**STATEMENT OF TEACHING PHILOSOPHY**

Teaching is undoubtedly one of my best qualities as an aspiring young academic. My experience of several years in various educations systems (public and private) in the classroom, field, and laboratory has exposed me to a plethora of instructors and teaching styles. Throughout these experiences, I have noted strategies that have failed (even from well-respected researchers) and those that have succeeded, sometimes even unexpectedly. Interestingly, concepts learned rather early in my education, such as “show, don’t tell,” continue to influence the way I teach and present research at scientific conferences.

The teachers that have made the greatest impact on my education are those that have instilled their passion in me for what they practice while providing unbiased guidance and the “creative space” for me to discover and develop my own pathway. In this statement I will cover **1)** my approach to teaching and lecturing, which has been greatly molded by many influential instructors and advisors throughout my academic rearing, **2)** my philosophy with regards to how I would advise students conducting work in my lab, and **3)** highlights of my past and current teaching experiences.

1. **Effective lecturing and presentation**

My approach to lecturing involves a union between exciting presentation and interactive conversation. From my experience attending lectures and professional talks, this style keeps the audience engaged and results in a productive experience for both the speaker and spectators. I will go through my lecture approach step by step, keeping in mind that, while the general chronology of phases is consistent, the magnitude and duration of each phase will vary according to the audience and subject material.

Winning the minds of the crowd at the onset of a lecture ensures the audience has some mental and physical investment in what you are about to present. This begins with a firm, loud, and exciting voice that introduces the gravity of the topic and how it pertains to the audience. Once their attention has been obviously and firmly grasped, a slow regression downward to lower levels of ambience is essential. While the students still need to maintain an interest in the subject matter, bringing the volume to a comfortable level permits them to listen without strain and simultaneously allows them to use their brain to digest the material set out before them. Though the engagement of the audience requires an initial shock, audience and lecturer fatigue is a real and common issue. I have seen “over-the-top” presenters maintain high levels of energy throughout lectures and ultimately fail to send their message because the audience has no time to “breathe”, so to speak. As a result, at the end of the presentation the crowd gasps with exhaustion and fails to recount anything meaningful for a post-lecture dialogue. In my opinion, this misses the entire point of presenting lecture material to students; one has ultimately failed if he/she cannot have interaction with the audience at the summation of the talk. While the presentation should be entertaining, the audience needs a crucial reflection period.

As the presentation takes the form of a more informal chat, fostering critical thinking behavior and question development, I find it handy to sometimes turn off the screen of a PowerPoint to ensure students are listening and thinking and not simply staring robotically at a continuous string of slides. These moments are actually quite effective in my experience, and ensure you continue to engage the audience despite the obvious change in the lecture’s general ambience. Some examples of these include utilization of tangible items (e.g., “props”), or directing questions to the crowd. During the latter portion of this “chat” phase, the effective presentation gradually increases in gravity and re-builds to the same shocking levels as the start. This final ascension is imperative as the audience must leave the classroom or lecture hall enthused about your presentation and able to discuss it. As indicated above, at this point the instructor should have re-energized the audience enough to engage in a dialogue at the summation of the lecture or presentation.

*“Show, don’t tell”*

Whether lecturing formally in the classroom (as above) or writing a popular piece on scientific research for the general public, I believe it is important for an instructor to maintain a “show, don’t tell” style. This concept, which was first introduced to me in a High school creative writing class, involves an instructor’s invitation for students to become more intimately involved with the subject matter through use of strategic language and/or audiovisual aids. I will use an example from my own writing to illustrate the concept. Here are two ways of describing an observation of spotted eagle rays (a species I studied during my PhD) traveling through Flatts Inlet, a common occurrence in waters of Bermuda:

1) Tell: *“Spotted eagle rays are commonly sighted underneath the Flatts bridge of Bermuda. Rays are often observed swimming against a current that pushes through this narrow inlet with the change of tide.”*

2) Show: *“Gazing carefully beneath Bermuda’s Flatts Bridge, the keen eye can spy an animal resembling a ‘speckled pancake’ cruising against a roaring tide. Even at its peak tidal flow, the powerful whitewater of Harrington Sound is not enough to deter the speckled pancake from its path; it smoothly flashes its starlit back to lucky viewers glancing down from above”.*

Example 1 simply states the facts that rays can be observed in this particular water body, whereas example 2 brings the reader closer to the observation with shiny detail and a modest use of symbolism and hyperbole. While method 2 may not be a practical approach for scientific writing and most peer-reviewed journals, it illustrates the concept of engaging the reader. I take the same approach with advising students and presenting research at scientific conferences.

One of the great advantages of working in marine biology and ecology is that these courses are often complemented with laboratory and/or field components. The nature of the course works to the advantage of the instructor in that he/she has the opportunity to bring students in close proximity to the subject matter. For example, instead of telling students about the importance of seagrass meadows as nurseries, this concept can be shown by sampling this habitat in the field. I would initially task students to snorkel through these dense underwater forests of grassy leaves trying to find small critters to no avail. Then, with a simple swipe of a net or trawl through the meadow, they’d peer endlessly onto an abundance of small juvenile fishes squirming through their hands. With hands-on experiences like these, students can appreciate the productive yet refuge function of this habitat and see it as if they themselves were predators roaming these beds in search of food. This seagrass meadow function activity is just one of many examples that can benefit students via a “show, don’t tell” approach to teaching.

1. **Student advisement and research**

*“Season with salt, let simmer, then handle with care”*

Throughout my academic career I have experienced many different approaches to managing students and their research. While there may not be a single method that is effective for all, I do consider a simple recipe for success in my field. Following the lead of Steve Carpenter, I wholeheartedly support the view that students of ecology (terrestrial, freshwater or marine) need to become naturalists first through extensive field experience with “real ecosystems” or tractable learning areas (e.g., public aquaria) if field sites are logistically infeasible to access. Such training in the natural environment allows them to develop the ability to recognize natural patterns. This is a major reason why I moved from an entirely aquarium-based study of behavioral ecology (master’s research) to the field arena; working within a confined captive setting limited my sense of ecological realism. Escaping the laboratory and entering the world of field-based science has given me an appreciation of the openness of communities and the dynamical nature of the marine environment while recognizing that experiments in controlled settings are still necessary (and often crucial) for elucidating mechanisms behind the patterns observed in the field. Thus, in my opinion, the best initial strike for students in understanding a marine ecological process is to begin with rigorous field observations to understand ecological patterns (“season with salt”). Such an approach could be considered “mensurative” sampling or “natural experimentation,” as they lack the use of experimental manipulation and the only treatment is space or time. It is my job to provide the opportunities for my students to have these naturalist types of experiences.

Once students have received an appreciation of the natural patterns that characterize their study system and have developed a topical research question that can be practically addressed, the next step is choosing their model species (i.e., the characters). This is a crucial step in the research development process as many students have a tendency to limit themselves to species with which they are emotionally tied. Having worked with a multitude of charismatic species (e.g., sharks and rays), I can certainly empathize with these individuals. However, I have seen many projects (including my own) fail because the study species were simply infeasible to work with; meanwhile, many less-charismatic though ecologically suitable characters were “available for hire.” Though it is sometimes impossible to avoid focusing on a single species or group (e.g., species-specific fisheries questions), I’d encourage students to reasonably explore their options when choosing a model species for their graduate research.

After a topic is determined and suitable candidate species are selected, I would begin to lessen my degree of involvement with the student’s research. At this stage I’d allow the student to start becoming one with his/her own research (“lightly simmer”) so that they develop a certain sense of intimacy with their work. I’d allow them to independently plan their sampling program or experiments while ensuring them my availability to assist with guidance and support when needed. I am not a micro-manager and do not think that is an effective way for young scientists to develop research independence. That being said, I also do not support the other extreme of fostering independent thinking where advisors completely detach themselves of all responsibilities save for the minimum requirements. To me, a successful research advisor is thus neither a micro-manager nor a complete absence, but rather someone who advocates independence yet can always be relied upon as a “life-line” for immediate guidance and support. In sum, while it is vital that students are given the freedom to explore their academic interests, they should be handled with care. Though my experience advising students in their independent research projects is in the beginning stages, I feel my diverse experience of instructing has prepared me for this challenge as well as continued teaching in the classroom.

**3) My past, current and future commitment to teaching**

Over the years I have taught at a variety of academic levels from K-12 through graduate. My significant teaching experience began during graduate studies at Hofstra University. There, I served as an adjunct instructor for numerous laboratories for both biology majors (Animal Form and Function, General Biology, Animal Behavior) and non-majors (Biology and Society, Human Biology, Human Anatomy and Physiology). Working with students from different academic backgrounds led me to develop increased patience and a level of appreciation for those that communicate science well to non-science crowds. My most considerable opportunity at Hofstra was leading a laboratory for an undergrad/grad course in Animal Behavior (BIO 117). During this rewarding experience I was able to coordinate and supervise multiple field excursions for the class, bringing students up-close and personal with animal behavior in varied environments.

The initial field-teaching experience gained at Hofstra pushed me to co-instruct a college-accredited field course in San Salvador (Bahamas) shortly after completion of my master’s degree. The Marine Biology Accredited course (MBA), which had an emphasis on coral reef and reef fish ecology, was taught through Broadreach and Academic Treks (BRAT; yes, an unfortunate acronym!). BRAT is a summer program for advanced High School students designed to provide college-level experiential learning along with cultural immersion, community service, and environmental stewardship. This course was an exhilarating experience for me as I had to quickly learn communication skills with a new age-group (high school sophomores and juniors) while teaching in an isolated and thus challenging environment in the Bahamas. In addition to formal lectures in the classroom, I led students on several field expeditions involving underwater surveys on SCUBA. Moreover, because student counseling was needed outside the classroom, I also learned several group dynamics management skills like conflict resolution and teambuilding. Through my teaching experiences at BRAT I acquired a strong ability to motivate and manage students in arduous conditions. My success with MBA and BRAT granted me an opportunity to develop a curriculum for BRAT’s “Shark Studies” course in Fiji, which was initiated in 2007 and has been successfully implemented every summer to date.

My graduate studies at the Dauphin Island Sea Lab (DISL) involved working very closely with the summer school program to provide multiple guest lectures and field excursions for both undergraduate and graduate courses. These courses have included Marine Vertebrate Zoology, Sharks and Rays, and General Marine Biology. Additionally, I contributed multiple talks to the DISL’s Discovery Hall Program (DHP) Teacher Workshop to bring K-12 educators closer to marine science technology (i.e., biotelemetry) and cutting edge research on the biology and ecology of sharks and rays. For both undergraduate courses and teachers workshops I also brought individuals into the field to capture animals and/or instruct their use of scientific equipment. These types of activities also included the participation of interns and REU students throughout the summer field season at DISL. Lastly, my PhD experience also included “Discovery Day”, an annual informal education day at DISL where the doors to laboratories were opened to the public for an interactive showcase of current research.

While my PhD teaching experience at DISL was generally limited to guest lectures and single-day field trips, I am currently being exposed to more formal instruction at Texas A&M University – Corpus Christi. My postdoctoral sponsor, Dr. Greg Stunz, has allowed me to assist with co-advisement of his students (2 PhD, 3 MS) in project planning, data acquisition, statistical analysis and interpretation, and the dissemination of results. My successes earned me a recent appointment of Associate Graduate Faculty at TAMU-CC, and current serve on two master’s students thesis committees from outside our laboratory. Furthermore, **I recently instructed a graduate-level course in “Fisheries Ecology”** taken by both M.S. students (Fisheries and Mariculture program) and Ph.D. students (Marine Biology Doctorate program). Fisheries Ecology is a broad survey of fisheries sampling techniques, fish population ecology and dynamics, past and current issues in fisheries research, and fisheries management. The course includes formal lectures and a lab where students experience hands-on fisheries techniques in the field and laboratory.