

Teaching Philosophy Statement

Joanna Hass, Physics

Teaching assistants have the opportunity to play an extremely important role at large universities like Georgia Tech. While students attain the bulk of course material in lecture from the professors, TAs are responsible for providing hands-on instruction to small groups of students. There is a need for personal, one to one interaction with students, thus teaching assistants are in a unique position to have a potentially huge impact on a student's school career. TAs are able to act as a net for students who are struggling with concepts or need access to different styles of learning. High school students enter college with varying degrees of preparation and TAs are the first level of support for students with disadvantaged backgrounds in need of more attention. Undergraduates can also often be intimidated by professors, therefore teaching assistants serve as intermediaries who not only communicate material to the students, but also give valuable feedback to the class professor(s).

I have found that it is important for all teachers, at all levels to be well prepared for class, with well-thought out lesson plans and materials. Successful teachers make objectives clear and break down concepts into pieces which strike a balance between being small enough to digest, yet contain enough substance to remain interesting. It is crucial to attain constant feedback and evidence of understanding via traditional assessment methods as well as informal evaluation. Effective questioning may be the most important tool of a good TA. While helping students one-on-one it is possible to guide students through a series of pointed questions such that answers are not given away, but arrived at with maximum input from the student. As a TA it is also extremely important to make students feel comfortable asking questions. There is an art to answering questions carefully such that the student will not be intimidated to ask in the future, but also not rely on constant questioning as a substitute to thinking for themselves.

In the fall of 2003 Mr. Ken Barker requested a teaching assistant who would be dedicated to helping students gain the knowledge and confidence necessary to pass Introductory Mechanics (Physics 2211) after failing it on their first try. He was assembling a curriculum for Physics 2802, a special problems physics class to be taken concurrently with a second attempt at 2211. I was pleased to be a part of the project. This is now my sixth semester as a teaching assistant with the Georgia Tech physics department for Physics 2802. Over the past 3 years, Mr. Barker and I have built up the program and have had overwhelming success. Almost all of our students have indeed passed 2211 on their second try, while most of the retakers not enrolled in 2802 do not pass. During class, Mr. Barker and I spend the majority of our time working one-on-one or with small groups on practice problems. My major organizational duty for the course has been developing and refining the homework component, which constitutes 40% of the 2802 course grade. I give a great deal of written feedback on all problem sets and encourage students to write specific questions about confusing concepts on their assignments. I keep a 24 hour open door/ email policy for all students, whether help is needed on 2802 homework and class assignments or homework for 2211. Each semester I have organized and taught a final

review session for all of our 2802 students (and their friends) on the evening before their 2211 final exam. I have also remained in touch with a number of former students and voluntarily tutor them in later physics courses.

A number of students every semester have told me that they would not have been able to succeed in their various engineering programs if it weren't for Physics 2802. We have received feedback that alumni of 2802 have also performed well in Introductory Electricity & Magnetism (Physics 2212) and various engineering courses by applying the study habits and techniques learned in 2802. Teaching with Mr. Barker has been an extremely rewarding experience. I am delighted to be able to provide support to so many undergrad engineering majors through my involvement with Physics 2802.

Recently, Jennifer Kuninsky of the Georgia Tech Housing Department has requested that outstanding physics TAs start up a tutoring/ review program in all of the freshman dorms for help on Introductory Physics. Dr. Ahmet Erbil, at the time the undergraduate chair of the physics department, asked me to help organize and facilitate the initiative. It will be my responsibility in the upcoming months to recruit other teaching assistants willing to take on the additional commitment of meeting to plan and subsequently instruct review sessions prior to each 2211 class exam. Based on the positive feedback we have received from our 2802 students, I am sure that this initiative will be well received and much appreciated on campus.

In addition to TAing Physics 2802 during the academic year, I have been a teaching assistant for the National Science Foundation funded STEP-UP program during the past two summers here at Tech. The Summer Teacher Experience in Packaging, Utilizing Physics (STEP-UP) program is an eight-week research and training experience for Atlanta area high school physics teachers. I was the TA for the modern physics component of the program, taught by Dr. Edward Conrad, as well as an attendee to the five teaching workshops given throughout the summer. I served as a liaison between the high school teachers and Georgia Tech faculty involved in the program, giving feedback on various elements of the experience. I have learned a great deal interacting with the high school teachers in this program and in addition I have been able to gain further understanding of the level of preparation undergraduates should have upon entering Georgia Tech.

I attend Georgia Tech because it is a premier research university; however, I feel that it is of extreme importance to be an effective teacher as well. Dedicated TAs are crucial to the mission of Georgia Tech, especially in the subject areas with which students struggle the most. By providing support to undergraduate students, excellent teaching assistants can help make Georgia Tech an even more competitive institution.