the best part of CORE. Both professors were very knowledgeable and where able to explain the topics in a clear manner.
		Reading, discussion in class
		The in-class activities with Brian and Jeremy, i.e. using R, BEAST, RAxML etc. programs, practicing with interpreting trees, question and answer...
	3: Detracted from learning	[comments about other instructor(s) redacted]
		[comments about other instructor(s) redacted]
		[comments about other instructor(s) redacted]
		[comments about other instructor(s) redacted] Phylo: The mini project did not really contribute much to my learning (too short of a time frame to get what you wanted us to get out of it). Not that it detracted from my learning per-say, but it stole valuable lecture time away from learning more- loading programs and running some of the R code (took to long for everyone to get set up)- maybe have everyone load programs before class then we can jump right into using them during class time.
		[comments about other instructor(s) redacted]
		[comments about other instructor(s) redacted]
		[comments about other instructor(s) redacted]
		[comments about other instructor(s) redacted]

				[comments about other instructor(s) redacted] If this course is designed to get students "up to speed" on current research directions of evolution, I'd say Brian/[assisting postdoc] did a great job, [comments about other instructor(s) redacted] I feel like I could sit down with someone now and tell them WHY phylogenetics is important (Brian/[assisting postdoc]'s section) and how to work with it in various applications [comments about other instructor(s) redacted]
			4: Suggestions	[comments about other instructor(s) redacted]
				I really enjoyed thinking about a phylogenetics project that was presented as an exercise near the end of the course. Going a few steps further into this would be great.
				Mentioned above.
				[comments about other instructor(s) redacted]
				[comments about other instructor(s) redacted]
				[comments about other instructor(s) redacted]
				[comments about other instructor(s) redacted] I REALLY enjoyed the "project" that Brian has had us work on (i.e. ask a phylogenetics research question, work as a group to solve the question using the programs/resources we learned in class). It would be cool if we could have a little more time/incentive (graded?) to complete this project and write up results. That is also a potential publication--if a group is really interested in their topic they could potentially pursue publishing a manuscript on the subject, much like courses such as Field Ecology where students routinely get a publication out of a paper in the course. [comments about other instructor(s) redacted] The BIG PICTURE [...] was definitely there for Phylogenetics however.
2012	Spring	Bio130	1: Intellectually stimulating	Yes-It made me do a lot more critical thinking than any other class.
				Yes-I like biology
				No-Because I was force to take this class by the university
				Yes-Biology is very complex and interesting, but very hard.
				Yes-I am a Biology major, so I enjoyed the class content. I also liked how Mr. O'Meara used examples and showed us via tactile methods. I think he did a very good job of appeasing all learning types.
				Yes-I've never heard of most of the terms covered in the course and it was very hard to follow.
				Yes-Opened up many new thoughts.
				No-It was not intellectually stimulating simply because the things i had studied and was required to study were not on the test, it did not stimulate me knowing the stuff i have been studying will not be utilized.
				Yes-I enjoy biology and the enthusiasm of the professor
				Yes-I liked the way her incorporated recent examples and fun into his lecture.
				No-I wasn't appealed to the teaching style at all.
				Yes-I enjoyed learning different things that would not normally be taught.
				Yes-It required me to analyze every detail presented in class.
				Yes-Presented new concepts

Yes-It was almost a little too vast.
Yes-I learned about several things that I haven't heard before.
Yes-It got one thinking about species extinction and all the tpyes of science that still is going on and is recent, also relates to us.
Yes-yes it helped to consider biological aspects that naturally occur and the relatedness to every day life.
Yes-It made me aware of the diversity of the world i live in.
No-It wasn't a course that I was very interested in taking.
Yes-The class itself was directed towards a wide variety of biological aspects, and did broaden my horizons.
Yes-it presented me with some interesting concepts, but the instructor's bias towards his particular field was evident throughout the entire course- as well as his expectation that we have as good a grasp on that field as he.
Yes-It was presented in an interesting way.
Yes-The text used applied knowledge so you could not read your book and notes and get an A.
Yes-This class was a very intellectually stimulating class because it was clear the subject is very important to the professor. It was great to see parts of the world that most do not even know are out there.
Yes-I had taken Bio 101 last semester, and in comparison, this class requires much more thinking.
Yes-It taught me something that I didn' t know. Especially about fungi and bacteria.
No-I did not enjoy the topic so it did not stretch my thinking.
Yes-Alot of interesting concepts, topics and examples
Yes-We were required to take clicker quizzes on a regular basis.
Yes-Mr. O'Meara has a way of engaging his students while talking about Biology that forces you to think of the larger picture. Instead of just presenting facts he was able to focus on what the content meant on a larger scale.
Yes-Fantastic teacher. Definitely inspiring
Yes-Yes I loved the content
No-While the amount of information was great -expecting us to assume certain details with other examples in class, the information was not difficult. The concepts were overly simple. The difficult aspect was applying the information. I can know all of the characteristics of a protist but unless I have background knowledge of organisms, I'm not going to be able to identify them as a protist unless they were specifically "emphasized" in class. It was hard to study for this class because you had to know everything; it's not like you can choose the important information. If you don't know a detail, despite knowing the concept, you miss the test question.
No-Very Basic, not what I was expecting
Yes-Yes, it brought up many ideas that I feel are very important for a college student to know.

		Yes-Yes, as far as biodiversity it stretches your thinking deeply into biology. It covers all aspects of biology to get you ready for future classes.
		Yes-I loved the biodiversity examples. Opened my eyes to some things I didn't know.
	2: Greatest contribution to learning	Lab, reading, and the very few assignments we had.
		cellular
		The videos
		The instructors enthusiasm and the short web assigns that were clearly announced on black board.
		The application and expansion of points in lecture
		lectures
		Teaching myself.
		The pictures and videos on the powerpoint slides.
		Taking notes
		Being interested in what you were teaching.
		The lectures assisted a little, the reading assignments did not help at all.
		How interesting it was and how he presented it. It made Biology fun rather than just feeding us facts.
		The lectures where we were able to take notes rather than the lectures that had slides with pictures.
		lab
		The comfort level of the class, meaning I could ask questions and not feel awkward.
		Taking good notes
		Slides with more pictures than words
		Dr.O'Meara was always excited for class and made coming to a large lecture actually not terrible.
		The videos gave good illustrations.
		Powerpoint and lecture were good. Clicker questions and readings.
		the comparisons to noticle things in life.
		Sitting in class.
		All of the examples that were used.
		The use of Mastering Biology as reviews before exams.
		the text book
		The slides were a big help also posting them online.
		The lectures were the most helpful.
		the highlighted text in the book
		I really liked the use of graphs and phylogenetic trees to connect ideas
		The clicker questions were a fun way to test my knowledge.
		Nothing really, maybe the videos he showed in the class.
		Powerpoints
		Study guides
		Many of the lectures were informative

		The Lampyr assignments
		The instructors enthusiasm made what could have been a boring lecture into a truly interesting course.
		The instructor's teaching methods.
		Lectures and readings
		Every time a point was made in a form other than an example. While teaching through examples might seem more interesting, it's not good for learning. Make a point, than make an example, then make the point again.
		The lectures
		Dr O'Meara was a HUGE contributor to the class. His interest and enthusiasm really made me want to learn more about biology and biological processes.
		The homework assignments was a big part of helping me learn the material.
		Videos and examples
	3: Detracted from learning	The lectures.
		none
		The sleeping girl in front of me
		I forgot my clicker several times from class and could not get credit for attending class.
		Just some tricky test questions
		test questions were abstract
		Unclear what content to focus on for exams.
		The graphs. Some of the graphs didn't make sense or I couldn't see how they related to the subject matter.
		The lack of information on his slides made it hard to pull our own notes out of thin air.
		Not enough information in slides
		The inconsistency of assignment vs test. At this point i find it useless even reading or studying because none of the work i put in will help me on the tests. I'm not even quite sure what i am supposed to be learning now. The requirements to pass his test are not designed for a Freshman but rather a Junior or Senior who is able to use the material given in a laboratory environment.
		I wish there were less graphs or for him to tell us how to read the graphs before explaining them.
		The pictures on the slides
		lecture videos the entire time were no help.
		None
		Lack of explanation for some things, gets off topic
		Dr. Omeara's speech was sometimes unintelligible
		There was a lot of material that was really broad rather than going indepth with some things, but that is probably the way with most 100 level science classes

He rarely wrote any notes on the slides, and that made it difficult to take notes and to go back and study his slides.
Couldn't hear you most of the time because you get over entusiastic sometimes.
my computer, and failure for instructor to narrow material and clarify concepts.
The way the notes were being presented.
Professor was often difficult to understand and follow.
The inability to know exactly what to take notes on
Too much detail on individual species.
the lectures were interesting but the instructor often would get excited and become almost impossible to understand
Dr. Omera gets really excited about what he is talking about and then speeds up and becomes difficult to understand.
I was not interested in the topics.
I would recommend not using as many videos unless some sort of subtitles were added, maybe note titles. People who talk during class can be distracting at those times.
Bad sound system
The powerpoints can tend to get boring after so many minutes, but the videos you include help to break it up. However, from these videos, it is sometimes difficult what we were supposed to take away.
nothing
He did. I can tell he is excited about teaching, but he talks and about towards the end of what he is saying you cant understand. He also asked clicker questions and test questions that were tricky. They were worded so weird sometimes you didn't even know what he was asking for. He also asked things that were not in his lectures or book on the tests. He is a good person and you can tell he cares, but he is not a good teacher. He does not relay what he is trying to say or get across to the students well. I don't think he should be teaching about viruses and how they work to a 130 class. The information on a freshman level is too hard for them. I think that when a freshman teacher has to curve every test he has and his overall final grades to make students pass, that says a lot about what kind of teacher he is.
The lectures were extremely boring
Many other lectures were very boring
none
Large class
Had a hard time hearing sometimes
Table weren't very helpful because you have to study them to draw out information and there is not enough time for it to be used effectively in a lecture. This is only for tables, not for graphs.
Having multiple videos on a single slide
Some students were not interested in the class and their distraction took away from my learning.

		In some of the lectures O'Meara used other things that had nothing to do with biology to relate it to a biological term or experiment. But that kinda threw me off.
		Sometimes hard to parse what was going on on the slides... More text would have helped.
	4: Suggestions	Put more text on the slides, assign more homework (since you made us spend a good amount of money on the freaking masteringbiology), Make the tests more straight forward, speak clearer, and since your tests are so full of critical thinking make the students do more throughout the course on slides and assignments or make your tests easier.
		Just be more clear in the lectures. And put words into the slides
		Study guidex
		more forward questions
		Poor quality power points and makes it very unclear what content would be on the exams. Tests barely reflected any power points, honestly have no idea where the questions came from. Would have assignments like "skim chapters 2-18" which is beyond ridiculous. Atleast invest in a studyguide or make it clear what were supposed to study to prepare ourselves. Didn't really learn much, stressed more than anything
		Connect the topics better (relate them to each other).
		Make the tests easier rather than manipulating the grading scale. The objective of the course is to teach us, not make us fail but change our failing grades to Bs
		I didn't know what to expect from the test; study guides help. Better questions.
		There are so many, he is a wonderful and an enthusiastic teacher but I learned nothing in his course. We would go over power points during class as we take notes, but reviewing these power points for the test did not help because they were simply repeating images on slides. If you are not a good note-taker, you were simply left behind. I also missed one test because of odd circumstance and was only allowed half the points. I could not change nor predict these circumstances but it did not change the outcome. His test are way too difficult and are nothing that we went over, it is like coming into a test blindly, knowing that everything you learned was pointless. It was a very difficult class and do not wish to retake it. I reconsider my major because of this class, although i know other biology classes could have resulted in better outcomes.
		Label your slides and point the key aspects that you wish for us to obtain. Some times he gets so into what he is saying, I'm not sure how to take away from it. I loved this class, but had a hard time following with the slides.
		More Notes on slides.
		having notes to take instead of watching pointless videos that did NOT help with the test.
		Stay on topic with slides
		Get some different labs.
		Be sure to wear the microphone when teaching.

	Put more material on the slides and be more specific on what we are tested on.
	Better powerpoints. Speak slower and calmly, use MasteringBio more
	more focus on specific parts of the course
	More written notes. It was hard to pass the test.
	More elaborate powerpoints with things other than just pictures or videos for note taking.
	Make clear, maybe in text on the slides, exactly what the students need to know or take notes on. I think the reason the majority of the class struggled to do well on the class was because they had no idea what to study. Also try to relate the questions on the test to the lectures better.
	Be more clear on the lampyr project, i had no idea we were turning the three pieces at separate times, I ended up turning them in all at once which may have faltered my grade some because i rushed.
	the instructor needs to understand it is a freshman level course and as such student's will not have a large background knowledge of taxonomy- which he seemingly expects everyone to have.
	Slow your speech down a little bit.
	Lampyr mini-essays did not seem necessary.
	The professor mumbles a tad, improving that would make the course better.
	more online homework cause we only had like 3 of them and we had to pay like 60 dollars for the code
	The only complaints I have is in the organization of the content. It could have been better explained in lecture the organization of the organisms, sometimes I felt lost even while paying attention the entire time. It would have also been helpful to have a few more key words written so that we know how to spell things in our notes, especially unfamiliar words. This got better as the semester went on though.
	The Lampyr assignments were not as spread out as I would have liked for them to be. We had ample amount of time before the first one was due and after it was due to start the second one, but the third one was due just a week after the second, during the last week of school. Spreading out the assignments would help students in the busy times of the semester.
	Talk a little slower so that people can understand what you are saying. Put more words on the slide to explain some of the pictures.
	a new instructor or at least some teaching classes on how to relay the information correctly, because obviously he is not.
	Actually putting words on his slide show instead of just pictures.
	More focus on making sure everyone understands each concept, and the tests actually then relating to those concepts instead of all the technics and theoretical questions that I've seen on the tests
	None. Mr. O'Omeara did a fine job of keeping things interesting. His excellent use of multimedia was impressive to say the least.
	Break it up a bit more?
	Instructor to speak louder

				While teaching, make a point, tell an example or examples, and make the point again. In this way, we can understand points and know when you are moving to the next one. Moving flawlessly from example to example does not give your points enough distinction to actually be retained.
				Be clear about how the grading works
				I suggest that O'Meara talk more slowly and use more slides with words on it and also make test questions that make sense. instead of tricky ones.
				Overall, it was very good. I would suggest the Lampyr assignments be due earlier in the semester, because I had 800 other things due when they were assigned. I understand that is sometimes unavoidable though.
2012	Fall	EEB464	1: Intellectually stimulating	Yes-I actively learned something everyday
				Yes-The instructor forced me to view things differently than I have in the past. I really learned a lot
				Yes-I found this class wonderfully stimulating and I really appreciated that the Prof. O'Meara would stop in the middle of his lecture to answer any and all questions without it bothering him.
				Yes-I didn't know ,inch about macro evolution before this class so I definitely learned a lot and discovered evidence for macro evolution
				Yes-The instructor presented good examples, and challenged us to think about explanations on our own first.
				Yes-The use of peer reviewed papers as examples for each topic in conjunction with Brian's socratic method of teaching really allowed us to discuss the ideas and develop a fuller understanding.
				Yes-Yes, the instructor did a good job of creating an atmosphere encouraging student response and discussion. The course made you think deeper about macroevolutionary concepts.
				Yes-Topics covered were always interesting and multiple approaches to topics were often brought up
				Yes-I enjoyed Dr. O'Meara as an instructor. Several scientific studies were presented and I learned a lot about general concepts in macroevolution.
			2: Greatest contribution to learning	The powerpoints were great and posting them really helped
				The instructor's knowledge and enthusiasm
				Prof. O'Meara contributed the most. I would think that for some students the class material would be a little dry, but generally the class was very engaged.
				Class lectures were the most helpful sources of information, but the assignments also gave us a chance to see what was in the literature about macro Evolution.
				The lecture material
				Dr. O'Meara was very technological savvy and posed questions for students to answer and even let us choose lectures we wanted to learn about.
				The coverage of ideas was nearly exhaustive within the context of Macroevolution and filled gaps in my knowledge of which I was unaware prior to this course.
				in class discussion

	Class time was well organized and instructor definitely made an effort to provoke critical thinking from students
3: Detracted from learning	Rushed assignments. The partner presentation wasn't given with enough time, so it was more that we had to get this done rather than learn.
	All the pretty girls, and me wanting to play super smash bros. and zelda on the instructor's wii.
	I have no comments to make here.
	It was hard to gauge what the instructor wanted from us studs to o. Our assignments because we didn't get grades back in time for the subsequent assignments. It would be nice to know his grading style and what kind of results he expected from us.
	Assignments were not very well explained, and none of them were graded throughout the semester (still haven't been) so I have no idea what was expected of me, or how I'm doing in the class overall.
	The seating in the room was not ideal, it seemed crowded despite the small class size.
	slow response time on grades. it was hard to know how well you were doing in the course.
	Pace was a little fast at times, but other than that the course as a whole was excellent
4: Suggestions	Grade the assignments faster. Its much less stressful to know where you stand within the class
	maybe eliminate the group presentation, and make it a solo 5 minute presentation. It's hard to meet up outside of class when you work 45 hours a week
	The only aspect of the class that I felt that I performed poorly in were the quizzes. That is almost entirely my fault, but the expectations for outside of the class learning were somewhat poorly defined. 1 quiz a month desensitizes you to the need to keep up with the taxa you're supposed to study before class.
	Quicker in returning grades
	More feedback on graded assignments!!
	Recieving grades back in a more timely manner. Group presentations were difficult, grad students do much more research than we were able to in a weeks time.
	Maybe some assigned reading or topical links that would prepare us to contribute more to the discussion. Even a list of jargon terms to know prior to each class which would allow discussion without having to waste time on defining ideas.
	Faster returns on grades
	Perhaps spreading assignments out across the semester would be helpful. The last few weeks were disproportionately heavy on the work load