Teaching Portfolio of

Jayna L. DeVore

University of Georgia
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Interdisciplinary Certificate in University Teaching Review Committee
c/o Dr. David Knauft, Associate Dean
Graduate School
University of Georgia

Dear committee members:

It is with great enthusiasm that I offer my strongest endorsement of Ms. Jayna DeVore’s teaching portfolio submitted in partial completion of the requirements for the University of Georgia’s Interdisciplinary Certificate in University Teaching. Jayna is a doctoral candidate in my lab, and the single most talented graduate student I have encountered in my career. She is extremely literate in her discipline [ecology], is a creative and diligent researcher, and a most importantly, a gifted teacher. Though she is only a student, I consider Jayna to be one of the most professional and dedicated instructors, irrespective of rank, current at UGA. She has made a truly remarkable contribution to courses and education models within the Warnell School and the University of Georgia Studies Abroad program. I have no doubt that Jayna is on a path to a distinguished academic career, and her portfolio demonstrates the strength of her development as a instructor that will complement an equally impressive list of research accomplishments. Below I highlight Jayna’s contributions instruction including the key elements of her portfolio.

Jayna’s portfolio illustrates some of the significant contributions to UGA’s instructional mission through innovation in the classroom and field. Jayna has taught Limnology (Fall 2006), Herpetology (Spring 2008, 2009), Introduction to Marine Ecology (Spring 2010), Field Animal Behavior (Summer 2009, 2010), Sustaining Human Societies and the Natural Environment (Maymester 2009, 2010), Global Health (Winter 2010), and International Affairs (Winter 2010). For Herpetology, a class that I instruct, we have always placed a doctoral candidate in that course with the intention of them having the primary responsibility for running the laboratory portion of the course. In 2009, Jayna oversaw a significant revision to the laboratory format. In an effort to shift the lab from instructor-centered to student-centered learning, we assigned groups of students to sets of species and tasked them with developing and teaching identification and natural history to their peers. As this new approach was alien to students, it required extra effort from the TA in meeting with students regularly, providing feedback to students, assessing the effectiveness of the new approach, and identifying and adjusting to student problems. Jayna’s investment was unbelievable and beyond all expectation. She patiently ushered in the new
format to the point that the process now works smoothly and effectively. Her dedication and concern for students were reflected in student evaluations. In both 2008 and 2009, 90% of the students gave Jayna the highest marks for enthusiasm, knowledge, preparation, and most importantly concern for their intellectual development. Representative comments from student evaluations included,

“...I really appreciated the fact that she was so available. She made it clear that she would come to your rescue (within reason) whenever needed. It was really nice that she never seemed put out about it; she was very flexible”

“...she seemed to be concerned that students were doing well”

“...Jayna is one of the best TAs I have ever had. She was very helpful with everything and showed that she wanted the students to learn.”

Jayna transferred the student-centered learning approach to the Field Animal Behavior course in Australia through the Resident Expert activity. Students were assigned an animal for which they would become the class expert. This jigsaw approach to learning is innovative, and promotes a sense of collective expertise.

Another initiative for which Jayna was a leader was the institution of Wikis in lab based science courses. Wikis enable students to directly modify and communicate course content through blogs and other features. It moves courses away from a typical one-way form of communication between student and instructor, and promotes a community environment that transcends the structured time in class. The implementation of a wiki in Herpetology and Field Animal Behavior has been an unquestioned success. In addition to developing the wikis for her courses, Jayna took lead on assessing the effect of the wikis on student experiences, and she has presented papers at several major international science meetings on types of wiki platforms available and the effectiveness of wikis in the classroom. Jayna’s presentations were extremely well-received, and have resulted in faculty adopting the approach at UGA and other institutions. To have affected course delivery at other Universities is a genuinely remarkable accomplishment for a graduate student [or faculty member for that matter], and Jayna is to be commended not only for the innovative contribution, but for the initiative to share her approaches with the larger academic community.

The high caliber of Jayna’s instructional performance is reflected in the exceptional evaluations and large volume of comments she has generated from her students. Those are well-documented in her portfolio. It is also noteworthy that Jayna has received high praise from faculty at UGA and she has been distinguished with teaching excellence awards. Dr. Robert Matthews, a Josiah Meigs Distinguished Teaching Professor [emeritus] and instructor on the Field Animal Behavior course, described in a letter that Jayna’s contributions were exceptional and worthy of distinction. Specifically, he commented,

“...Unlike some other TAs that I have worked with, Jayna actively and continually thought about course objectives and how to best achieve them, and following consultation implemented many of them, resulting in much better courses. Indeed, I learned from many of her ideas and suggestions about alternative ways to both
address and assess the course objectives, and as a result have changed my approach in some ways as well. ...Of all of the teaching assistants I have worked with over my 40 years at UGA Jayna ranks as one of the very best.”

For a distinguished teaching professor with a 40 year career to comment that he changed his approach to instruction based on what he learned from Jayna is truly remarkable, and perhaps the best testimony to the dedication and quality she has given to instruction.

Jayna’s accomplishments in instruction are not limited to the classroom. During her time here at UGA, Jayna has directly supervised four undergraduates in research (Vanessa Kinney, Kerry Holcomb, Amanda Perofsky, and Karen Christ). Three of those students (Kinney, Holcomb, and Perofsky) all continued on to research careers and two (Kinney and Holcomb) are currently in graduate programs within the field (Perofsky will enter graduate school this fall). As Ms. Kinney’s letter in Jayna’s portfolio indicates, Jayna’s mentoring had a very direct role in inspiring this student to pursue a graduate degree in research. This is the ultimate testimony to success in instruction.

Jayna has distinguished herself as a graduate researcher and instructor here at UGA. I believe that Jayna is progressing toward a successful and distinguished academic career, and her portfolio amply documents her accomplishments and abilities in university instruction. She instinctively gives a tremendous amount of time and effort to courses and her students, and the materials she prepares are creative and effective. I believe that Jayna’s accomplishments in the classroom and the portfolio she has assembled set a high bar for what can be accomplished by graduate students in service to this University’s teaching mission.

Sincerely,

John C. Maerz
Assistant Professor
Students often approach the sciences warily, with the belief that science is difficult, not exciting enough to hold their attention, or has no real influence on their lives. My primary goal as a teacher is to reveal the sciences as an approachable, interesting field that is not only relevant but is responsible for shaping every aspect of the world around us. Accordingly, my general objectives for my students are that they develop a familiarity with science and the scientific method, that they feel inspired to continue with their scientific exploration, and that they recognize how basic biological principles such as evolution or biogeography shape their environment. Additionally, within the context of the class in question, I teach with the intention that students should be able to synthesize the course material and develop basic skills that will prove useful in any career. In the case of graduate students, I expect that they will go beyond these objectives, exploring recent advances in the field and identifying new possibilities or applications within covered material.

1) Students should have a familiarity with science and the scientific method that equips them to approach and critique scientific information

My first student objective stems from the university imperative to produce well-rounded citizens. Without a general understanding of the process through which science is conducted and results are interpreted, students are ill prepared to correctly decipher and critique information that has been generated through these methods. In my courses, I promote scientific literacy by exemplifying general concepts with specific examples, familiarizing students with primary literature through assigned reading and class discussions, and developing activities and directed research projects in which students gain first-hand experience with methodologies and concepts used by scientists. By using multiple tactics I am able to both cater to multiple learning styles and vary the pace of the class, thereby stimulating the attention of the students.

2) Students should be inspired by the class to retain what they have learned and continue with their scientific exploration, even if only at a casual level

My next objective is rooted in my belief that an active societal interest and discourse about science is critical to the continuance of a sustainable society. I therefore expect students to be engaged by the subject material and to actively participate in class discussions. Science is an inherently interesting topic; I find that demonstrating respect for students’ time through thorough preparation and enthusiasm can inspire their continued interest and commitment to the subject matter. When students participate in a class that they genuinely enjoy they are more likely to retain the knowledge they gain, so developing an engaging course may be the best way to ensure that students will continue to be informed and stimulated by the material long after they have left the classroom.

3) Students should be comfortable with core concepts and recognize how biological principles shape their environment

Although topics addressed by research and science courses are highly variable, all subjects are informed by certain core concepts, without which scientific knowledge would be disjointed and unstructured. No student should complete a course in the sciences without developing an understanding of these core concepts. To accomplish this, I make a concerted effort to relate all of the material covered within the course back to these concepts and expect students to be able present their thoughts within this context. Students should understand that no information exists in a vacuum; stressing core concepts can provide a vein of consistency in a course and encourage students to extend their knowledge of these concepts to inform experiences that they have outside of the classroom.

4) Students should understand and be able to synthesize the course material

True learning transcends an ability to regurgitate memorized facts; it requires that a student be able to assimilate and compile this knowledge in a way that allows them to make alternative predictions or envision new patterns. I encourage students to reach this level by presenting course material in the light of core concepts, bringing students into the field where they may observe the discussed principles firsthand, expecting their work to reflect an understanding of the material that goes beyond the memorization of facts, and by using peer teaching exercises.

5) Students should develop practical skills

Even the most enlightened of students will struggle if they lack the skills required to effectively communicate their knowledge. An ability to write and present information successfully is integral to success in any field, so a course including the development of these skills will be helpful to a student regardless of their eventual career choice. To develop these skills I include a written and/or presentation component within my courses, in preparation for which I teach the students to access primary literature, show them how to analyze, graph, and present information effectively, and assist them in developing their project through discourse and reflection via personal and peer reviews. I find these exercises are also effective as a teaching strategy because using these skills necessitates knowledge synthesis.
Teaching Assistant Experience

University of Georgia- Warnell School of Forestry and Natural Resources

Herpetology (4 cr; WILD/ECOL 4040L/6040L):
Spring 2008, Spring 2009
Enrollment and Student Profile: 30 students; undergraduate/graduate majors and non-majors
Type of Course: Intermediate, Prerequisite: Principles of Biology II
Course Content: Evolution, ecology, behavior, structure, and physiology of amphibians and reptiles.
Teaching Responsibilities:
I was responsible for the laboratory portion of this class, including the development of lectures, exams, and assignments, as well as the grading thereof. In 2009 I oversaw the conversion of the lab to a jigsaw-learning model, in which groups of students are responsible for learning the identification and natural history information for the species that will be covered in their assigned lab, setting up stations, and teaching the material to the rest of the class. This made the lab a more student-centered learning environment, gave the students teaching experience, permitted them partial control over the material that was covered, and allowed for small group learning rather than a large lecture format. I also delivered a number of invited lectures.

Field Animal Behavior (3 cr; BIOL 3720L):
Maymester 2009, Maymester 2010 (Study abroad course based in Australia)
Enrollment and Student Profile: 15 students (2009), 36 students (2010); undergraduate majors and non-majors
Type of Course: Intermediate, Prerequisite: Principles of Biology II
Course Content: Approaches and methodology used in animal behavior, Australian behavioral adaptations
Teaching Responsibilities:
I was involved in all components of this course, from the development of new assignments to the delivery of course material. I was able to contribute to the course by developing new experiments, assignments, and exercises, and creating a course wiki (a collaborative website where both students and instructors can contribute to the site’s content). I also worked to increase the focus of the course on skill development (such as graphing and the use of basic statistics) and assisted in a major revision of the course manual.

Sustaining Human Societies & the Natural Environment (3-6 cr; ANTH/ECOL/FORS/GOEG/INTL/RLST 4271/6271):
Maymester 2009, Maymester 2010 (Study abroad course based in Australia)
Enrollment and Student Profile: 36 students; undergraduate non-majors
Type of Course: Introductory
Course Content: Natural history, biogeography, ecological diversity, and related social and cultural contexts of Australia; impacts of human actions on natural systems; ecological education practices, integrated natural resource management, and conservation actions throughout Queensland
Teaching Responsibilities:
For this course I developed a grading rubric that is currently being used by all of UGA’s Global Programs in Sustainability courses, did the course grading, assisted in the construction of the final exams and new module questions, delivered a guest lecture, and introduced the use of concept maps as an assessment tool. As this was a study abroad course, I was also responsible for course logistics and the health and safety of the participants.

Global Health (3 cr; EPID3900/PBHL8100) and Comparative Political Institutions (3 cr; INTL4300/8300):
Wintermester 2010 (Study abroad program based in Australia)
Enrollment and Student Profile: 36 students; undergraduate non-majors
Type of Course: Intermediate
Course Content: Australian public health threats/management systems, governmental systems, conservation
Teaching Responsibilities:
As the sole program leader with experience in study abroad courses I was responsible for in-country coordination of this new program. I also assisted students with coursework and logistical issues, graded, kept notes on material presented by the invited lecturers for use in course assessments, and developed wrap-up lectures that tied the material presented by guest lecturers into each course’s themes. While working within a difficult environment (extensive rain/flooding, instructor disinterest) I was able to keep this program running (as evidenced by student feedback: “Jayna was the only thing holding this program together”; “Faculty was EXTREMELY disappointing. Thanks to Jayna, she did a great job with a difficult situation” “Both instructors had no idea what was going on and did not seem to care. The TA was awesome, but the teachers were not very involved with the students.”; “Jayna was the leader of the trip above and beyond what was required of her...”; “Jayna was great. She did ALL the work.”; “10/10-­‐Great TA! Handled a very whiny bunch of students quite well. She was very helpful, not just in academics”).
**University of Georgia- Department of Marine Sciences**

**Biology of the Marine Environment (4 cr; MARS 1020L):**

*Spring 2010*

*Type of Course:* Introductory  
*Course Content:* Fundamental biological principles in marine organisms and ecosystems; diversity of marine life; global cycles; the effects of human activity on life in the sea

**Teaching Responsibilities:**  
I was responsible for three sections of the laboratory portion of this class, which included the development of weekly lectures and quizzes. I also helped to set up and explain the labs, instructed the students in how to carry them out, and graded their quizzes, assignments, and weekly reflective essays.

**University of Georgia- Eugene P. Odum School of Ecology**

**Limnology (4 cr; ECOL/FISH/WASR 4310L/6310L):**

*Fall 2006*

*Type of Course:* Advanced, Prerequisite: Ecology  
*Course Content:* Aquatic ecosystems (lakes and streams) and their biota. Terrestrial and aquatic linkages.

**Teaching Responsibilities:**  
I shared responsibility for the lab portion of this class, which included weekly lab set-up, developing presentations on lab material, and grading of lab reports, tests, and projects.

**Classroom Guest Lecturer Experience**

**Introduction to Wetlands (3 cr; WASR 4400/4400L; Spring 2008):**

*Lecture Title(s):* Amphibians and Wetlands  
I delivered a lecture on amphibians and wetlands that focused on their habitat requirements as well as their roles within these habitats.

**Herpetology (4 cr; WILD/ECOL 4040L/6040L; Spring 2008, Spring 2009, Spring 2010):**

*Lecture Title(s):* Phylogeography of Amphibians, Amphibian Biology, Herp Conservation, Inventory and Monitoring  
I developed a lecture on the Phylogeography of Amphibians on how continental drift influences anuran distributions. I was also invited to give lectures on the biology of amphibians, herp conservation concerns, and inventory and monitoring strategies that are used to quantify herpetofauna.

**Field Animal Behavior (3 cr; BIOL 3720L; Maymester 2010):**

*Lecture Title(s):* Scientific Writing and Microsoft Excel  
I presented a lecture on how to write an effective scientific paper, as well as how to graph and perform some basic statistics in Excel. We also discussed the meaning of statistical inference.

**Sustaining Human Societies & the Natural Environment (3-6 cr; ECOL 4271/6271; Maymester 2010):**

*Lecture Title(s):* Amphibians: Lessons in Biology, Phylogeography, Evolution, and Extinction  
This lecture focused on how the conditions in Australia have shaped amphibian species in Australia. The evolution of tetrapods, influences of environment on evolution, and examples of convergent evolution in unrelated Families dwelling in similar habitats were major focuses. Causes of the six major extinction crises on Earth, as well as the role of humans in the current Holocene extinction, were discussed.

**Global Health (3 cr; EPID3900/PBHL8100; Wintermester 2010):**

*Lecture Title(s):* 4.5 Billion Years and You: Interactions between Ecosystems and Human Health in Australia  
This lecture focused on how the conditions in Australia (such as the continental isolation, unpredictable climate, and poor soils) have influenced the evolution of Australian animals and the tactics employed by Aboriginal nations. The influence of European inhabitants on this environment was compared, and the environmental consequences of this lifestyle were discussed.

**Comparative Political Institutions (3 cr; INTL 4300/8300; Wintermester 2010):**

*Lecture Title(s):* International Environmental Affairs  
I developed this lecture to highlight international issues of environmental concern (such as overfishing, ocean acidification, and oceanic garbage patches) and discuss the politics behind dealing with these problems.
Awards, Training, and Professional Activities Related to Teaching

Teaching Awards:
2010 Outstanding Teaching Assistant Award, Warnell School of Forest and Natural Resources ($250)
This award is given to an outstanding teaching assistant within the Warnell School. Nomination materials include student and faculty letters of support.

Related Education:
2007-11 University of Georgia, Athens, GA Interdisciplinary Certificate in University Teaching.
This certificate program is administrated through the graduate school and focuses on the development of college-level teaching skills for PhD students intending to seek a faculty position.

Teaching Coursework:
- Technology in the College Classroom (3 cr)
- Pedagogy of Writing in the Disciplines (3 cr)
- Approaches to Scientific Teaching (1 cr)
- Doctoral Teaching Practicum (2 cr)
These graduate-level courses focused on the development of university teaching skills, including topics such as creating a student-centered learning environment, using technology effectively, incorporating and improving student writing, the development of new courses, and effective grading skills.

Teaching Workshop Participation:
Designing Instruction, Managing Classroom Dynamics, Rubric Development, Teaching Portfolio Development, A Student-Centered Learning Model for Organismal Biology Labs, Advising Young Researchers, Student Evaluations: Why Do We Want Them and How Do We Use Them?
These workshops provided a forum where faculty and graduate students who were interested in improving specific aspects of their teaching could meet to discuss effective techniques.

Undergraduate Research and Teaching Supervision:
Undergraduate TAs: Emily Susko (Jan-May 2008), Ernie Osburn and Kendra Huffine (Jan-May 2009)
Undergraduate Technicians: Vanessa Kinney (Jan-Dec 2008), Matt Erickson (Dec-June 2009)
Senior Theses: Elissa Riley (Aug-Dec 2006), Stephanie Kern (Feb-Aug 2008)
I have been primarily or partially responsible for the mentoring of three undergraduate teaching assistants, two REU students, two undergraduate technicians, and two students looking to complete senior theses. One of these students- Vanessa Kinney, now a MS student at Indiana State - is a coauthor on an in-prep publication.

Service to Undergraduate Research:
2010 Center for Undergraduate Research Opportunities (CURO) Symposium Graduate Reviewer
I reviewed abstracts that had been submitted by undergraduates hoping to participate in the CURO symposium. I rejected, approved, or recommended changes to these submissions.

Public Outreach Experience:
Public outreach is an important university goal; I have experience with this as a marine naturalist leading groups of 70 to 130 passengers on educational whale watch/snorkel trips, as well as through public outreach events for children and adults conducted by the Herpetology program (including the yearly "Day on the Lawn" event, in which students who had participated in the Herpetology class were given an opportunity to exhibit reptiles and amphibians and share what they had learned during the semester with the public).

Scholarship of Teaching Presentation:
This poster focused on results of a survey that I distributed to students who had completed the 2009 Herpetology course. A wiki (a collaborative website in which instructors and students contribute to content) was used in this class for the distribution of materials, the administration of group projects, and the public submittal of select assignments. We found that the use of a wiki increased engagement, fostered a sense of community, increased inter-student communication, gave an impression of increased control over course content, and was accompanied by a sense of project ownership and accomplishment. Students found that posting assignments publicly motivated them to produce quality work and found that the wiki made group assignments easier to complete. As a result of this feedback I also created a wiki for Field Animal Behavior, an assignment from which can be seen on page 5. A copy of this poster can be found in Appendix 1.
I developed this exercise for a Field Animal Behavior lab intensive course with the following goals in mind:

1.) Familiarize the students with methodologies used to study behavior in species we could encounter
2.) Give them practice in synthesizing information from the primary literature, the primary conduit through which scientific knowledge is transferred
3.) Introduce them to scientific writing
4.) Impart them with knowledge about the behavior of a variety of organisms using collaborative (or jigsaw) learning, in which each student becomes a ‘resident expert’ on a certain topic

Students were expected to read a scientific paper (which was given to them with the abstract removed), write an abstract, and deliver an oral presentation about the study and their animals’ behaviors to their classmates. I also established a course wiki (a collaborative website where both the instructors and the students can contribute to the content) for this study abroad class so that students could sign up for their preferred organism before the class began, review information about Australian animals as it was posted by their classmates, and post related materials that they found interesting for the enjoyment of the class.

Due to the finite time that we have in Australia, we will only explicitly study a few animals and be exposed to a limited number of methods for studying behavior. In order to increase our exposure to Australian organisms and techniques for studying them, everyone will read an article from the primary literature that focuses on a different animal that we may see. As an “expert” on the organism and methods that you read about, you will then convey that information to your classmates.

This exercise will ensure that either you or one of your classmates will have insight into the behavior of the animals that we encounter as we explore Australia. It will also expose you to techniques that you can consider when we brainstorm about the methods that we will use to complete our experiments.

The “Resident Expert” Assignment

1) Do some background reading on the animal you chose so that you know a little bit about it before you read your paper. A quick Google search should be sufficient. If there is not much information available about that specific species, you may still be able to find information about its genus or family.

2) You will notice that the abstracts have been omitted from the papers; it will be your job to write an abstract that conveys the background information and the purpose of the experiment, briefly describes the methods used, and summarizes the results. Think of the abstract as a summary. If a person reads your abstract, they should have a pretty clear idea as to what the paper is all about. **To be completed prior to departure to Australia.** You should paste your completed abstract into the table on the “Abstracts” page so that if your classmates are interested, they can learn something about your species.

3) Deliver a 2-minute informal presentation about your paper. Give relevant background information about your species, explain the importance of the behavior investigated, describe the study and what the authors found, and include a description of the methods that were used. **Delivered upon arrival to the location associated with your species.**

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**Student Product**

Eastern whipbird, Prophodemes olivaceus, an insectivorous passerine bird native to the east coast of Australia, sing synchronized duets with their opposite sex, usually monogamous, partners that are initiated by the male parents. There are four hypotheses as to why the birds duet and what their functions are. The first is that they jointly defend a shared resource, the second is that they prevent their partner from being usurped, or thirdly to defend the individual's own position within the partnership. The fourth, more recent hypothesis is the “identity hypothesis” allowing for mate identification and localization. To test the hypotheses, the behavior and vocalization of 20 pairs of eastern whipbirds were compared while stimulated by different recording types. The first recording was of a lone female, the second a lone male, and the third a duetting pair. Behavior was monitored by observing how quickly and closely the individual birds approached the speakers playing the intruding stimulus. Males were seen to approach more aggressively, faster and closer, to the lone male while female approached more aggressively to the lone female. Females made specific response vocalizations only to the duetting pair and lone female. Females also responded more often to their mate's initiated duet when stimulated by the lone female than the lone male. These observations support the hypothesis that duets in the eastern whipbird appear to play a primary role in allowing females to defend and remain in their exclusive partnership. The sex ratio in eastern whipbird is female-biased creating intense intra-sexual competition. The duets are the result of independent, self-promoting strategies of male and female eastern whipbirds.

Most bird species engage in the monogamous mating system. Uniquely, the Australian Brush-Turkeys are colonial birds. The female choose their male for mating based on their genetic benefits and the...
An effective way to encourage participation and knowledge retention among students is to develop an engaging course; when an instructor is unprepared or not invested in the material the students are the first to know. One tactic that I use to stimulate student interest is the integration of multimedia files wherever they can contribute to student understanding of the course material. For example, I have found that telling students to remember that most Platyhelminthes are monoecious is less effective than showing them a video of flatworms penis fencing, coupled with an explanation of the evolutionary advantage of this behavior. Below I have included materials that I developed for a standard weekly lab quiz in Biology of the Marine Environment that focused on the previous week’s material (inverts) and material to be covered during lab (fishes). Although this is a relatively trivial assignment that I used principally to test fact retention, I have chosen to include it as an example of how I try to make even the most menial assignments as engaging as possible.

### Quiz 7: Invertebrates/Intro to Fish

| 1 A. | Kingdom: Animalia | Class: Cephalopoda |
| 1 B. | Phylum: Mollusca | Class: Gastropoda |
| 2 A. | Phylum: Annelida | Dominant Gender Strategy: Monoecious |
| 2 B. | Phylum: Echinodermata | Dominant Gender Strategy: Dioecious |
| 3 A. | Phylum: Platyhelminthes | Body Symmetry: Bilateral |
| 3 B. | Phylum: Cnidaria | Body Symmetry: Radial |
| 4 A. | Describe why having motile larvae is advantageous if you’re sessile (immobile) as an adult. Allows dispersal- Reduces competition among related organisms, enables exploitation of new resources, etc. |

5.) Animal life began in the ocean, and all of the major animal phyla have aquatic members. Which of the phyla that we covered in lab last week are also found in terrestrial environments? (Hint: There are 3.) Annelida, Mollusca, Arthropoda

6.) Name the indicated features  
   - A.) Dorsal fin  
   - B.) Gill  
   - C.) Scales

7.) What class do the fish displayed belong to?  
   - A.) Chondrichtyes  
   - B.) Osteichthyes

8 A.) What kingdom do the organisms from question 7 belong to? Animalia

B.) What physical characteristic distinguishes these organisms from invertebrates? A backbone

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### Representative Student Feedback on their Interest in the Biology of the Marine Environment *A Required Introductory Biology Option for Non-Majors*

Extracted from course evaluations as well as weekly lab journals and student letters, where noted.

**Ms. DeVore was a great lab teacher. To be able to take a lab that is supposed to last for 2 hours and make it fly by is really appreciated by all of the students. She made the material fun and easy to learn for those who were open to the experience.**

*She was always excited and happy even at 8 am!! My favorite ta ve ever had. She’s always very well prepared and stimulated my interest. I have begun looking at things and considering what they are made of; instead of simply what they are. Often in society today we take these incredible scientific notions for granted and never stop to think about how incredible the world is that is too small for us to see. So, I suppose I have gained an awareness of what I cannot distinguish with my eyes. -John (lab journal entry)*

*My only thing is that I personally do not find the subject matter very interesting, but Jayna makes it ten thousand times more enjoyable than I ever thought it could be.*

*Jayna was awesome! Not only did she make sure that we understood all of the material but she explained it in fun interesting and creative ways. She always multiple reviews of everything and posted extra links for us that would be helpful or interesting. She created an extra group on the elc so that she was basically available 24/7 for help or to clarify assignments.*

*She explained things really clearly, especially what we needed to know. Went above and beyond to help us and add in interesting points. As a result of completing this lab course, I have developed a curiosity and desire to learn more about marine ecosystems and organisms. I’m sure that I will continue to surf the net for interesting articles or video clips. -Linda (final lab journal entry)*

*...I really did NOT want to take this class but I learned a ton and I’ll admit that it’s really interesting too. So that’s a testament to you.* -Alysse (excerpt from a student letter)

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Students in Herpetology are expected to memorize the global distributions of all the amphibian and reptile families. In the past they have learned this through rote memorization. I developed and delivered materials for the lecture portion of the class regarding the phylogeography of amphibians that has led to a new way of teaching Family distributions within the course. This approach to teaching distribution patterns helps the students to understand global processes on a large time scale, giving them a long-term view of how continental drift has contributed to the distributions of species. This is valuable to them when trying to understand why the closest relative of a species in India may be found in the Seychelles Islands or why Australian amphibians are closely related to those in South America. I feel that what they take from this lecture extends beyond what is specifically relevant to the herpetology course; an awareness of how these processes work can inform their understanding of how these large-scale global processes affect all life on Earth.

Below I have included some selected slides from this lecture, as well as a midterm question that tests the students’ understanding of this concept (to left).

Lastly, I now truly understand the concept that evolution... is not the improvement from a primitive organism to an advanced organism, BUT the actual change that has happened within organisms as time progressed.

-Philip (excerpt from a student journal entry)
Concept maps can be used to encourage and demonstrate higher-level learning. They have been shown to enhance metacognition, assist in the development of arguments, improve knowledge retention, and help students better understand complex processes. They are also good tools for assessing learner comprehension.

I introduced the use of concept maps as an assessment tool in the Sustainability of Human Societies and the Natural Environment study abroad course in order to help students visualize the complex, interactive relationships that exist between the diverse material delivered by our various Australian guest lecturers throughout the course. It has also proven to be an effective way to demonstrate how complex biological mechanisms operate; I have found that when they construct a concept map detailing the many various mechanisms through which increases in atmospheric CO2 influence coral reefs, students gain a more thorough understanding of how synergistic effects are threatening these ecosystems. The use of this tool also improved the accuracy of the assessment process, as it separates the students that can synthesize the course material from those that have a superficial understanding.

* See Appendix 2 for larger versions of concept maps

Within the lab portion of Herpetology, which focused principally on learning to identify local species, dichotomous keys are a core concept. Understanding how to use these keys is not only integral to a student’s ability to identify the species that are covered in lab, it also ensures that they will have the skills necessary to identify organisms that they encounter throughout their lifetime. This exercise sought to familiarize them with this concept and drive them to synthesize their knowledge of distinguishing species characteristics and dichotomous key properties in order to create original dichotomous keys.

I had no idea that there were so many different critters in the ocean. It is easy to look at the big picture of what the ocean is like and to think about all of the big animals that live there, but few of us really break it down further to think about the tiny animals and even the microscopic animals that dwell within the world’s oceans. These small creatures are just as important and integral to the ocean’s function as well as things such as cleansing out air, etc.

Mary (excerpt from a student journal entry)
Recently there has been increasing demand to engage students more actively in the learning process through the incorporation of student-centered learning into university curriculum. In accordance with this suggestion I spent the second year that I was responsible for the lab portion of Herpetology (WILD 4040/6040) overseeing the conversion of the lab to a jigsaw-learning model. Rather than delivering the materials directly to the students, I broke the class up into groups, each of which was made responsible for one lab worth of material. These groups were responsible for learning the identification and natural history information for the species that would be covered in their assigned lab, setting up stations, and teaching this material to the rest of the class. Although this technique is probably more time-consuming for the instructor than delivering the material themselves (largely because it requires multiple meetings with each student to ensure that they are ready to teach the material to their peers) there are a number of benefits to this approach. The conversion of the lab format not only made the lab a more student-centered learning environment, it also gave the students teaching experience, permitted them partial control over the material that was covered, and allowed for small group learning. Many students found that being responsible for teaching their classmates motivated them to produce quality presentations and improved their communication and independent thinking skills.

**Innovative Teaching Project**

Undergraduate herpetology students instructing their peers in the identification and biology of local species.

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**Representative Student Feedback on the Student-Centered Laboratory Format**

We were required to give 2 presentations during the semester. I was assigned a small group of herp fauna (amphibians the first time and reptiles the second time) that I had to teach to the class during lab. I was required to develop handouts for the class and helpful identification factors and natural history patterns for each species I was assigned. Giving these presentations AND teaching the students definitely helped me to fine tune my communication skills. I am very pleased with how well I have done so far in this course. It has definitely increased my confidence in my independent thinking skills.

Presentations in lab and the grad presentations most definitely made me more comfortable with speaking to groups of people. I had never “taught” anything before this class and so that aspect of the course was a huge help.

I can’t say I have ever taken a class that has made such an effort to engage students in so many new and different ways. Perhaps you could scale it back a bit, but I do applaud the quality of the course design... The course design is progressive and requires students to interact and absorb the material in many different ways.

In the lab part of this course we had to give presentations to our classmates which definitely helped my communication skills.

Lab presentations helped improve my teaching abilities.

Never would have thought I would like snakes or herps. In general presenting in lab helped with this to some degree.

This class is anything but passive. Each student is engaged... No other course that I have taken at UGA has made me use my communication skills as much as this one.

The 2 student taught lab sessions this semester were a huge pain to prepare and teach, and although I didn’t enjoy it, I really benefited from the communication experience. Never get anything like this in other courses. Never learned more in a course!

“Jayna rocks; when I enrolled in this class I didn’t even know how to enter data in Excel, but now look at this badass graph! Complete with a figure caption, labeled axes, and 95% confidence intervals!”

-Karen (oral comment from Field Animal Behavior course feedback session)
Representative Student Comments:

**Concern for Students and their Intellectual Development:**

Jayna is one of the best TAs I have ever had. She was very helpful with everything and showed that she wanted the students to learn.

Jayna is CRAZY smart and she knew so much about such a wide variety of topics in this class that I was astounded. She is a great lab assistant, very organized and on top of things. She seemed to genuinely care about us knowing the information but was NEVER overbearing or treated us like children. I really enjoyed her class (aside from having to be there at 8 AM 😊)!

She was very excited about everything she taught and was always willing to help all of the students who would work for their grade. Even thought it was a difficult class, she was always willing to help in any way possible.

She is incredibly willing to work with students on an individual basis, and that is amazing.

Very helpful to her students. Explains the material very thoroughly and efficiently. She has the student’s best interests at mind.

Ms. DeVore was patient with her students and was willing to explain and answer any of our questions.

She put a lot of time and effort into helping the class understand the material.

I really appreciated the fact that she was so available. She made it clear that she would come to your rescue (within reason) whenever needed. It was really nice that she never seemed put out about it; she was very flexible.

*Quantitative data was not collected from study abroad courses (Field Animal Behavior, Sustaining Human Societies and the Natural Environment, Comparative Political Systems, and Global Health)
Jayna was extremely friendly and approachable, she made everyone feel comfortable and always answered questions. She knew what she was talking about and made class interesting and fun... I'm typically not a science person, but I really enjoyed my lab with Jayna.

The only thing that I worry about with Jayna is that she is too nice. She is always fair, but I wonder if she is too understanding. Of course, her incredibly kind nature helped me out a lot during the course, but I feel like she almost overexerted herself trying to help me out.

Jayna was very helpful and went out of her way to meet with students after class.

**Preparation and Delivery:**

Jayna is one of the best TAs that I have ever had in any class. She knew the material very well and was very enthusiastic about sharing her knowledge with the students. She was great!

Well prepared, great speaker, helpful. She was very much a TA before anything else - that is, she was always professional and focused on the material rather than socializing and making friends.

Teacher was often able to make complicated subject matter more easy to understand. She also made sure to keep the subject matter relevant to the material that was covered in lecture.

She's so lively and passionate and makes lab exciting. She's easily approachable and helps anyone with anything.

She is passionate about the material and it shows when she is teaching... she should continue being a positive teacher and being open to student comments and questions.

She was super nice and made sure to find the answers to our questions if she didn’t already know the answers. SHE WAS AWESOME!

Shes very passionate about the subject matter and it shows. Shes knowledgeable but doesn’t come of as a know it all. She lets us have fun. It was a good class.

Ms. DeVore was informative on the topics we studied. Used great examples and really had a love for marine sciences.

She was amazing! She was very helpful, very entertaining, very organized and very efficient!

She was very smart and enthusiastic! Great teacher

jayna was a great ta. She was always helpful and always knew the answers to our questions.

She was very good at explaining things and generating class interest. She had a lot of enthusiasm which carried over into the class.

**Overall:**

Jayna has an incredible ability to connect with others, is 100% personable, and is ALWAYS available for students in and out of the classroom. She is incredibly knowledgeable and still does not intimidate students. AWESOME.

although i do not like science i think that the TA did a great job and i couldn’t have had a better one. she always seemed excited and not irritated with us. she explained things clearly and was very helpful. :)

You are a great teacher and I really looked forward to every lab period!

I'm a Junior, and this is by far the most work-intensive intro class I've ever taken. My personal opinion is that the work load was more appropriate for an upper-level class with people who are actually focusing on the particular topic. (Granted, this is also my first Lab class.) The fact of the matter is that nearly all of the students in this class are taking it to fill a requirement, not because they are genuinely interested--and brow beating them with insane amounts of work isn’t going to change that or turn it into a more stimulating environment. That said, Jayna was a fantastic TA and made our class as enjoyable as it could possibly be, never failing to bring an upbeat spirit and a kind attitude every single week. Had I had another, different TA, my attendance, participation, and ultimate performance would have been even more paltry than it was.

The labs were sometimes difficult, but if you have a TA like Jayna then the student should be able to learn a lot.

Best TA i've had since i've come to UGA
Letters From Students

11-March-2011

Dear Jayna,

I am writing to say thank you for all the encouragement and for all the time you spent teaching me about field research as an undergraduate student—you should know that it has paid off! I just finished successfully defending my Master’s thesis and I will graduate in May. I am also excited to tell you that when I graduate I will have published three senior authored papers and three co-authored papers. When I look back over my undergraduate career, I realize that the time I spent working with you as a technician has helped get me to where I am today. Through your encouragement, I believed that graduate school was something that I could do and succeed at, thank you. Your infectious passion for the sciences made work an enjoyable learning environment. I always looked forward to field sampling days because I knew that I would learn something new. I am honored that you trusted me to assist you with data collection, and it is that trust that made me confident in my ability to conduct my own research. The field and lab techniques that you taught me, along with including me as a co-author on one of your manuscripts, contributed to me getting a research assistantship at Indiana State University. You have inspired me through your hard work, creativeness, and ability to integrate information from different areas of study—and as a result I benefited in my academic career from your influence.

I could honestly write way more than a paragraph about how you have influenced me. Thank you for EVERYTHING! You are a wonderful teacher, and in the future you will be a wonderful advisor to graduate students... lucky students! I'm proud of you and I am always amazed at the time and effort that you put into your work, it shows and people notice! I know you have a lot to do in the next few months in terms of finishing up, teaching as a FACULTY member in Australia, and then also hopefully getting a job in Alaska- I can't wait to hear about all of it!

Again, thank you so much for mentoring me!

Thank you and best wishes,

Vanessa Kinney

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Jayna- thanks for a great semester. i really did NOT want to take this class but i learned a ton and i'll admit that its really interesting too. so thats a testament to you.

-Alysse

Hey Jayna,

The lab this semester really was enjoyable, and I did learn a lot. The material you were given was tough to make interesting, but you did. I m sorry I was such a distraction, I know I must have been a pain at time. But dont think that you didn't do a good job with lab, the tedious stuff wasn't your fault, and we all knew it.

Now that the grades are in you know Im not trying to be nice for an A!

Anyway, hope your semester turns out well

Devon

Thanks for everything! I really enjoyed you being my TA, and all the bonus information that you gave me about marine science. Thanks for being enthusiastic and patient with our class. Have a great summer!

Charlotte

THanks so much for all you have done this semester! I had so much fun in lab and I learned more than I imagined! Thanks again for everything! You are simply wonderful!! I hope you have a good summer!

Katlyn

P.S. I told my family all about the over-exploitation of fish and the shark fin soup causing the sharks to die out!

Thank you Jayna! You were an awesome TA! Thanks for everything and have great summer :) -Chelsie

Great lab! Your a fun, great teacher and you made spending all of the time in the lab exciting and educational!

-Ellen
Student engagement is tied to course performance and information retention. Shifting the focus of the classroom from a lecture-based approach to a student-centered learning environment is one way to achieve this goal. One tool that can be used to allow student contribution to the content and direction of a course is a wiki.

WHAT IS A WIKI?

Wikis are highly flexible collaborative websites that can be structured to meet course needs and allow multiple users to contribute to site content. They are intended to promote group learning through collaboration rather than isolated reflection, and can provide another avenue through which instructors can connect with various types of learners through multimedia learning.

WHAT CAN A WIKI BE USED FOR IN COLLEGE COURSES?

Wikis can be adapted to facilitate many different types of classroom activities such as collaborative projects, peer review, debates, competitions, and student comments and reflections on course material. Within these contexts faculty can promote the use of multimedia and creativity within student work and enable peer learning through public project viewing. They also track each student’s edits and additions to site content, allowing for instructor assessment of an individual’s contributions to group projects.

You can compare wiki hosting sites and identify one that is suited to your needs at www.wikimatrix.org

“HERP” of the Month

AMPHIBIAN INVENTORY

WIKI USAGE WITHIN THE COURSE SURVEYED: HERPETOLOGY

Herpetology is a 4-credit upper division organiser course taught each spring. Enrollment is typically around 30 students (80% undergraduate students). A wiki was incorporated into the course in 2005; all of the lecture and lab materials for the course are posted on the wiki, and all electronic communication with the students is conducted through the wiki’s mail feature. All of the students surveyed indicated that they checked the wiki for updates at least once a day. Two projects that occur principally on the wiki are highlighted below:

“Herp” of the Month (Individual Assignment)

Students were required to discover, identify, and photographically voucher a previously unreported species each month. Each field was posted to the wiki along with a description of how the identification was made. This assignment served to motivate students to utilize their sampling and identification skills; the use of the wiki for this assignment made it easy for the assignments to be submitted in real time, allowed students to keep track of what species had already been taken, and gave ambitious students an opportunity to showcase the species they had found. The wiki stimulated increased participation in this assignment; some students continued to post their finds for months after the class had ended.

Amphibian Survey (Group Project)

In this project groups were assigned to localities, which they were responsible for surveying throughout the semester. All finds were vouchered through photo, video, or audio evidence, which was posted to the wiki for verification. The instructor maintained a running tally of the species found by each group. This motivated competitive groups to find more species at their sites. A final report that connected the findings with locality of occurrence and habitat was written collaboratively by the group members at the end of the semester. Findings are reviewed yearly to make sure that comparisons can be made through time, as well as across habitat types.

STUDENT PERCEPTIONS

Student feedback demonstrates that the wiki format promoted class participation, increased inter-student communication, fostered a sense of community within the course in question, gave an impression of increased control over course content, and was accompanied by a feeling of project ownership and accomplishment. Students felt that posting assignments publically motivated them to produce quality work, and also found that the wiki made group projects easier to complete. Students did not find the wiki difficult to use, but their main complaints about the use of the wiki in the course were related to technological issues, such as upload limits (which were imposed by WebPaint on both file size and quantity) and problems with browser support; educators looking to incorporate wikis into their classes should pay special attention to these issues as they choose a wiki-hosting site.

REPRESENTATIVE STUDENT COMMENTS

Uses:

 Allowed me to discuss and interact with classmates, teachers, and TAs and give me access to anything I may need that was available for resources as a student; ie: notes, lectures, handouts, readings, keys, grades, etc.

Dislikes/Suggestions:

The wiki was really easy to use, in theory. However, it often had technical problems, especially in uploading photos and powerpoints. Simply because of the amount of information this site had on it. It was sometimes frustrating not being able to post an entire powerpoint or take several attempts to post pictures. Besides these set backs, it was a good tool for the course and definitely created a community feel.
Concept maps created by undergraduate students during their final exam in Sustaining Human Societies and the Natural Environment (a study abroad class based in Australia). This exercise asks them to connect some of the key characteristics of Australia (unpredictable climate, ancient soils, an extended period of isolation) with the processes that ultimately resulted in Australia’s unique environment and history (high rates of endemism, widespread schlerophylly, unique indigenous practices [e.g. nomadism, firestick farming, population control], the European perceptions of these practices [e.g. Terra Nullis] which led to racial persecution [e.g. the Lost Generation], and the contemporary ramifications of these events).

The concept map to the left, while not among the very best, does a relatively good job of developing some of these themes, while the map above exemplifies how this assessment method can reveal fundamental gaps in the synthesis of course content that were not identified in portions of the exam that used a traditional format (e.g. multiple choice, short answer, and essay questions).  

Student work is in pencil, my feedback is in ink.