



A. JAMES CLARK  
SCHOOL OF ENGINEERING



# Application for Outstanding Chapter-Industry Program Award

**Biomedical Engineering Society at the University of Maryland,  
College Park  
May 2016-May 2017**

## **Executive Summary:**

This year, BMES-UMD hosted a wide range of events that connected our members with professionals in the industry. We tried to form relationships with industry partners that spanned the field of bioengineering, including biotechnology, medical devices, and pharmaceuticals. For example, we had events with Meso Scale Diagnostics, Scientific and Biomedical Microsystems, and MedImmune. We also held events that brought our chapter together with local government agencies related to bioengineering, including the NIH, Smithsonian Institute, NIST, FDA, and Walter Reed National Military Hospital. This year, new relationships that we did not have in the past were formed with industry. For example, we were able to have Beckman Coulter sponsor our Alumni Cup team. We were also able to bring in high-level speakers that are founders or co-founders of local biotech companies due to better networking and help from the Engineering Corporate Relations director. This is not something that we have been able to do in the past. In fact, the President of BMES-UMD was able to give a talk to the UMD Bioengineering Advisory Board, which helped form even further relationships with industry than this report can capture. We are excited for the fruitful relationships that have been formed and the opportunities that these industry relations might have for our members. Finally, we also had a very successful bioengineering networking fair, which we helped advertise. The fair brought in 33 employers and about a hundred or more students. This year was a huge success in BMES-UMD's growing involvement with local industry. We look forward to maintaining these relationships over the next year and finding new ones to build as well. Enclosed are reports for our chapter-industry related events.



**Event Title: Professional Skills Workshop - Resumes and Elevator Pitches**

<b>Contact Person:</b> Adam Berger	<b>Location:</b> Kay Boardrooms, Kim Engr Bldg
<b>Email:</b> agberger@umd.edu	<b>Date:</b> Sept. 19, 2016

**Purpose of the Activity:**

*This activity prepared students for obtaining jobs and internships through learning about resume writing, networking, and having an elevator pitch.*

**History of the Activity:**

*This is the first time that the event has occurred. We believe that it was an extremely helpful event to kickoff other events in our professional series.*

**Statistics:**

<b>Undergraduate</b>	<b>Graduate</b>	<b>Industry</b>
28	0	1

**Cost of Activity:**

*There was no cost for attending this event. Pizza was purchased to feed participants.*

**Description of Activity:**

*The event centered on getting bioengineers ready for the career fair and other networking opportunities throughout the year. We brought in two panelists to lead the sessions. The first presenter was an advisor from the Co-op and Career Services Office. The second presenter was a UMD Bioengineering alumna, Lily Sooklal, who is now a systems engineer at Becton Dickinson. As a systems engineer, Lily was able to not only present helpful strategies to getting jobs and internships, but was also able to do a resume review. As part of a hiring team, she was able to bring her expertise to our members. Many students stayed afterwards to get one-on-one advice. We hope that by having this event at the beginning of the year, we were able to get students prepared for obtaining jobs and internships at later events.*

**Evaluation:**

*We believe this event was a huge success. As a recent alumna, Lily was able to provide first hand experience, having been through the job application process only a year prior. She has long since advocated for better professional skills for bioengineers, and we are happy this event could provide it. Anecdotal evidence suggested that members found the event helpful. Many stayed late after the event to continue asking questions. In order to make this event better, we may want to have it occur further after our first GBM. This may facilitate a higher attendance.*



**Event Title: Meso Scale Diagnostics**

<b>Contact Person:</b> Adam Berger	<b>Location:</b> 1146 A.V. Williams Bldg
<b>Email:</b> agberger@umd.edu	<b>Date:</b> Oct. 13, 2016

**Purpose of the Activity:**

*This activity brought in Dr. Jim Wilbur, General Manager and co-founder of a local biotech company, Meso Scale Diagnostics (MSD). He was able to talk about his graduate school experience, entrepreneurship, and running a biotech company. He was also able to give very helpful career advice from someone who is looking to hire many new bioengineers for his company.*

**History of the Activity:**

*This event with Dr. Wilbur has not occurred in the past.*

**Statistics:**

<b>Undergraduate</b>	<b>Graduate</b>	<b>Industry</b>
28	5	1

**Cost of Activity:**

*There was no cost to those who attended this event. BMES-UMD provided free Subway sandwiches to all attendees.*

**Description of Activity:**

*For this event, Dr. Jim Wilbur from MSD came to speak to students about what it is like in the biotechnology field. As an entrepreneur and scientist, he was also able to talk about the technology and how it works. Finally, he spent a good deal of time talking about starting a company and his career path. As someone who has done quite a bit in both industry and academia, he was able to provide a holistic narrative that hopefully helped students think about their own passion. Since MSD was looking to expand rapidly, this was also an excellent opportunity for students to network.*

**Evaluation:**

*We believe that this was an excellent event. It is rare that we are able to bring in a speaker that is so high in their company and that has such a diverse set of experiences. We are happy that Dr. Wilbur could join us and speak to our students. We think that there was mutual benefit since his company is looking to hire many new bioengineers in the next few years. Students said that they really enjoyed the event. They were really impressed with Dr. Wilbur's story and had a lot of questions. We believe that all the questions were a sign of a successful event.*



**Event Title: AstraZeneca/MedImmune Recruiting Booth**

<b>Contact Person:</b> Adam Berger	<b>Location:</b> Kim Engineering Building
<b>Email:</b> agberger@umd.edu	<b>Date:</b> October 13, 2016

**Purpose of the Activity:**

*This activity exposed bioengineering students to summer internship and job opportunities at AstraZeneca/MedImmune while also providing the opportunity to ask the recruiter questions in person.*

**History of the Activity:**

*This event was also held last year.*

**Statistics:**

<b>Undergraduate</b>	<b>Graduate</b>	<b>Industry</b>
~100	~2	1

**Cost of Activity:**

*There was no cost to those who attended this event. There was no cost to BMES-UMD for hosting this event.*

**Description of Activity:**

*A recruiter from AstraZeneca/MedImmune was present to inform bioengineering students of the timeline and logistical process of applying for jobs and summer internships. The recruiter also described the different functional roles that students could perform within the different sectors of the company. Importantly, she also described key qualities/experiences expected of ideal candidates. Finally, the recruiter also gave one-on-one time to each student to answer questions and take resumes.*

**Evaluation:**

*This was an effective networking opportunity for bioengineering students. We believe that this event helped students form personal connections with the AstraZeneca recruiter, while also allowing them to learn more about the company and the application process. Students expressed that having face time with recruiters improved their overall knowledge of the company and even helped some students secure internships.*



**Event Title: Scientific & Biomedical Microsystems**

<b>Contact Person:</b> Florence Stevenson	<b>Location:</b> Pepco Room, Kim Engr Bldg
<b>Email:</b> fstevens@umd.edu	<b>Date:</b> Nov. 3, 2016

**Purpose of the Activity:**

*This event brought in Dr. Brian Jamieson, the Founder and President of Scientific and Biomedical Microsystems (SBM). This event exposed students to the microsystems industry. Dr. Jamieson was also able to talk about his career path and the road to starting a successful company.*

**History of the Activity:**

*This is the first time that we have hosted Dr. Jamieson.*

**Statistics:**

<b>Undergraduate</b>	<b>Graduate</b>	<b>Industry</b>
12	0	1

**Cost of Activity:**

*This event was free for all attendees. BMES-UMD paid to serve pizza at the event.*

**Description of Activity:**

*Dr. Brian Jamieson from SBM came to talk to students about how he founded his company. He was able to not only talk about the technologies itself, but also entrepreneurship and his career path. The intimacy of the event allowed students to ask targeted one-on-one questions.*

**Evaluation:**

*This was a great event. Although the turnout was lower than for other speakers, the intimacy allowed for robust conversations about his company and his career path. We hope to have him back for future events to continue the conversation on entrepreneurship in bioengineering. This is a critical topic that BMES wants to focus on increasing exposure to. We also hope to create even closer ties with SBM so that the company can become a strong resource for future BMES members and alumni.*



**Event Title: Bioengineering Post-Graduate Alumni Panel**

<b>Contact Person:</b> Adam Berger	<b>Location:</b> Pepco Room, Kim Engr Bldg
<b>Email:</b> agberger@umd.edu	<b>Date:</b> Nov. 9, 2016

**Purpose of the Activity:**

*This activity brought in three alumni to talk about their employment after graduating from the UMD bioengineering program. The panelists talked a bit about what they do and were also able to answer specific questions from attendees.*

**History of the Activity:**

*This is an event that we hold annually. We change the alumni that we invite each year in order to provide a wider variety of perspectives to our members.*

**Statistics:**

<b>Undergraduate</b>	<b>Graduate</b>	<b>Industry</b>
7	0	3

**Cost of Activity:**

*There was no cost of this activity to participants. BMES-UMD provided pizza to participants.*

**Description of Activity:**

*We brought in one recent alumnus from RoosterBio, a local biotechnology company. Another panelist was from Accenture to present the consulting side. The third panelist was from Gryphon Scientific and in transition to work for NAVAIR. The combination of these three panelists allowed attendees to learn about working in biotech, consulting, and government. The panelists introduced themselves and their job. They were then asked a series of common questions for students thinking about employment. We then opened the floor to take questions for any of our panelists.*

**Evaluation:**

*While the event had a smaller turnout than it has in the past, the discussions were robust. The smaller group allowed the discussion to be more conversational and less formal. Students were also able to ask one-on-one questions with any of the panelists. It appeared as though the students that did attend got a lot out of the event. Next year, we hope to have a slightly larger audience; however, we do want to keep the event intimate.*



**Event Title: National Institutes of Health/National Institute of Biomedical Imaging and Bioengineering**

<b>Contact Person:</b> Florence Stevenson	<b>Location:</b> Pepco Room, Kim Engr Bldg
<b>Email:</b> fstevens@umd.edu	<b>Date:</b> Nov. 17, 2016

**Purpose of the Activity:**

*This talk allowed students to learn about some of the research that occurs at the NIBIB. Dr. Bryant Yung from NIBIB talked about his research with theranostic nanoparticles. This event showed students what types of career opportunities are available in government.*

**History of the Activity:**

*Although we have done a lab tour of NIBIB in the past, this was the first time that a speaker came to visit with our BMES chapter.*

**Statistics:**

<b>Undergraduate</b>	<b>Graduate</b>	<b>Industry</b>
9	0	1

**Cost of Activity:**

*Types of expenses. Please state if this was a sponsored event.*

**Description of Activity:**

*This event brought in Dr. Yung from the NIBIB to talk about his research and career path. He was also able to talk about the NIH in general and how students might be able to get involved. The speaker talked specifically about his research in targeted nanoparticles for theranostics.*

**Evaluation:**

*This event was successful in helping students learn about some of the opportunities that the National Institutes of Health, especially the National Institutes for Biomedical Imaging and Bioengineering. Students seemed to enjoy the event. The lower attendance may have been due to the fact that students are less interested in research-oriented talks. We will take this into consideration when planning next year's events.*



**Event Title: Institute for In Vitro Sciences Lab Tour**

<b>Contact Person:</b> Florence Stevenson	<b>Location:</b> IIVS, Gaithersburg, MD
<b>Email:</b> fstevens@umd.edu	<b>Date:</b> Nov. 19, 2016

**Purpose of the Activity:**

*This event provided a hands-on way for BMES members to learn about toxicology. The day consisted of talks, demonstrations, and experiments to engage attendees. Talks focused on the roles that bioengineers have in toxicology, especially tissue engineering.*

**History of the Activity:**

*We have done this event annually for the past 4 years (except for one year). This event has thus become a staple of our yearly schedule.*

**Statistics:**

<b>Undergraduate</b>	<b>Graduate</b>	<b>Industry</b>
9	0	5

**Cost of Activity:**

*There was no cost for attending this event. IIVS covered the cost of all materials and food. BMES-UMD only covered the cost of transportation to and from the event.*

**Description of Activity:**

*Students visited the industry lab of the Institute for In Vitro Sciences in Gaithersburg, MD. There, they met with employees to learn about toxicology and how this outside lab provides testing services to various industries. Students got to not only learn about this through talks, but also demonstrations and hands-on activities. One of the annual favorites is the bovine eye dissection. Students gained a greater understanding of how various chemicals and products can be tested without using in vivo studies.*

**Evaluation:**

*This event is one of the annual favorites. The hands-on nature of the event leads to a great deal of fun for all participants. We have also been anecdotally told that students learned a lot through this event, which is the ultimate goal. The high employee to student ratio also allows students to ask one-on-one questions related to their career path. We look forward to continuing to host this event in future years due to its great success.*



**Event Title: Life in the Biotechnology Sector**

<b>Contact Person:</b> Jessica Yau	<b>Location:</b> Rabin Conf Room, Potomac Bldg
<b>Email:</b> jessicayau20@gmail.com	<b>Date:</b> Dec. 2, 2016

**Purpose of the Activity:**

*The purpose of this activity was to give bioengineering students a better idea of the scope of jobs available in the biotechnology sector, as well as the necessary higher education for career development in this field. The speaker was Dr. Debbie Goldberg, a new chemical engineering lecturer that spent many years working at MedImmune.*

**History of the Activity:**

*This is the first time that we have hosted Dr. Goldberg for an event.*

**Statistics:**

<b>Undergraduate</b>	<b>Graduate</b>	<b>Industry</b>
13	0	1

**Cost of Activity:**

*There was no cost to those who attended this event. There was no cost to BMES-UMD for hosting this event.*

**Description of Activity:**

*Dr. Goldberg presented about working in biotechnology. She talked specifically about her experience at MedImmune. As someone who decided to get a PhD before entering the biotech industry, she was also able to answer questions on when graduate school is important for industry. Attendees were also able to ask any one-on-one questions of Dr. Goldberg since the event was conversational in nature.*

**Evaluation:**

*This was the first time that we hosted Dr. Debbie Goldberg, but the students who attended seemed to very much enjoy the event. They said that the direct advice that she gave was really helpful. As part of our professional series, we hope that this event helped students better understand how to enter into a biotechnology career. We hope to have more events like these in the future, as they provide valuable resources to our members' professional spheres.*



**Event Title: Food and Drug Administration**

<b>Contact Person:</b> Jessica Yau	<b>Location:</b> Kay Boardrooms, Kim Engr Bldg
<b>Email:</b> jessicayau20@gmail.com	<b>Date:</b> February 17, 2017

**Purpose of the Activity:**

*The event allowed students to gain a deeper understanding on new technologies and research being conducted at the FDA that connects the use medical devices to studies of the brain.*

**History of the Activity:**

*BMES-UMD has not hosted Dr. Ye in the past.*

**Statistics:**

<b>Undergraduate</b>	<b>Graduate</b>	<b>Industry</b>
9	0	1

**Cost of Activity:**

*There was no cost of this activity to participants. BMES-UMD provided pizza to participants.*

**Description of Activity:**

*Dr. Ye is the principle investigator in the Neural Interface Lab at the FDA. He introduced his research on electrophysiological biomarkers of brain injury, neuroinflammatory response to brain injury, and neurotoxicity. He introduced state-of-the-art platforms such as electrophysiology, in vivo multiphoton imaging, and optogenetics which he uses to conduct his studies. He then allowed students to ask him questions about his research and career. He was able to speak on employment at the FDA.*

**Evaluation:**

*After the event, students stayed back and asked Dr. Ye questions about the technology he uses in his research. The Food and Drug Administration provides excellent job opportunities for students who are interested in research, so this event introduced students to one of the many possible topics that are being studied today. We hope to host FDA speakers again in the future.*



**Event Title: Smithsonian Institute National Museum of Natural History**

<b>Contact Person:</b> Florence Stevenson	<b>Location:</b> Smithsonian Institute National Museum of Natural History
<b>Email:</b> fstevens@umd.edu	<b>Date:</b> February 18th, 2017

**Purpose of the Activity:**

*The purpose of this activity was to expose bioengineering students to the genetic and bioinformatic research occurring at the Natural Museum of Natural History through a lab visit, brief presentation, and tour of the botanical cataloguing system.*

**History of the Activity:**

*This was the first time this event was held.*

**Statistics:**

<b>Undergraduate</b>	<b>Graduate</b>	<b>Industry</b>
7	0	1

**Cost of Activity:**

*BMES-UMD paid for metro transportation fees to and from the museum.*

**Description of Activity:**

*The tour was hosted by Dr. Elizabeth Zimmer. Participants toured the genetic labs in the National Museum of Natural History which are used to study botanical species, allowing them to learn about the technology and processes used in these labs. Participants were also given a brief presentation on bioinformatics and genetic research being conducted in these labs. Lastly, students were given a tour of the cataloguing system used for all of the botanical species.*

**Evaluation:**

*Students found this lab tour particularly interesting and informative, as many were not previously aware that important genetics research was being conducted by the museum. Those who had a previous interest in genetics enjoyed the opportunity to see and learn about this cutting-edge research. Those who had previously taken bioinformatics courses were also able to apply their knowledge throughout the tour, demonstrating real world applications of their coursework. Overall all students enjoyed this opportunity to learn more about the research contributions of the museum. We hope to continue hosting events like this in the future.*



**Event Title: Bioengineering Networking Event**

<b>Contact Person:</b> Adam Berger	<b>Location:</b> Rotunda, Kim Engr Bldg
<b>Email:</b> agberger@umd.edu	<b>Date:</b> Feb. 21, 2017

**Purpose of the Activity:**

*Every year, the UMD Engineering Co-op and Career Services Office hosts a bioengineering networking fair. This year, 33 employers attended the event. BMES-UMD helped advertise the event and encouraged members to attend.*

**History of the Activity:**

*This is an annual event.*

**Statistics:**

<b>Undergraduate</b>	<b>Graduate</b>	<b>Industry</b>
~100	~5	33

**Cost of Activity:**

*There was no cost for attendees. BMES-UMD did not incur any costs associated with this event.*

**Description of Activity:**

*The UMD Engineering Co-op and Career Services Office hosts this event yearly. BMES-UMD helps encourage students to go to this extremely valuable event. Companies were varied and included AgNovos Healthcare, AllianceBio, Beckton Dickinson, Children's National Health System, GlaxoSmithKline, MedImmune, Meso Scale Diagnostics, NIH, NIST, PathSensors, Personal Genome Diagnostics, FDA, and Vasoptic Medical, among others. Since this was a networking event, it was a great opportunity to not only to try to drop off a resume but also to ask questions of the employers so that students can better position themselves for future jobs.*

**Evaluation:**

*This event was a huge success, and our turnout appeared larger than it has ever been before. We had students receive job and internship opportunities by networking with local employers at this event. As this was a big goal of ours for the past year, we are very happy that students are able to obtain the opportunities that they seek. In future years, we hope to bring in even more companies so that our members can gain close connections with those in industry and government that may eventually become their employers.*



**Event Title: Prosthetics Talk**

<b>Contact Person:</b> Adam Berger	<b>Location:</b> Pepco Room, Kim Engr Bldg
<b>Email:</b> agberger@umd.edu	<b>Date:</b> Mar. 8, 2017

**Purpose of the Activity:**

*Dr. Jonathan Forsberg, a surgeon-scientist from Walter Reed National Military Medical Center, came to speak to members about his cutting-edge prosthetics research with industry. His research focuses on osseointegrated prosthetic devices, but he also talked generally about the most recent advances in prosthetics. Attendees also had the opportunity to ask him questions about his career path.*

**History of the Activity:**

*Dr. Jonathan Forsberg also spoke with our members last year.*

**Statistics:**

<b>Undergraduate</b>	<b>Graduate</b>	<b>Industry</b>
18	0	1

**Cost of Activity:**

*There were no costs for attendees to participate in this event. BMES-UMD covered the cost of pizza.*

**Description of Activity:**

*Dr. Forsberg spoke to members about his work with prosthetics. He was able to talk about the many different companies that make these devices, giving the event an industry-based spin. He also concluded by talking about his career path. As someone who has served in the military both on the front lines and in the medical corps, he also talked a bit about Military Medicine and how bioengineers are inventing a better future for those who serve our country. His experience as both a surgeon and scientist pleased all attendees.*

**Evaluation:**

*Following the event, students stayed for about another half an hour so that they could talk to the Dr. Forsberg. They asked many great questions, and the anecdotal feedback that we received from both the speaker and BMES members was excellent. We hope to host him once again, as prosthetics are a popular interest among bioengineering students.*