

Proposal of a Teaching Mentoring Program
Within the College of Engineering at NCSU

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1) Introduction

One of the main focuses of the North Carolina State University Student Chapter of American Society for Engineering Education has been to propose a teaching mentoring program. NCSU has a teaching mentoring program called Preparing the Professorate. This program provides graduate students throughout the university with the opportunity to work closely with a faculty member to prepare themselves for developing and teaching courses in their field. Preparing the Professorate is a well-respected program, but is only open to about ten students per year. In order to give more engineering students the opportunity to hone their teaching skills, our student chapter of ASEE decided to propose a similar program within the College of Engineering.

This paper describes the process we have used to design and initiate our teaching mentoring program. The current proposal is included in Section 8.

2) Preparing the Professorate

The Preparing the Professorate Program was developed at NCSU for the express purpose of giving qualified graduate students the opportunity to excel in the classroom once embarking on a career in education. The program pairs participating graduate students with a mentoring professor. An interested student approaches the faculty member of his/her choice and they apply to the program as a team.

The application specifies a two-semester plan of action. While the specifics of the plan are not predetermined, it usually follows a standard format. During the first semester, the graduate student observes the mentoring professor, discusses class content and objectives, and begins planning for the teaching experience.

During the second semester, the graduate student takes over some or all aspects of the class, receiving feedback from the mentoring professor along the way. The program thus allows graduate students the opportunity for continuous assistance and feedback from an experienced faculty member as they begin their teaching career.

3) Survey

We decided early on that we wanted to follow the general format of Preparing the Professorate. We wanted the student to choose the mentor and to have them make a joint application to show their interest. We wanted our program to support the mentoring relationship, but the success of each team would depend on their enthusiasm and effort.



While we had a reasonably firm idea of the program we had envisioned, many troubling questions remained. To ensure that our proposal described a program which met the needs of the graduate students, we surveyed our departmental representatives to gather their insights into student needs. The questions we were trying to answer and the results from that survey are summarized below:

Is there interest for this type of program outside of the membership of ASEE? Almost every group that we talked to was interested in this program.

Are there professors who would participate in this program? The students believed that many professors would be interested. After talking to some professors and college administrators, we realized that professors would be interested, but were only likely to spend their time if the program was highly respected and their participation was recognized by the College. This was a significant hurdle for us to overcome and led us into conversations with the Dean.

How structured should the program be? The answers to these questions ranged from “no requirements” to “fully mandated.” The respondents who wanted fewer requirements were looking for a program which would allow them to pursue their particular interests. The “hard-liners” were concerned that a program with no requirements would not be respected. These results led us to develop a flexible set of guidelines.

How exclusive should this program be? Some respondents thought the program should be as open as possible since the skills the program builds will be required by many graduate students. However, others felt that a program that is not restrictive would not be respected, limiting the willingness of professors to participate. Part of the respect given to Preparing the Professoriate comes from the highly selective nature of the program.

Is some type of reward (certificate, notation on transcript or other) required to make students interested in participating? The students really liked the idea of putting a notation of participation on their transcript because it gave participation some validity, but many of the respondents were interested in the program with or without a tangible reward.

4) Development of the Initial Proposal

Based on the results of our survey, we modified the Preparing the Professoriate model to allow it to be overseen by our ASEE student chapter, but we were unhappy with this program. Having it under our control made it impossible to put any real restrictions or requirements on the participants, and we knew that it would not be well-respected if it did not have the support of the college’s administration. It became apparent that this was not a task we could undertake on our own.

We decided that we needed to modify the program to be a part of the institutions already within the College of Engineering and then try to get the Dean to adopt it as a college program. With this in mind, we married our vision with the existing teaching assistantship program, thereby creating Mentored Teaching Assistantships (MTAs). These positions would provide our mentoring relationships and would be awarded after a joint student/faculty member application. The only real difference between this and our original idea is that applications would be to the departments of the College of Engineering (since they assign TAs) instead of to ASEE and that MTAs would look like regular TAs to the University administration. We thought that both of these modifications added the strength that our program would require.

5) Making the Proposal

At the time we presented it, we believed that our program was the best we could do alone. Having no real **authority**, we had to work within the confines of the **existing** system. These restrictions **left** us with a program that was very interesting from a student's perspective, but which might not spark the interest of professors.

We took our proposal to the Assistant Dean of Graduate Studies for review, in the hopes of getting him to promote the program and make it a permanent, respected part of the college. He invited us to present it to the Graduate Studies Committee. Since this committee is **made up of** the Director of Graduate Programs from all of **the** departments, we would be presenting to the people who would administer the program.

Interestingly, in the discussion following our presentation, the Graduate Studies Committee raised many of the same issues we had wrestled with. They clearly liked the proposal and wanted to add the strength of the College of Engineering to it. They formed a subcommittee of three Directors of Graduate Programs and an ASEE representative to review and modify the proposal.

6) Final Modifications of the MTA Program

The committee was very receptive to the basic idea behind our program. It was agreed that we should use the college's existing teaching assistant program as a stepping stone to our new MTA program. The **committee** added a number of details to the program in order to raise its status within the college.

The program would provide additional teaching instruction in the form of lectures and seminars sponsored by the College of Engineering. Similarly, the college would take responsibility for management of the program by putting it under the jurisdiction of the Associate Dean for Academic Affairs.

The application and selection process was also changed to better accommodate the various branches of engineering and the different TA needs throughout these departments. An interested student must find a faculty member in **his/her** department who is willing to participate in **mentoring** on a solely volunteer basis. This team must then make a joint application to the department's Director of Graduate Programs. If the Director of Graduate Programs is willing to make the requested assignment, the application is forwarded to the College of Engineering.

A subcommittee of the Graduate Studies Committee then reviews all of the applications and selects participants. The program is designed to accept 20 **student/mentor** teams. Each department or program is guaranteed one selection (totaling 10) and the other ten are given on an at-large basis. This provides participation by all departments, giving more opportunities to larger departments and departments with greater numbers of students interested in teaching.

Finally, the College of Engineering endorsed a reward system. Because this program requires extra effort on the part of the student and the faculty member, it was felt that they should be recognized for their participation. The first manner of recognition comes through participation in forums. The student and mentor will give a presentation on their work to illustrate the positive and negative aspects of teaching and the benefits they've gained through participation in the program. Second, each team will receive a certificate of participation from the College of Engineering. Third, the student will receive a monetary supplement to the usual teaching assistantship stipend. MTAs will receive an extra \$100 per month in recognition of the work and achievement in this program. Finally, the student will receive acknowledgment of participation on his/her transcript. It is hoped that this will prove beneficial as students apply for academic positions following graduation.

7) Current Status

As of the writing of this paper, the committee's proposal has been approved in principle by the Graduate Studies Committee. We plan to run a pilot program next fall.

8) MTA Program

Program Overview

This program is designed to allow graduate students in the College of Engineering to expand their teaching experience by formalizing a mentoring relationship between themselves and professors of their choice. The program augments the existing teaching assistantship program within the College of Engineering. The mentored teaching assistantship position (MTA) will allow the graduate student to participate in more course development and teaching activities than a normal TA would allow. Mentored TAs will receive a normal TA stipend from the department and an additional \$100 per month stipend from the College of Engineering.

Application Guidelines

Applications for this program are completed jointly by the student and his/her chosen mentor. An application must include the following items:

- The semesters in which the program will take place. Applications can be made for an academic year or for individual semesters.
- The goals the student has for participating in the program.
- The class(es) which the student will participate in teaching.
- Specific details of what the student's activities will be. For the typical application, this will mean that the student must be committed to at least three hours of lecturing and preparation of at least one homework assignment and one exam. However, these are only guidelines; applications proposing alternative teaching assignments like running regular problem sessions, individual tutoring, or research in applied teaching methods will be considered.
- Information about the student's academic status including: milestones of the pursued degree which have been passed, expected graduation date, CV, etc.
- Signatures of the student and the professor attesting to their interest in the program and their commitment to complete the proposed activities.
- Signature of the Director of the Graduate Program for the appropriate department agreeing to make the requested TA assignment if the application is selected.



~~Applications will~~ reviewed and accepted by a rotating subcommittee of the Graduate Studies Committee of the College of Engineering. Applications ~~will~~ be due to that committee one month prior to the beginning of the first semester for which the student is applying.

Application Review Policy

A subcommittee of the Graduate Studies Committee of the College of Engineering shall be responsible for reviewing and accepting applications for this program. Membership on this subcommittee shall be rotated among members of the Graduate Studies Committee. ~~The~~ subcommittee shall review **all** applications and select one application per department/program with the balance of available positions being awarded on an at-large basis.

Activities While in the Program

The student and the professor are responsible for completing the actions they specified in their application to the program. In **addition**, the student **shall** be required to attend the College of Engineering's summer Teaching Effectiveness Workshop for teaching assistants and **all** ASEE sponsored forums.

When course evaluations are done for the classes involved, two evaluations shall be done: one of the professor and one of the graduate student.

Participation in the MTA program requires that the student and the professor have regular meetings to review and reflect on the activities related to their participation in the program. The student and professor are expected to make a joint presentation in an ASEE-sponsored forum in which they summarize their activities and make recommendations on ways to enhance the MTA program. This will allow them to review what was beneficial and what problems were encountered. This review will not only benefit the current participants, but will also provide guidance to **future** applicants to the program.

Publicity and Recognition

In order for this program to be **successful**, it must be well-respected and participation in it must be regarded as an honor. This **will** require significant support by the Dean of the College of Engineering, the Associate Dean for Graduate Studies of the College of Engineering, and the Directors of the various Graduate Programs.

While this program offers many benefits to the students involved, participation will require significant effort by both the student and the professor. It is recommended that the Dean recognize all participants at the annual faculty meeting. In **addition**, recognition of participation will be made on the student's transcript and a certificate will be awarded to the student upon completion of his participation in the program.

In order to spread the knowledge gained by participants and publicize the program, ASEE will sponsor forums in which participants who have completed participation give presentations on their experiences.

All of these activities **will** be spear-headed and monitored by the Associate Dean for Graduate Programs



ASEES Participation in the Program

There are no core aspects of this program which require ASEE intervention. However, ASEE will **continue to** participate in a number of ways. For students participating in the program, ASEE will run regular **informal** discussions groups to allow **all** participants to share their experiences and gain **further** insights from the experiences of others.

In order to spread the experiences gained by participants and to encourage others to participate, ASEE will run forums where participants share their experiences and will maintain a file of all of the summaries submitted by MTAs so they can be made available to all College of Engineering students.

Biographical Information

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