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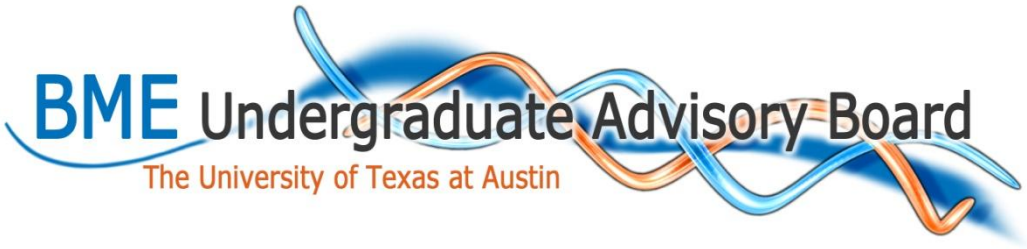

Spring 2011 Recommendations

A comprehensive report endorsed by the 2010-2011 Biomedical Engineering Undergraduate Advisory Board at The University of Texas at Austin.

Publication Date: January 10, 2012

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Endorsement of Work

The recommendations presented herein are officially endorsed by the 2010-2011 Department of Biomedical Engineering Undergraduate Advisory Board. The members of the board are as follows (* indicates a UAB member in their final year at UT):

James Salazar, UAB Chairman

Research Committee

Grace Fletcher, Committee Head

Katie Cowan, Ilana Osadchey, Arman Satari, Ryan Truby

Academics Committee

Marc Alexander, Committee Head

Chinedu Anyaeji*, Jessie Davis, Justin Hsu, Kapil Saxena*

External Relations Committee

Kelsey Hill, Committee Head

Annie Abraham, Zi-on Cheung, Courtney Davis, Giselle Zornberg

Introduction

The initial proposal for the Department of Biomedical Engineering Undergraduate Advisory Board (BME UAB) states: "The Undergraduate Advisory Board will be responsible for using the time, insight, and flexibility associated with being students to help meet current departmental goals." Pursuing the objectives outlined by this mission statement, the Undergraduate Advisory Board continues to work to enhance the approaches it takes to help the department meet its goals. During the Spring semester of the 2010-2011 academic year, the BME Undergraduate Advisory Board strived to fulfill the mission it established in its founding document.

In Spring 2011, the UAB led several projects all proposed and implemented by students from the UT Biomedical Engineering department. While some of these projects were continued efforts from previous years, others are completely new and highlight the department's potential for creativity and innovation.

The focal point of the Spring 2011 semester was again our BME Design Competition. Based off of recommendations received from our Fall 2010 Town Hall, in the second year of the Design Competition, we sought to present a challenge to our participants that was more relevant to the biomedical field. The challenge was as follows: To modify an existing robotic kit so that it is able to inject a target point accurately while bearing as much structural and functional similarity to a human arm. Also based off of recommendations from the Town Hall and with the generous support of the SEC, we were very excited to provide competitors a more flexible design platform with the Lego Mindstorm NXT 2.0. As a result, we received increased interest and participation from BMEs as well as other engineering majors. The final presentations demonstrated the diverse backgrounds and exceptional innovation of each of the participating teams. Although there were areas that could be improved upon, this year's design competition great success gives us much belief that the design competition can be sustained in future years.

The Spring 2011 semester also marked the third annual Bioscience and Biotechnology Symposium (BABS). Another event that has become a signature event of the UAB, BABS was again hugely successful in

providing students a unique opportunity to interact with employers in the bioscience and biotech sectors.

While the UAB was happy to see continued success in Spring 2011, we were also very excited to achieve new success through a new event called Track Night. Track Night gives BME underclassman the chance to become more informed before they make their track choice. It had a successful debut and it is likely that it will grow in popularity when better coordinated with departmental advising.

Finally, the UAB continued its efforts to establish other departmental UABs, participate in the Student Engineering Council, and assist interested undergraduates in having an optimal research experience.

The UAB consists of one Chairman and three subcommittees of five members each, one of whom is the committee head. Each subcommittee is responsible for evaluating the current state of the department in one of the following areas: Research, Academics, or External Relations. Recommendations for improvement were then made at the subcommittee level, based on expertise that the members of that subcommittee obtained in their respective area over the course of the fall and spring semesters.

External Relations

The overall goals of the External Relations Committee are to stay connected with the student base, both in the Biomedical Engineering department and throughout the School of Engineering and to reach out to other universities and companies. By staying connected the BME UAB can offer events and programs that will directly benefit the students. This semester the External Relations Committee focused on four initiatives to keep the BME UAB connected and to offer events to engineering students. These were the Bioscience and Biotechnology Symposium, establishing other departmental UABs, participating in the Student Engineering Council, and contacting biomedical societies at other universities.

Bioscience and Biotechnology Symposium

Objectives & Results

Continuing the planning from the fall semester, the 3rd annual Bioscience and Biotechnology Symposium was successfully held in the Texas Union Ballroom on February 2nd from 1:30pm to 6pm. The speaker panel, research poster presentation and career fair went smoothly and were well attended. Employers were pleased with the quality of the students and enjoyed looking at the research posters. There were 16 companies and about 150 students in attendance which was an increase in companies, but the number of students remained the same as last year.

Once again the event was sponsored by the University Co-op who donated $1,750 this year. The money was put towards the catering which was provided by the Union and was just as big a hit as last year. Unfortunately the ECC funding wasn't able to be used towards BABS because the reservation for the ballroom wasn't made by a student organization. Instead the money was directed towards buying kits for the design competition.

Areas for Improvement

Several changes will be made to BABS for next year. The biggest one is that it will be held during the fall semester instead of the spring semester. We feel this will help increase student participation as

only about half the students who registered for the event didn't show up the day of. This could be due to the fact that registration occurs before the winter break and students don't know for sure what their schedule will be for that day, so moving to the fall will eliminate that issue.

The UAB won't be applying for funding through ECC again as most of our expenses are ineligible for ECC funding and there were too many complications with releasing the money to the organization. Therefore the UAB will continue to look for other sources of funding outside of the Co-op and SEC.

Future Work

In the coming year, the UAB will need to be seriously involved with planning for BABS as it will be held during the fall semester and therefore will be less time to plan. Having at least two UAB members involved with the planning would be ideal to make sure the 4th annual BABS just as successful as the previous ones.

Departmental UABs

Objectives & Results

For the 2010-2011 academic year, the external relations committee continued its work in aiding other departments within the Cockrell School of Engineering start up and develop their own UABs. During the spring of 2011, a particular effort was made to establish a UAB in the Chemical Engineering Department. Representatives from the BME UAB corresponded with leaders and members of the Chemical Engineering organizations, AIChE and Omega Chi Epsilon, to discern the level of interest within those organizations for forming a ChE UAB, as well as to offer consultation and support for said potential interest. After a series of invitation extensions within their meetings and email coordination with the heads of both organizations through April and May, there have been no reported returns from the students in those organizations. However, initial contact has been made, and the foundation has been laid for further work within the department.

Areas for Improvement

There are several areas for potential improvement in the effort to establish UABs in other engineering departments. First, it may be necessary to begin contacting heads of the departments' prominent student organizations sooner so as to be able to coordinate scheduling of their informational meetings in which BME UAB representatives could sit and allow for more time for the students of those organizations to consider the prospect of a UAB. This year's efforts went into motion in early-April, which was towards the backside of the spring semester, which provided a limited window to work with potentially interested students. In addition, another area of potential improvement is that during the meetings in which representatives from the BME UAB sit, short segments could be presented on what the UAB does in the BME department, rather than solely presenting contact information to students vaguely interested in the formation of a UAB, to increase awareness of what a UAB in their respective department would entail.

Future Work

In the coming academic year, the BME UAB external relations committee will continue to work to improve the current methods of establishing UABs in other engineering departments. In addition, the committee will review whether there should be an expansion of efforts into other departments besides Chemical Engineering.

SEC General Report

Objectives & Results

This semester, three members from the BME UAB attended bi-weekly SEC meetings. After applying for funding, the UAB received $500 in appropriations from the SEC to be used toward The Bioscience and Biotechnology Symposium, the Design Competition, and the BME Research Grant. UAB members also entered a video contest hosted by the SEC and won $1000 for the Design Competition (Detailed in the SEC Video section below). The BME UAB issued a report on the use of these funds to the SEC after each event.

Areas for Improvement

There lies room for improvement in overall SEC participation. This can be accomplished through increased attendance at meetings and SEC sponsored events, which could lead to more funding for the UAB. In addition, there are various other opportunities to earn funding, such as contests, that the UAB can take part in.

Future Work

In the future, the UAB hopes to continue their membership in the SEC, apply for appropriations, and participate again in the SEC video grant contest. The UAB also hopes to have more members contribute to the video contest project in the future.

SEC Video

Objectives & Results

This year, in order to help provide funding towards the Design Competition, the UAB participated in the SEC video competition that had a prize of $1000 for the winning organization. Funding was needed for the UAB for the purchase of the kits for the teams competing in the design competition. The kits provide the teams with everything they need to create their robotic arm and allow them to manipulate the arm and compete in the Design Competition. For our video, the UAB decided to have some fun and create a video based on a boy's life with a robotic arm, and his endeavors. We created our video with the help of BME UAB members and some help from the BME advisors and BME students. Most of our ideas came from UAB members who created the video for the competition last year. After shooting many takes, editing, and lots of work, the BME UAB video won the competition for the second year in a row.

Areas for Improvement

We plan to begin the video at an earlier time next year so that hopefully we can put more members in the video and improve on the editing. Also, we hope to participate in more fundraisers to raise more funding for kits for the competition, and to provide more prizes for contestants.

Future Work

The UAB plans to compete in the SEC competition again next year, and we plan to once again create the video about the design competition because this is where our funding will be primarily allocated. Next year we plan to attempt the competition in a similar way with the help and ideas of the UAB members.

Connecting with Outside Universities

Objectives & Results

One of the goals of the Biomedical Engineering Undergraduate Advisory Board (UAB) is to expand this program onto other universities in surrounding areas. Not only would this further establish the credibility of the UAB as an institution for change and growth of Biomedical Engineering Departments in general, it would allow projects such as the Design Competition to greatly expand. Our first step in approaching this goal was to determine other universities in the state of Texas that have strong Biomedical Engineering Departments, as well as determining undergraduate BME organizations that may choose to incorporate programs such as the Design Competition into their curriculum.

Research into Texas BME departments revealed the following potential universities that may be interested in collaboration: Rice University in Houston, Texas A&M in College Station, and the University of Houston.

Future Work

Further investigation into the undergraduate biomedical engineering organizations, such as the Biomedical Engineering Society at Rice University, will occur in the following semester. These organizations will be contacted and asked if they would be interested in collaborating with the UT Austin UAB and, if so, which programs they would like to participate in. Our primary goal is to expand the Design Competition offered in the spring. Based on the responses from these organizations, however, other programs may also be adapted and expanded to include joint participation.

Research

This past year was a time of strong development for the research committee. Track night had its opening debut, the video grant was a success, and the design competition attracted more students then we could accommodate. The Research Committee also deliberated on what the best ideas were for getting information about research opportunities to undergraduates. With more undergraduates deciding to graduate in five years, undergraduate students are increasingly deciding to complete undergraduate research projects during their time at The University of Texas. The Research Committee is eager to assist these interested undergraduates in having an optimal research experience.

Track Night

Objectives & Results

The first Track Night occurred on April 11, 2011 at 5 p.m. in the BME Seminar Room. It was essentially a breakdown of the 3 possible track choices in the Undergraduate studies of Biomedical Engineering, and intended to help students become more informed before they make their track choice. PowerPoint presentations (pictures and short bullet points) were prepared by the UAB members and distributed to the presenters via email in advance. There were approximately 2-4 upper division undergraduate Biomedical Engineering student presenters for each track and after being introduced, they were allowed about 5-10 minutes to discuss their track's necessary skills, applications, upper division courses, opportunities, and potential post-graduate plans. After the presentations, the room was split into three sections, one for each track, and the presenters were open for questioning until around 6 p.m.

Areas for Improvement

Although the turnout was decent (about 30 students), our goal was to target many first and second year students who are naturally less informed about the tracks. It should be noted that working with Beta Mu Epsilon to attract presenters with volunteer points was very successful. In order to better

focus on post-graduate plans during the presentations, it could be beneficial to get graduate students and/or industry speakers to participate. In addition, research information for the three tracks could be integrated into the presentations with students who are active in lab research

Future Work

In the future, we are hoping to get Track Night moved to the fall semester and make it a requirement for first years to register for their spring semester classes. Also, it may be helpful for the presenters to make their own 5-10 minute presentation so that they may be more familiar with the slides and incorporate them into their presentations.

Undergraduate Research Grant

Objective and Results

The goal of the Biomedical Engineering Undergraduate Research Grant is to provide a student conducting independent research with additional funds for their research project. A secondary aim of the Undergraduate Research Grant is to give students practice in applying for grants, which we believe is a valuable skill for those students interested in graduate studies. The Research Committee would like the first Biomedical Engineering Research Grant to have an award of at least $1000, so there is a significant amount of fundraising still to be done.

Although the University Co-op, SEC, and Senate of College Councils are potential sources of monetary resources for funding the Biomedical Engineering Research Grant, the Research Committee will continue to seek out other financial sources in the coming semesters. Having industry affiliates sponsor and fund the Biomedical Engineering Research Grant was discussed with Michael Powell, Director of the Engineering Career Assistance Center (ECAC). After further consideration, application to the Biomedical Engineering Research Grant may need to be extended to the entire undergraduate engineering student body in order to receive industry support and sponsorship.

While the Research Committee originally hoped that such a research grant would go to a Biomedical Engineering student, the Biomedical Engineering Research Grant could still be open to all engineering undergraduate students, with the requirement that it must go to a student conducting research related to the biomedical sciences, if it appears next semester that industry support of the Biomedical Engineering Research Grant is necessary.

Areas for Improvement

The Research Committee was faced with funding, sponsorship, and participation considerations this semester that will continue to be addressed next semester. Apart from obtaining additional funds for the Biomedical Engineering Research Grant, the Research Committee will decide on sponsorship and participation requirements next semester in addition to formalizing the grant's application.

Future Work

Once enough funding is received and/or sponsorship for the grant is decided upon, the Research Committee will begin organizing the grant's application review committee and release the application for the first Biomedical Engineering Research Grant. We are hoping that Spring 2012 will be the first semester the Research Grant is available to undergraduates.

Academics

As proposed in the Fall 2010 report, the Academics committee focused on promoting and implementing the second annual BME design competition. The design competition was an integral part of the UAB's Spring 2011 semester. However, due to unforeseen complications, the Academics committee is unfortunately unable to publish their section of the report at this time. Hopefully their report will be completed shortly. At that point, this omission will be quickly corrected for.

Concluding Remarks

The Biomedical Engineering Undergraduate Advisory Board would like to give thanks to the BME Department's faculty, staff and advisory Committee for allowing the UAB to make a small contribution to the department. We continue to believe in our mission to help meet current departmental goals, as well as, connect students to the workings of the department; in turn gaining a sense of involvement. Hopefully, our efforts and projects will continue engage the student community and foment an interest in the growth of the Biomedical Engineering department.