

Student Advisory Board Meeting Minutes

January 22, 2013 5-6pm, Bossone 705, Drexel University

Attendees: Carl Beringer, Amanda Busch, Sonam Chheda, Avni Choksi, Andrew DiMatteo, Nicole Ferraro, Stephane Guillou, Genymphas Higgs, Laurie Lenz, Anna Lu, Daniel Martinez, Kelsey Pagdon, Parth Panchal, Brendan Sweeney, and Neha Thomas.

Introductions

Since there were a good number of new Advisory Board members attending this meeting, we had each member introduce his/herself.

Research Workshops

I explained that the advising team was thinking about putting on workshops to assist students in finding research opportunities. I asked what type of format would they like this information disseminated. Suggestions were made to have a series of workshops and break it down into concentration areas (one concentration area per workshop). Have the workshops run by faculty and PhD. Students. Students are also interested in learning about labs outside of Drexel University such as University of Pennsylvania or CHOP.

Resume Workshops

The advising team that it would be a good idea to have some type of resume workshop for our undergraduate students. The SAB felt that it should be structured by having outside professional come in from our partner BME companies to assist with critiquing resumes and give pointers to what they are looking for.

Faculty Meet and Greet

I informed the SAB that I am holding a Staff/Faculty meet and greet in the spring term. I explained that I invite the freshman class along with any new transfer students to meet staff, faculty and Ph.D. students from BME, as well as some faculty from COE and COAS. I explained the importance of coming to this event in terms of getting to know staff/faculty. Suggestions were made to hold this event in the fall or winter term next year, since many students need letters of recommendation to the STAR and Honor's programs.

Questions/Concerns

- Many ideas and comments were given.
- In BMES 130, they continue to use Matlab, with tutoring or workshops now available to help students who are not familiar with Matlab.

- BMES 325/326 are not as helpful as they could be. Students do not understand why they are watching movies all the time and then just present to the class during the last class. In BMES 326, much of the lecture is on electronics that was not covered in ECE 201. The exams are easy because you just have to memorize what is on the first test (pre-test) to take the second test (post-test). Suggestions were made to change some of the problems to ones that were discussed in class. It would be nice if BMES 325/326 covered more material on specific concentration areas.
- Another workshop students are interested in would be how to compose lab reports for Chemistry. Show students the standardized way to do this.
- BMES 381/382 has no clear direction. Students have a concern with the format of these classes. BMES 382 is not really a continuation of BMES 381 and should not be called Junior Design II. BMES 382 is more of a business plan with deliverables. What students want is to receive feedback a little quicker in this class, whereas it currently seems to be delayed. Students also want a TA who is on the same page as the professor.
- Students are requesting to have classes in their concentration area earlier on in the curriculum. If you wait until your senior year to take these classes and find out you do not care for them, you cannot make a change at that point.
- Positive comments were made about Biomaterials and Tissue classes. Students are enjoying Dr. Spiller in Biomaterials I and II. They like her teaching style. In Tissue I, students gave feedback on ways to improve the class. They feel that Dr. Zhong took the comments seriously and has made those adjustments. Students are enjoying Tissue II even more now.
- BMES 124 and BMES 126 are not satisfying classes. Students feel that there is no purpose to these classes until the last week. There needs to be more focus in these classes. There should be a few more classes about what is needed for the presentation and the paper. The paper they received gave information for both BMES 124/126. Students would like two separate documents to explain what is needed for one class and what is needed for the other class. Students requested that they can meet in groups in the class to work on their presentation.
- A suggestion was made to include BMES 305 in the tissue engineering concentration.

Student Advisory Board Meeting Agenda
4/16/13 5-6:30pm
Bossone 705, Drexel University

Attendees: Denariel Benn, Carl Beringer, Jay Bhatt, Edgar Cardenas, Rachael Cohen, Nicole Ferraro, Anna Lu, Kelsey Pagdon, Brendan Sweeney and Laurie Lenz

1. Library Materials – Anna Lu brought up the fact that she could not find books in the library to research specific topics like Bioinformatics at the library. Jay Bhatt joined our meeting to help explain that the majority of our resources are now electronic and be downloaded to most electronic devices. He provided his email address to the group: drexeleng@gmail.com. He also forwarded me information about a workshop he is doing on 4/17/13 on job searching for BME students. I forwarded this information to the BME list serve.
2. Faculty/Staff Meet and Greet will be held on May 16, 2013 from 5-6:30pm on the 7th floor lobby of Bossone. I explained that a “Save the Date” email went out to all BME faculty and staff on 4/16/13. This is a great opportunity for the freshman students to meet our department and learn about each faculty/staff’s roles, classes he/she may teach as well as research. I explained that this is an informal setting and food/beverages will be served.
3. DBUA Update- A meeting was held during week one to plan out events for spring term and next year. The Board decided to hold a study session during midterm week on the 3rd floor of Bossone. They will have groups of people there to assist other students with their studies for specific subjects. Food and drinks will be served and t-shirts will be given out. This event will be advertised through the DBUA Facebook page as well as flyers posted in the buildings. I encouraged the group to send me information so we can post it on the BME Facebook page as well as through an internal email.
4. Withdraw Deadline- The university has changed the withdraw deadline from the end of week 6 to the end of week seven. This change will help student have more time to assess how they are doing in their classes after they get back their midterm exams. Comments were made that the drop deadline should also be pushed later. I explained that this will not happen. I did explain that talks have been going on to change the add period to just week one since starting a class in week 2 cause many students to fall behind and miss too much material.
5. BMES 212 Feedback- Students wanted to know what the aim of this class is. They thought this class was to help students get a better understanding of the different concentrations but that is not what took place in this class. Students explained that a teacher taught for and 2-3 weeks about a very specific topic such as Cardiovascular history. There was no communication between the teachers so there was no transition from one topic to another. Students felt that the professors taught by speaking about a very narrow subject (mostly their specific research and nothing else within a concentration area) and then gave an exam. The exams rarely were

reviewed to show students what they got wrong so they could learn from their mistakes. Sometimes exams were never given back to study from for the final exam. Students did not feel they learned anything from Neuroengineering, Devices and Imaging, very little on Biomechanics and no Tissue Engineering. They felt that the instructors had no charisma when teaching and they seemed uncomfortable outside of a research setting. There were for different final exams which were disorganized. The students felt that this class would be so much better if it was only taught by one professor.

6. Questions/Concerns:

- BMES 201 should be marked as a Hybrid course on the term master schedule so students know when they have to physically show up to class. Students need to be informed in the very beginning of class what dates they should be in the actual class.
- Graduate/undergraduate course (combined). There needs to be some type of differentiation between classes like BMES 315/515 so that the undergraduate students do not have the same exact requirements as the graduate student. Other classes that did not have a differentiation between undergraduate and graduate courses were:
 - BMES 391
 - BMES 422
 - BMES 392
 - BMES 488
- In BMES 338 it would be helpful to go over topics such as switching from one company to another the ethics of using the information or resources for the next company.
- Students want to know why they are only required to take Human Physiology and not Anatomy and Physiology. On this line they feel that BMES 305 should be a required course rather than BMES 303 for BTE concentration.
- IN BMES 124 faculty such as Dr. Kriete and Dr. Balabsubramanian give detailed lectures to the freshman class but they talk above the students' level of knowledge.
- Students learned that CS 121-123 will now be matlab for freshman engineering students. ENGR 231 will now not have any matlab in it.
- A suggestion was made to incorporate a machine shop for BMES 124 & 126 to help students with Engineering Design.
- BMES 381 & 382 provided no skills to be taken to Senior Design. No feedback was ever given on grades for exams
- A suggestion was given to have BMES 130 put in fall term so students will learn group work for ENGR 101-103. Having it spring term teaches you skills that had been needed fall and winter terms. A suggestion was made to have BMES 130 more BME related.
- Jay Bhatt offered to hold 2 hours of office hours a week for BME to help with questions students have.

Student Advisory Board Meeting Minutes

Oct 15, 2013, 5-6:30pm

Bossone 709

Attendees: Enis Banaj, Amanda Busch, Rachael Cohen, Nicole Ferraro, Christina Furia, Carolyn Gamble, Laurie Lenz, and Anna Lu.

DBUA Update

Nicole Ferraro indicated that DBUA will be holding an informational meeting in early November to discuss their plans for this academic year. Some of the events they would like to plan include community service, a trip to the Mutter Museum, and a movie night. They would like to hold one general meeting each term.

Review of BMES Courses

Laurie Lenz opened up a discussion on a good portion of the BMES classes so she could get feedback on what students thought about these classes.

- **BMES 124** – This class is good as is. Enjoyed the faculty presentations. Appreciated that Dr. Allen kept students to the time limit when they had to give presentations. More faculty could perhaps discuss lab work.
- **BMES 126** – This is pretty much a continuation of BMES 124 with different speakers. This class is more paper focused.
- **BMES 125** – This class focused on group projects. Students watched sci-fi movies and wrote papers about them. Groups were assigned to different movies.
- **BMES 130** – In 2011, this class had about 6 weeks of MatLab. There was no introduction to MatLab. The first week had Dr. McEachron discussing evolution. For 3 weeks Dr. Allen talked about population growth. Dr. Sri talked about Biomechanics and a compression test. The last few weeks Dr. McEachron discussed evolution again. In 2012 this class had 2 weeks of rock climbing. This was done to review leadership, team building and communication. There were 5 books to read on Ethics and Evolution. Dr. McEachron's lectures were relevant to the books. The book selection was good and relevant. Opinions were given that BMES 130 would be better suited for term one so it can help for students who all need to work on freshman design projects with their team.
- **BMES 201** – Students liked this class. You were walked through everything. A problem did occur because you were to bring your own laptop and the room (DISC 103 or 108 or Stratton) had barely any outlets. Students enjoyed Dr. Sacan and liked that he offered an extra project. Dr. Sacan focused on the functionality of MatLab rather than doing anything biologically related. Students did not like the TA because TA would teach

differently than Dr. Sacan which ended up confusing students more than helping them. A suggestion as made to change the assignments so students did not use past student's old assignments.

- **BMES 202** – With Dr. Jacobs, students did not enjoy this class. Although, the one thing they appreciated is that he did do biologically related things such as matching DNA sequence strands. The TA's were not great. With Dr. Sarver everything related to BME. He surveyed the class in the beginning of the term to see which concentration areas students were interested in so he geared his class to cover that information.
- **BMES 212** – Drs. Zhong, Sri, and Jaron taught this class. Students enjoyed what they learned in the concentrations that were covered (BTE, BHP and Cardio), but no Neuro, Devices & Imaging or INFO was covered. There was a huge disparity on how things were covered in the class. Dr. Sri wanted every last detail covered in his exam, Dr. Zong had fill in the blanks, which were generally easy. No feedback was given on the 3 different modules so students didn't know what they needed to improve on. There should be one cohesive final exam with one level of difficulty throughout the exam.
- **BMES 325** – Students love Dr. Allen but felt that he was not organized. He pushes deadlines back from when they say they are due on the syllabus. Everything seems to be due at the end. The midterm and quizzes are easy and then he gives a final exam that is extremely difficult. Students enjoyed the projects given in this class but would rethink using the textbook they currently use. The homework in this class was very difficult. Suggestions were made to put the circuits component into BMES 325 because right now students do not know how to apply the principles of a circuit that they have never seen before. The ethics part of BMES 325 should be moved into BMES 326.
- **BMES 326** – Dr. Allen stresses that you do not know circuits from taking ECE 201 and then he teaches circuits at a level above what students understand. Why are students taking ECE 201 if he feels it isn't providing BMES students with a sufficient amount of information? Students would like Dr. Allen to slow down a little because he teaches too much information for 10 weeks. One of his lectures covers all 10 weeks of ECE 210. This class also teaches you a lot about ethics. This class is writing intensive for the Ethics portion. Students believe that W.I. courses should be much earlier on than in BMES 326 or BMES 491 so that students are more proficient in writing for papers and reports they are completing throughout their studies at Drexel University. Both BMES 325/ BMES 326 would benefit in being moved earlier in the curriculum so that students can have the exposure to ethics and applications earlier in the course.
- **BMES 381** – With Dr. Barbee teaching this class, it was basically about learning how to write a problem statement. Once you have it finalized and approved by Dr. Barbee,

students use this format in BMES 491 and are told it is completely wrong by Dr. Moxon. Students put a whole PowerPoint presentation together to have the first two sentences really looked at. Student learned nothing else in BMES 381 or BMES 382. Students would like to learn how to approach a research advisor or a mentor and how to write a proposal for this class. You are given a Drug Delivery assignment but you really need to have completed BMES 451 first. This class does not prepare you for Senior Design. It should focus on the major components of Design, and look at industry applications of failed designs in the first quarter. In the second half of the class the components of a design paper should be started with a problem statement, objectives, design constraints and criteria.

- **BMES 382** – This class is very similar to BMES 381. More design is needed to prep you for BMES 491. This does not get touched on until week 7 of the term. Cost benefit analysis should also be covered in BMES 381 & 382. Students would like a timeline for when things should be done for BMES 491 so that this class would prepare you more for BMES 491, such as when to form your group, when you should know what your project will be, when you need to have an advisor by, and when your problem statement is due.

Student Advisory Board Meeting Minutes

May 27th from 5-6:15pm, Bossone 705

Attendees: Enis Banaj, Jay Bhatt, Kalgi Choksi, Jhan-Duc Duclos, Stephane Guillou, and Laurie Lenz

Faculty and Staff Meet and Greet

I explained to the board that I had invited our freshman and new transfers to attend this event. The event is held so students can meet faculty and staff from our department and learn what each person's roles are and what classes and research h/she is involved in. I explained that several emails went out and it was announced in BMES 130 but I only got about 20 students who responded that they were coming. Suggestions were to have a senior panel instead of a faculty and staff Meet and Greet. They felt it was more effective for freshman to ask their peers questions from how they got involved in research to how they picked their concentration and whether they enjoyed the classes in their concentration.

BME Week

I asked for feedback on BME Week, which was held May 19th – 22nd. I explained how these events were organized through the efforts of Chris Flounders and Alison Oxenberg. Monday's event was a Translational Research Lecture Seminar from 5-7pm. Tuesday's event was a Start-up company lecture Seminar from 5-7pm. Wednesday's event was a Start-up Company & Small Business Expo from 10am-12pm (with 20 companies in attendance). Thursday's events consisted of Research and Design Showcase from 4-6pm, BME Faculty Jeopardy 6-7pm and an Alumni Networking Happy Hour from 7:30-9pm. Feedback was that students felt that this was a great idea and they loved the fact that it was truly all BME related and not just engineering with 1 or 2 things BME. They would like to see this continued next year. They especially like the Start-up Company Expo and the Faculty Jeopardy.

Jay Bhatt – Liaison Librarian for Engineering

Jay went over resources that are available to students if they visit him. He went over:

- Engineering Standards such as those from IEEE that students could download or other standards such as ASTM that students will need to contact him to get them
- Electronic resources for company and industry research, patent searching, medical devices and market reports
- Knovel database to search for material properties
- Search for national and international patents using new classification system all in one place
- Office hours are Tuesdays from 3:30pm- 5:30pm in the Biomed Lounge

Senior Year Seminar

I discussed the idea of a senior seminar and reviewed what it entailed. It is proposed to be a 1 credit class. The feedback I got was that it should be zero credits because having it be worth 1 credit would

interfere with many BS/MS students plans of study who may already be taking 20 credits their last term. One idea was to have mock interviews take place in this seminar (sort of like speed dating where the interviews are 2 minutes long but many interviews take place).

Questions/Concerns

- The college of Engineering has a resource called ACE to help students with engineering courses. Can BME create a resource to help students with BME courses (higher level tutoring)? This could have TA's staffing the tutoring Center.
- Can someone please update the faculty profiles and the research they are currently involved in? Our website is completely outdated with this information
- The search screen on the BME website is not working
- Can the pre-requisites for BMES 405 be reviewed?
- Suggestion to have more collaboration with cognitive psych for Neuro students
- BHP needs more Human Performance in the concentration and more kinematics
- It seems like pre-requisites are only offered once in a while for BMES 725 (Neural Circuits)
- Feedback on BMES 325 & 326 is that the class has become increasing difficult over the years. Too much information is crammed into these classes

Student Advisory Board Minutes

Tuesday, July 15th 5-6:15pm, Bossone 705

Attendees: Enis Banaj, Christina Furia, Soumya Iyer, Anna Lu and Laurie Lenz

Changes to Undergraduate Curriculum

BMES 130 will be fall term followed by BMES 124 winter term and BMES 126 spring term. Suggestions were made for BMES 130 to first teach basic concepts of programming prior to teaching Matlab.

BME Learning Community

Elise Dixon, our newest advisor will be starting a BME Learning Community this fall. She will allow about 20 students to participate. Some of the ideas the S.A.B. Board suggested for the Learning Community included: Touring BME Companies, Touring Research Labs, providing them with a Fact Sheet, Holding a Tutoring Center similar to ACE from the College of Engineering, Food related events, student panel to go over the concentrations in detail and small social bonding events.

Quarterly Billing

I explained that annual billing will now switch to quarterly billing as of fall term 201415. Questions were asked of whether FIA would now cover summer term because it did not in the past. I suggested that individual questions be brought to Drexel Central.

Summer Orientations

I asked for feedback on what to include or exclude from future orientations. Feedback was given that the BME schedules were hard to follow (rushed). More focus needs to be given to the schedules (4/5 year). Explain that Drexel Email fills very quickly and that email needs to be forwarded to your gmail account. There should be a Q & A with current students.

Questions/Concerns

- AEMB (Honor's Society) should have a co-sponsored event with the Freshman.
- The learning community or the entire freshman class should have a Meet & Greet in the Fall term rather than the Spring term.
- Rumors were heard that Josh Jacobs would be leaving Drexel University. Since I did not hear of this before, I could not confirm or deny this rumor.

Student Advisory Board Minutes

Wednesday, Oct 8, 2014, 5-6pm, Bossone 705

Attendees: Enis Banaj, Denariel Benn, Raymond Dulman, Laurie Lenz, and Daniel Martinez

DBUA Events

Nicole Ferraro provided me with a list of events to announce at our meeting since she is on co-op and cannot attend tonight. She asked for students to contact her with any feedback or suggestions.

- October 11th – Volunteering at Ronald McDonald House
- November 3rd – Informatics in Healthcare Industry Panel with a variety of professionals from CHOP
- November 18th – Social Landmark Quizzo event (all ages)
- December 13th – Volunteering at Ugly Sweater 5k

BME Learning Community

I reviewed our BME learning community with the S.A.B. I went over the tutoring sessions, community service and activities involved in this community. I also discussed the living community that is scheduled for next year's incoming class.

BMES 124 vs. BMES 130 in Term One

It was unanimous that students felt that having BMES 124 with Dr. Allen was beneficial. They thought the class was a welcome start to our program and Drexel. They felt that BMES 130 when rock climbing was in it was not beneficial. Others thought BMES 130 was a Matlab class. They felt that civic engagement in the spring would be better so BMES 124 could be added back into the fall term.

Fall Peer Mentoring Event

I asked for suggestions and got the following feedback:

- Penn Ice Rink for skating
- Dessert/reception
- Pot Luck
- Quizzo Show Competition

Questions/Concerns

- An issue with PHYS 201 software issues for sapling problems was brought up. Suggestions were made to visit the PHYS help Center or going to Dr. Tiagi's office hours.
- Suggestions to include a technical writing course in our curriculum
- Suggestion to put BMES 372 course the term before BMES 375 since one ties into the other
- Junior Design does not help you set up for Senior Design. Told to look at website for design ideas but it is totally outdated. Students need to be given examples of advisors that are doing projects. Junior Design doesn't explain that you will need to identify all of your group members and your advisor for senior design by week 2 of the term. The urgency is not stressed. Suggestions were made to use Baiada Center as a resource because of the start-ups. Senior Design teams should collaborate with Baiada so students could learn about patent searching, get introduced to some grant writing and

how to get funds for senior design. Feedback on Swoboda is that his style was not very organized. He needs to be reminded that this course is a preparation for senior design. Students want to learn about proposals and budgets. When assignments are turned in, he never goes back to reevaluate what they did wrong. Students would like him to share his experience of building an artificial heart (teach from his experience).

Student Advisory Board Minutes

Wednesday, January 28, 2015, 5pm-6pm

Bossone 709

Attendees: Nicole Ferraro, Laurie Lenz

Drexel Learning Center: Raymond Dulman was not able to make this meeting but indicated through email that he felt the DLC is under-equipped to handle most BME classes. He indicated that if BME students are having trouble with their classes, he would suggest the Math Learning Center, ACE (through the College of Engineering) a TA, or the conference room of the PISB building (for biology related classes).

I indicated that the DLC is normally used for basic freshman classes and for other resources such as Study Skills, Time Management and Text Anxiety.

BMES Labs: I explained that the School of Biomedical Engineering has proposed that our BME labs be more flexible in the future. I indicated that we will recommend specific labs for each concentration area but then we will give students a choice to select some of their labs which will include labs from organic chemistry and Biology as well.

We also talked about the School of Biomedical Engineering's proposal to add ENGR 121 and 122 to the freshman year. Nicole thought that it would be helpful to make sure that when BMES 201 and 202 are taught that they do not go back to square one with Matlab if students are being taught basic Matlab in freshman year. Students should start at a higher level since they have the basic information.

Financial Literacy Workshop: I indicated that in the past I had held a Financial Literacy workshop through Wells Fargo bank geared towards graduating seniors. I am going to try and arrange a workshop for either week 2 or 3 of spring term.

Questions/Comments: Nicole talked about BME Week planning. She said the events would be taking place from May 18-22nd. She said that they learned a lot from the events they put on last year and will plan an even better event this year.

BMES 375 was brought up out of concern. Nicole felt that the course was all about Economics which students do not have any experience in. She has talked to students who had this class in the past and they had explained that it was not like this at all and BME examples had been used rather than ECON examples.

Student Advisory Board Meeting Minutes

April 6, 2015 5-6:00pm

Bossone 705

Attendees: Dipesh Bhakta, Kalgi Chokshi, Raymond Dulman, Laurie Lenz and Brenden Sweeney

1. **Wells Fargo Workshop:** I let everyone know that Tuesday, April 7th from 5-6:30pm Wells Fargo Bank was going to do a workshop on Building Credit. The workshop will be taking place in Bossone 709 and drinks and snacks will be served.
2. **Faculty/Staff Meet & Greet:** I announced that The School of Biomedical Engineering will be holding a Staff & Faculty Meet & Greet for students on Tuesday May 12th from 5-6:30pm in the 7th floor lobby of Bossone. I am encouraging students who have not met our faculty to attend this event to learn more about what courses each person teaches as well as what areas they are doing research in.
3. **Accepted Students Days (April 11th & 19th):** I asked the advisory board what they think students would want to see/hear on Accepted Students Days that would make a significant impression on an undecided student. They felt that a video or tour of BMES 301 lab (Biomechanics) showing the chicken bone bending test would be impressive. They also felt the BMES 302 (Biomeasurements) lab would be impressive if a signal collections demonstration was given. They also thought it would be beneficial to hear from students who have completed a few co-ops to speak about their first-hand experience.
4. **Student Orientation:** Student felt that specific things need to be reiterated at orientation such as the pace of Drexel University's terms. They also feel that students need to learn about all the resources that the university offers. A handout or link would be sufficient. They also thought it would be nice to have BME students give a tour of where to find your first term classes (where each of the buildings are such a Curtis/Randall, Lebow etc.).
5. **Questions/Concerns:**
 - A suggestion was made to update the templates online to include changes like ECES 301 and 303 instead of ECES 302
 - Suggestions were made to have a pre-test in courses to see what knowledge students bring to the class instead of assuming they know certain material when you are teaching. In BMES 303, the first lab assumed that students knew much more than they do. What the professor felt would take 15 minutes took most students 45 minutes. Dr Allen does a pre-test in his BMES 326.

- Students also felt that it would be helpful to review some material the first day of a class so you get a brief refresher on material you may not have seen for 6 months (especially when you are returning from co-op)
- A request was made to have an updated BS/MS sheet that students could work from. Right now many of the classes no longer are taught and some of the requirements have changed such as only needing 1 term of BMES 864
- Students would like an email or some type of bulletin when policies change such as BMES 864, not needing 2 General/liberal studies in the same subject area, 100 level foreign languages counting towards a liberal studies requirement.
- Students who have BMES 302 with Dr. Daugherty enjoy the pre-lab that she held on the Biopack software. Students in Dr. Pourrezaei's class wish that they also could have pre-labs.
- A suggestion was made to have a FDA course that taught the regulatory submission information process. They even felt a few weeks in one of the freshman seminar classes could teach this subject since it is needed in some co-op jobs.
- Another topic of interest is Planning Animal Studies. A suggestion was made to also try to incorporate this in a class.

Student Advisory Board Meeting Minutes

January 14, 2016 5-6:30pm

Bossone 709

Attendees: Akul Bahl, Sam Cassel, Rich Dambra, Rachel Dichter, Bryan Ferrick, Eliza Fredette, Melissa Frendo-Rosso, Joyanna Friedman, Shelby Keating, Michael Koerner, Shane LaValla, Rio Morte, Alexander Padayital, Austin Sacks, Amber Saraceni, Julie Speer, Raymond Dulman, Laurie Lenz

Introductions: Since this is a new board, I had all 16 members that attended introduce themselves and indicate what year they were in, what concentration area they were in and any other information they felt was important to know.

Co-op Show & Tell: I had Sam talk about Co-op Show & Tell since her and Ivy will be running this event with other Peer Mentors. The event takes place on Wednesday, January 20th from 5:30pm-7:30pm. There will be several Peer Mentors presenting on the Co-op experiences they worked at. They will be explaining how they located the jobs they worked at, what they did at that company, what they learned at the company and who they would recommend the jobs to. They will also be giving tips about co-op. Students requested that this workshop be held 2X a year for people who may miss it because they are currently on co-op or to have it archived somewhere.

ENGR 121, 122: I asked the students about their experience in ENGR 121 and 122 since I had received a lot of negative feedback in week 2-3 of my UNIV R101 class in fall term. The feedback included that they felt it was a good skill to have. Depending on what section you were in, some felt the professor was helpful and so was the TA. Others complained that the TA was not prepared for questions and coding. They felt that the ACE Center was very helpful (made up of students and TA's.) The students that had a professor who would teach code with power point slides felt that this was not a proper method to learn code. Code must be shown by having the professor type it line by line. There was inconsistent teaching methods for these courses. Several students who only took BMES 201 & 202 complimented the methods that Dr. Sarver uses when teaching MatLab.

Future Workshops: Suggestions were made for the following workshops:

- Fellowships and Scholarships
- How to Network
- Grad School- How do you apply, steps & deadlines

BMES 305: Complaints were voiced that the BMES 305 sections did not have designation online to indicate that one section is human cadavers and one section is dog cadavers. Students feel that some

get a more relevant experience with Human cadavers. Suggestions were made to have something in the course description to distinguish the differences of one section from the other. Suggestions were also made to have $\frac{1}{2}$ the class attend the cadaver lab for the first 5 weeks and the other $\frac{1}{2}$ of the students attend the human cadaver lab for the second $\frac{1}{2}$ so all students get to experience both the human cadaver and the dog cadaver. The other suggestion was to have human samples that can be kept in the refrigerator at the dog cadaver lab so that the students get some exposure to human cadavers.

Questions/Concerns: The following topics were brought up:

- **Senior Design:** Exposure to building anything was limited to freshman design. For senior design there are high expectations yet you as a student have no idea how to build something, order parts, put things together etc. Can Junior Design be used to help students start learning about how to do some of these tasks? Have real deliverables in BMES 382 and provide a syllabus for BMES 491 in BMES 381 & 382 so students know what will be expected of them and they can start planning. Can BMES 381 deal more with planning and BMES 382 be more on testing?
- **BMES Elective Courses:** A course on How to Research Something (assist students doing a thesis). Another elective course or application that students wanted was on how to build something and present it.
- **BMES Website:** Please update the research section of our website.

Student Advisory Board Minutes

Wednesday, April 13, 2016 5-6:30pm

Bossone 705

Attendees: Akul Bahl, Sam Cassel, Richie Dambra, Bryan Ferrick, Melissa Frendo-Rosso, Lananh Ho, Michael Koerner, Laurie Lenz, Don McEachron, Alexander Padayital, Austin Sacks

1. **Faculty and Staff Meet and Greet:** The School of Biomedical Engineering will hold a Faculty and Staff Meet & Greet for freshman and new transfer students on Monday, May 9th from 5-6:30pm. Food will be provided. This is an opportunity for freshman students meet the faculty that will be teaching their future courses and an opportunity to learn about research within each discipline. The freshman in attendance said it worked with their schedules. Freshman and Peer Mentors were encouraged to let other freshman know of this opportunity and encourage them to attend.
2. **Minors & Certificate Programs:** Austin brought up the fact the BME students have the opportunity of taking advantage of the many different programs Drexel University has to offer such as minors and certificate programs. Austin explained that these programs are not well publicized and students really need to educate themselves on the different opportunities. I suggested that this is something advisors can bring up to students their first year here and it may be able to be mentioned in UNIV R101 as well.
3. **BMES 326-** A point was made that $\frac{1}{2}$ the students in BMES 326 took BMES 303 already and they were allowed to use the same project they did in BMES 303 for their project in BMES 326. Students want to learn something new rather than repeating information on Electric Circuit Amplification.
4. **STAR Summer Research Program (application details and deadlines):** Was not informed about the STAR program as a transfer student. He only knows of this program through word of mouth. It would be nice to learn this through the admission process as well as in BMES 124. He learned when it was too late to apply. I explained that this program is only for first year students (freshman) and as a transfer student, he would need to be a freshman in order to qualify. I did explain that there are other research opportunities outside of STAR that he could look into. Comments were made that Drexel Discover had research on there but much of it is out of date (expired) and the majority of opportunities are for STAR students for the summer.
5. **BME Summer BBQ:** Joyanna asked me to bring up the tradition of holding a summer picnic/BBQ for the BME students. It would be a potluck lunch on a Saturday organized by a few students. Sam Cassel and Lananh Ho volunteered to look into to this and try to put it together.
6. **Curriculum Redesign:** Dr McEachron explained to the advisory board that the School of Biomedical Engineering is relooking at the curriculum and will be looking to make changes. He explained that he would like to form focus groups (one in summer term and one in fall term). A lot of discussion took place on the curriculum including that a majority of Biomaterials and Tissue Engineering students never cultured a cell until senior design. BMES 345 does not apply

calculus but goes as basic as applying algebra. Suggestions were made to add early classes that deal with experimental design and scientific research review. A suggestion was also made to have a graduate version of BMES 381 & 382 for BS/MS students who are doing a thesis.

Student Advisory Board Minutes

October 5, 2016 5:00-6:30pm

Bossone 705

Attendees: Akul Bahl, Jui Hanamshet, Laurie Lenz, Melissa Frendo-Rosso, Marina Lilielholm, Harsh Patel, Meenakshi Patel, (via phone: Don McEachron)

- 1. Introductions :** Since we have new members to our board everyone introduced themselves indicating their name, year, concentration and any involvement on campus
- 2. Student Assessment:** Dr. McEachron joined us through a conference call to discuss assessments with this group. Dr. McEachron indicated he wanted to have students assessed in their freshman year and in their pre-junior/ junior year to determine what they came with, what they learned and what they retained. Students asked what the incentive would be to get students to take these assessments. Dr. McEachron explained it would be extra credit. Students felt that some students may just fill in answers and not care if they are right or wrong just to get the extra credit. A suggestion was also made that it should assess at one level for freshman but when you assess it for pre-junior/junior year the assessment should increase in difficulty. Dr. McEachron wants the assessment to determine the efficacy of the current curriculum.
- 3. General Study Elective/STEM Courses:** Akul brought up the fact that our curriculum only provides 5 spots for liberal study classes. All other courses are STEM courses. He thinks our curriculum needs more room or flexibility for those students who want to add a minor or other courses of interest. He feels that it is very difficult to accomplish this with our current curriculum. Harsh added that some classes that are not considered liberal arts should be so that there is more flexibility
- 4. BMES 325/326:** Melissa brought up the fact that BMES 325 and 326 are classes that review concepts that are learned in previous classes and apply them to BME. She felt that BMES 325 is a review of statics/equilibrium and BMES 326 is a review of Circuits. This was backed up by other members of the advisory board. The final exam didn't have anything to do with what was reviewed (Dynamics). She indicated that the class average was a 50% but was curved to B's. Suggestions were made for BMES 326 to have better postings for homework solutions, quiz solutions and homework grades. In BMES 325 students would like the TA to post office hours
- 5. Peer Mentor Tutoring:** I explained that we have set tutoring sessions for Pre-Calculus, Calculus, Multi-variate calculus, Chemistry, and Cells and Genetics which is run by our Peer Mentors. A suggestion was made to add Matlab to that list. Feedback was given asking what Matlab actually is and where do you go with this? Students didn't know how to apply Matlab. Students felt that there is a big gap of information between ENGR 121 and ENGR 122. They felt the class size is way too big. The lecture is not covered in the lab. The only students that seem to be doing well had prior Java or C++. A suggestion was made to have ENGR 121 sections that were just BME students (cohorted). Positive feedback was given about BMES 201 in the way it is taught. Dr.

Sacan teaches what needs to be done in his first class of the week. In the second class that week, students need to complete their work and he is there to answer questions when they get lost or run into a problem. Students asked if ENGR 121 could be taught the same way.

6. **Questions/Concerns:** A suggestion was made to have Writing Intensive course that goes over many topics (research different styles). Someone mentioned that there is a course taught by Harriet Levine that had writing in your field.

Another suggestion was made to have a Civic 101 with volunteer work in a lab.

Student Advisory Board Minutes

January 25, 2017, 5:00pm-6:10pm

Bossone 705

Attendees: Samantha Cassel, Jui Hanamshet, Lananh Ho, Marina Lillieholm, Meenakshi Patel, Laurie Lenz

1. **DBUA Concentration Panel:** I informed everyone that DBUA will be hosting a Concentration Panel with Juniors and Seniors in BME representing all of the 5 concentration areas in BME. The event will take place on February 22nd from 4pm to 6pm in Bossone 709.

This brought up a lot of comments about students needing to learn about the concentration areas early on in their classes. Suggestions were given to have a class that integrates one experiment from each concentration in it like an all-encompassing lab course. Another suggestion was to add more to the freshman seminars (BMES 124 and BMES 126) such as having seniors talk about their concentrations. It seems like there is always some free time that could be used for this in each class session. Another suggestion was to have the concentration panel in UNIV 101 class.

2. **Course Repeat Policy:** I brought a copy of the policy to the meeting to explain that it does not go into effect for classes prior to 201615. We also read over the policy together in case they had any questions. Students are happy this policy was created but wished it went into effect earlier.
3. **C.L.A.S.S.:** I reviewed the services that the Center for Learning and Academic Services offer. We discussed the workshops offered, the location and taking advantage of this resource.
4. **Statistics Course:** It was the opinion that this course needs to be taught sooner that it is scheduled on the plan of study. Students said they needed this information for their first co-op job, for BMES 301 and 302 and it could have been helpful in freshman design. A suggestion was offered to put BMES 310 in the fall/spring terms and put the two labs in the winter/summer terms.
5. **Questions/Concerns:** Complaints were made that our courses are not as detailed as the College of Engineering. Examples of this are the freshman seminars, BMES 325 and BMES 326. Students feel there needs to be more subject material.

Another issue was brought up about the employers that are hiring BME co-ops feel that BME is not a pure engineering major. Many students are asked very detailed questions during co-op

interviews because they don't understand the skills and course work that our students are knowledgeable in.

Another fact was brought up about ENGR 121. In this course a plagiarism test was given to see if student's codes were identical or similar. A large portion of the class failed because they found similarities in their code, but students explained there were only a few ways to write the code. Many students didn't cheat but they failed this test due to the professor feeling that they cheated. Students would have preferred to be notified of this test ahead of time.

Student Advisory Board Meeting Minutes

April 13, 2017 5:00-6:00pm

Bossone 709

Attendees: Bryan Ferrick, Jui Hanamshet, Laurie Lenz, Marina Lilieholm, Harsh Patel

BME Social Media: Discussed how the School of Biomedical Engineering, Science & Health Systems has many social media platforms including Facebook, Twitter, Snapchat and Instagram. Some students did see our students on Snapchat reviewing their day and commented that they liked it

New Student Week September 16-24, 2017: I asked for ideas of what students who are just about to start in our school would want to see or learn during activities we present at New Student Week. Ideas included:

- Speed meeting with our faculty to learn “Fun Facts” about them
- Information on the Peer Mentoring Program
- What does Research look like (possibly have some of the Summer Showcase during this week)
- Review S.T.A.R. and how to apply for it
- Have student come in and talk about what they do outside of BME and what they did on co-op per their concentration area

Biomed Protips: Jui had suggested that BME start some type of blog with college advice: how to write a good resume, how to stay motivated, where to buy textbooks, how to remain focused as well as tips from upper-classman, co-op suggestions, scholarships etc. I explained that we would engage out students through social media and do a Pro-tips contest where we ask students to submit their Pro-tips (words of wisdom, advice, etc.) and we will post their submissions on our social media pages. We will also select a random winner out of these posts. Carlos in Advising will be overseeing this process.

BS/MS GPA: I wanted to make sure that students are aware that the GPA is a 3.4 to enter into the BS/MS program after 90 credits are completed. Once in the program, you must maintain a 3.2 GPA.

Questions/Concerns: Comments were made about BMES 124 and 126. Students felt the speakers in the winter term were better. Students would like to hear speakers who discuss concentration areas in the fall term (BMES 124). Suggestions were made to have upper classman speak about what they’ve done during their co-op. Another speaker that was suggested was Dr. Throckmorton.

Student Advisory Board Minutes

July 17, 2017, 5pm-6:30pm

Attendees: Bryan Ferrick, Shane LaValla, Laurie Lenz, Alex Padayati and Meenakshi Patel

- 1. Incorporation of Calculus into More Classes:** Bryan brought up the fact that he had AP credit for MATH 121 and MATH 122. He had MATH 200, ENGR 231 and ENGR 232 in his freshman year and then did not have anything calculus related until much later in his studies for BME. I explained that only a small percentage of students have AP for MATH 121 and MATH 122 coming into BME and they continue on with ENGR 231 and ENGR 232 in their sophomore year.
- 2. Research Lab Outreach:** Alex requested that more outreach be done in presenting material on research labs early on in BME. He suggested a DBUA summer event, have it added to our seminar classes, provide it in a sophomore level class or hold a workshop to provide more information on these opportunities.
- 3. Curriculum Overhaul-** Shane explained that in Junior Design, Dr. Sarver reviewed some of the upcoming changes in the curriculum that are proposed for the 2018-19 academic year. He said that Dr. Sarver would like to hold a meeting for 2 ½ -3 hours at the end of August to discuss what students feel is good about the current curriculum and what the deficiencies are. Shane discussed that switching concentrations will be easier since the concentrations will be less defined and there will be more choices of electives. He will be following up with Dr. Sarver to find out how many people he would like to attend this meeting and a good date and time to hold the meeting.
- 4. New Student Days:** The week of September 18th is New Student Days. On September 19th the School of Biomedical Engineering will hold its' academic session and on September 22nd we will hold an event called, "Walk Your Schedule". I asked to see who would be available during that time to assist with the walking tours.
- 5. Questions/Concerns:** Feedback was given that the first half of BMES 325 was enjoyable but the second half felt like Engineering Design all over again. A request was made to replace the second half of the class with something more important, more hands on like a lab component.

A suggestion was made for Junior Design to be moved to the sophomore or pre-junior year rather than teaching important information so late in the curriculum.

Student Advisory Board Minutes

10/05/17 5-6:30pm

Attendees: Aditi Bawa, Shaelynn Fisher, Sukhdeep Gill, Samantha Haines, Ancy John, Shane LaValla, Laurie Lenz, Harsh Patel, Manthan Patel, Michael Rego, Apoorva Selvaraj, Lindford Smith, Amy Tieu, Corey Wald

1. **Introductions-** Since the majority of board members are new to the board this year, each member introduced themselves and indicated what year they were in and which concentration area they are interested in.
2. **Engineering Academic Challenge-** I reminded everyone about an email that was sent out about The Engineering Academic Challenge held on October 10th and October 17th from 3-5pm in the Hagerty Library. I also provided the email address to register for this event and explained there would be prizes and food at this event
3. **DBUA- Corey Wald, President of DBUA came to the meeting to announce the DBUA's (Drexel Biomedical Undergraduate Association) Quarter Events.**
 - 10/10/17 at 6pm is the General Body meeting in Bossone 709
 - 10/25/17 at 12pm is Get to Know your BME Professor in Bossone 709
 - Week 8 (Date not confirmed yet) is Ronald McDonald House volunteer opportunity
 - Week 11 at 6pm, Finals Week Stress Break with Therapy Dogs in Bossone 709
 - He also shared all social media websites
4. **Freshman Sequence (BMES 130)** –Weekly assignments were not given back on time with feedback in order to make improvements. Extremely hard to get A's on little assignments because they were not handed back in a quick manner. The deadlines to grade assignments need to be realistic so students have enough time to improve on assignments.

There felt like a lot of repetition from BMES 124 and BMES 126 so the suggestion was to combine the two courses. Students did feel like Dr. Allen was a phenomenal professor for these classes as well as BMES 326/326.

Suggestions were made to add BMES 212 to the freshman year so students could learn about the concentration areas sooner.

Suggestions were made to implement BMES 201 and 202 in freshman year instead of sophomore year so that students could initially learn the syntax of matlab for one term and then move onto the application of the software in biomedical engineering scenarios for the next.

Students were told that we are currently in the process of revising our curriculum for the incoming class of 2018 and that many of these suggestions have been taken into account for the changes we will be making.

5. **Getting BLC (Biomedical Engineering Learning Community) Connected to Upper Classman-**
Although BLC students have Peer Mentors their freshman year, freshman students would like more exposure to upper classman. Suggestions were made for a Welcome BBQ during Welcome week and invite current students. Perhaps have a concentration panel like DBUA had last year with upper classman discussing their concentration areas, why they choose that area and what they plan on doing upon graduation. Corey explained that DBUA plans on doing this again this year.

Other suggestions were made to have an Alumni Panel with presenters talking about their current jobs.

ELC has mandatory tutoring, but BLC doesn't. Perhaps the ELC and BLC can have some joint activities like a movie night or a pancake social.

6. **Questions/Concerns-** It seems like MATH and PHYS both seem to have final exams on the same day and back to back. A request was made to see whether this could be changed.

A suggestion was made to do an annual event "Co-op Show & Tell" so that students could learn more about the co-op opportunities that are out there for BME students.

A suggestion was made for there to be co-op employer site visits for students with a sign-up list to attend each visit. These employers would be in walking distance or by public transportation and students would pay for their own public transportation cost.

Student Advisory Board Minutes

1/18/18 5:30-6:30pm

Bossone 705

Attendees: Malena Farber, Ancy John, Lananh Ho, Laurie Lenz and Apoorva Selvaraj

1. **Co-op Show & Tell:** An announcement was made that the BME Peer Mentors will be putting on a Workshop called Co-op Show & Tell on Wednesday, January 24th from 5:30pm-7:00pm in Bossone 709. Malena asked if I could send the Power Point presentation out to the undergraduate population for BME after the workshop for those who were unable to attend but interested in gaining the information the workshop provides.
2. **Limited Use of Statistical Analysis:** Lananh brought up the fact that in Senior Design as well as Senior Level labs that students are not aware of which situations each test is used. She also indicated that BMES 310 is needed in BMES 301 and 302 so it should be offered earlier if possible.
3. **Junior Design Seminar:** Pavan brought this up via email to discuss at the SAB meeting. He indicated that different professors were assigned to each recitation section. Each professor requested different information from the same assignments given out which made it confusing for students. He felt that one professor should teach both the recitation sections or both professors should be giving out the same clear instructions for the assignments.
4. **BS/MS Information Session:** Arun suggested (through email) that BMES provide a few Information sessions a year on the BS/MS program. Requirements can be reviewed as well as how to put together a plan of study. Perhaps a sample plan of study can be provided for each concentration area.
5. **Winter Academic Opportunities Fair:** This fair will be held on Tuesday, January 23rd from 1:00pm-4:00pm in Beharakis Grand Hall. Representatives will be there to discuss Majors, Minors, Study Abroad, Civic Engagement, Research and Co-curricular opportunities. Student ID's are required for this event.
6. **Questions/Concerns:**
 - **Can a student double major?** I explained that in BME, a student cannot double major without extending their time at Drexel University. We normally encourage students to minor in something instead. I explained that the two majors would need to have many

overlapping courses in order to complete them in 5 years (Civil/Architectural Engr, Electrical/Computer Engr.)

- **AP/IB Credits:** Malena indicated that she did not earn PHYS 101 credit for her IB Scores but her PHYS 101 courses is all repetitive material. I indicated that I would follow-up with other schools/colleges at Drexel University to see if they have received the same feedback.
- **New Curriculum Changes:** Concern was expressed that they enjoy taking freshman design with other engineers because of the sharing of knowledge from one major to another. They do not want to see this course removed from our curriculum.

Student Advisory Board Minutes

4/12/18, 5:00-6:15pm

Bossone 705

Attendees: Arun Balaji, Bryan Ferrick, Shaelynn Fisher, Samantha Haines, Laurie Lenz, Harsh Patel and Lindford Smith.

1. DBUA Announcements-Arun Balaji:

- Week 5, 6 and 8 DBUA will hold “Cookies and Coffee” for students to study or vent in a specified location (not confirmed where)
- Trying to organize a Concentration Panel with Pizza and Drinks either week 9 of Spring term or in Fall term
- During Finals week they will have Study with Therapy Dogs. Pizza and Coffee will be served
- Looking into fundraisers with Blaze Pizza and Wahoos
- Anyone interested in getting emails about these events should sign up through Dragonlink with DBUA
- Suggestion was made to make announcements during BME classes as well as an email sent out by the BME list serve

2. Mentor/Mentee- Ancy

- Ancy had emailed me about this indicating that she wanted other students besides BLC students to have the opportunity to have a mentor.
- Would like to have recreational activities like making crafts/sports
- I explained that all incoming students whether they are a freshman or a transfer student are eligible to sign up for a mentor
- An email is sent out to all incoming students over the summer and week one of the term letting them know they can complete a 1 page application to receive a mentor
- Announcements are made in week one of UNIV 101 for students to sign up for a mentor

3. DBUA at Accepted Students Day- Ancy

- Ancy had emailed me indicating she thinks DBUA needs more exposure and should be at events like Accepted Student’s Day
- I explained that Accepted Student’s Day is for Students who applied and were accepted to Drexel University but had not confirmed that they were going to Drexel University so this may not be the right venue
- Arun explained that they will have Representation at Welcome Week

4. Collaboration with COE and BMES (Scholarships)- Malena

- Malena had emailed me to tell me she has seen her friends email from COE with many scholarships available to apply for yet none are sent out for BME
- Malena felt that we should also qualify for these scholarships

- I explained that our university has people working to get funds from past alumni and when they receive those endowments, they are usually classified for a specific population
- Unfortunately BME does not have Scholarships for our students at this time
- I will speak to the Dean to learn more about our fundraising and ability to secure any scholarships

5. Accepted Student's Day- Laurie

- Sunday, April 22nd is our next Accepted Students Day
- I explained the activity we perform at this event and asked if anyone would be interested in volunteering to assist in this event
- Shaelynn Fisher and Samantha Haines volunteered

6. Questions/Concerns:

- The new curriculum was brought up and a suggestion was made to move away from Matlab and move to Python. COE is doing this and even CS 171 & 172 and now Python. Matlab is expensive and Python is free. Python is more versatile and well known.
- A comment was made that students in BME are not taught to Comment Code in BMES 201. Students need to know how to explain what the code does and how it works for both BMES 130 and BMES 202
- A question was asked that if we are moving away from ENGR courses and moving to BMES courses, will we have a tutoring support system in place similar to ACE? Our students use ACE on a frequent basis and need something to replace it for the BMES version of those courses.
- A suggestion was made to hold frequent Town Hall Meetings in BME either with our Dean or rotate in faculty to address issues in a timely manner. Chemical Engineering does this and the students feel that this is extremely beneficial
- It was brought up that our students feel like they do not have enough Biology courses in our curriculum and they are shut out of courses like the Biology of Cancer or Histology.

Student Advisory Board Agenda

October, 10, 2018

5:00pm-6:15pm, Bossone 705

Attendees: Michael Rego, Linford Smith, Malena Farber, Sophia Geagan, Shaelynn Fisher and Laurie Lenz.

1. **Introductions:** All members of the Student Advisory board introduced themselves since we had a few new members join this year. I am looking to add some additional members to the board since some members graduated or decided to discontinue your board position.
2. **New Cooperative Education Advisor- Erin Glaser (Michelle Spina in new role).** I announced that the Steinbright Career Development Center has hired a permanent replacement for Michelle Spina to work with the Biomedical Engineering students. Liz Schwartz is still there as a second Co-op advisor.
3. **Clinical Practicum- BMES 496, BMES 596 (Fall and Spring terms).** In the past BME offered 3 clinical practicum courses, BMES 494, BMES 495 and BMES 496 (which were also offered at the graduate level). We currently just offer BMES 496/596 in the fall and spring terms. I explained that this course has limited seats and we hold those seats for seniors. Students need to let their advisors know they want to be registered for this course prior to time tickets open since we keep a wait list and you need an advisor to register you for the course.
4. **Biomed Seminar Series – Wednesdays at 4pm.** I brought to the boards attention that every Wednesday BME holds a seminar series with guest lecturers. I went over some of the lectures coming up over the next several weeks and encouraged them to attend. Sophia explained that BMES 124 is held at the exact time as the seminar so no freshman from her class would be able to see any of the seminars for fall term. I explained that the seminar runs in the winter and spring terms too so there will be future opportunities to attend the seminar.
5. **New Curriculum- Flexibility, minor, BS/MS, Double-concentration.** I handed out a copy of the new curriculum to go over the changes we made for the entering class of 2018 and asked for feedback. Suggestions were made:
 - Since many of the courses are now taught in Biomedical Engineering, we should have some of our T.A.'s at the ACE center to help with tutoring
 - ENGR 100- C.A.D. was a useful course therefore suggestions were made for student to take MEM 201 as one of their STEM elective

- We took ENGR 121 and ENGR 122 away which the College of Engineering did too but they replaced it with Python. Why aren't we using Python since it seems that some of the co-op employers are using this as well?
- CIVC 101 can be improved by having more opportunities and more spots open for opportunities students sign up for. Spots get filled up quickly or the opportunities that are open are not relevant opportunities that students want to volunteer at
- We have faculty speakers in some of the BMES classes who come in and talk about their area of research. Many students are not interested in research and would love to hear from speakers from industry at least ½ of the time
- Really like the fact that students now have room for two concentration areas or a minor
- Would like to see a list of suggested electives for Neuroengineering since there are so few in our old plan of study. Students would like to strengthen their knowledge further than what is provided in the Neuro concentration
- Since there is now more room to add in courses as well as 4 STEM electives, could faculty provide a list of useful elective recommendations for each concentration area
- Add in some immunology and possible genetics courses as potential STEM electives for students who were interested in cell/gene therapy applied in the industry
- Add in BMES 432 (Neural Aspects of Posture and Locomotion) as a class that most students can take earlier on. The class is not that difficult to be considered a junior/senior level class but the professor who taught it was phenomenal (Dr. McEachron) and I was able to learn a lot about the biological controls system of the body that is the nervous system.
- Have students know about BMES 305 (taught by Dr. Sinclair from I believe the School of Public Health Sciences), because I still strongly push for people who want to go into biomedical engineering to take on a cadaver lab during their freshman or sophomore year. This would better enable students to truly understand the different anatomical structures of the body and learn how to take that into consideration when researching and designing engineering solutions for them.
- For the students who are interested in biomechanics I feel that it is VERY IMPORTANT to take a class on Finite Element Modeling (FEM), MEM 427 (I believe that it is taught by Dr. Lau or Dr. Tan from the Mechanical Engineering Department, but I'm sure someone from the BMES school would know how to use it).
- There are chemical engineering courses (CHE 571/572) that I took and I thought it was very helpful for me as it discussed manufacturing of pharmaceuticals and medical devices and ISO/FDA guidance along with it. This class was taught by Dr. John Via, and it was one of the most influential courses I've taken during my time

at Drexel. The classes were very practical and industry related, and it offered me knowledge of things that still pertain to biomedical engineering but not solely on research and development and product development, which most of our original courses are meant to develop us in. I strongly recommend that the school offers these classes as electives for those who are enrolled as BS students, the course was not difficult at all and I was able to learn a lot and relate it/apply it to industry.

6. **Questions/Concerns:** A concern was brought up about Dr. Hrebien's teaching methods in ECE 201. He tends to be agitated with students if they ask to keep a slide up to copy or when students asks for clarification on something they went over. It makes students not want to ask questions.

Student Advisory Board Minutes

January 17, 2019 from 5-5:45pm

Bossone 705

Attendees: Arun Balaji, Dennis Chin, Austin Devinny, Maryssa Erdman, Malena Farber, Sophia Geagan, Sukhdeep Gill, TJ Hunt, Lindford Smith and Laurie Lenz

I started off the meeting by reviewing some of the questions asked at last meeting. Indicating why we use Matlab instead of Python. Gathering up information on groups we could use to get industry speakers into BME for students who are not interested in research (DBUA, Alumni network, previous student's co-op employers). I can find out whether some of these speakers can be rotated into the freshman seminar classes along with the faculty that discuss their research. Indicating that we do not currently have funding/space to run our own tutoring center of BME courses. I asked which courses would currently require tutoring and was told:

- BMES 310
- BMES 201
- BMES 202

Co-op Show & Tell: I discussed that the BME Peer Mentors will be holding a workshop titled Co-op Show and Tell, on Thursday, January 24th from 6-8pm in Bossone 709. We will have each Mentor talk about their co-op experience from how they found their job, why they picked that employer to work for, what their job duties were and who they would recommend the job to. I also indicated that pizza/soda will be served. I asked them to encourage their classmates to attend this workshop.

Meeting to Discuss the Development of the Program Educational Objectives as well as reviewing aspects of the Student Course Evaluations with Dr. McEachron: I indicated that Dr. McEachron would like to meet with the Student Advisory Board within the next two weeks to discuss the above mentioned. I will send out an email invitation to all members of the S.A.B. this afternoon.

Lack of Presence of the Biomed Club: Linford explained that DBUA/BMES has not sent out any emails this academic term about any events for BME undergraduate students. I indicated that I would find out who the new board members are so I can determine what activities are taking place and if it can be advertised better for our students. Perhaps DBUA can come into all UNIV R101 classes each fall term.

More Mechanical Engineering Courses put into the BHP concentration area: Dennis indicated that he thinks we do not offer enough Mechanical Engineering courses in our curriculum currently for BHP students. I indicated that students in our new curriculum have a choice of taking 4 STEM electives to enhance their curriculum, but the old curriculum does not have those dedicated courses. I also said that Dr. Allen is currently putting together a list of elective courses he would recommend for each concentration area. I will be sharing this list once I receive it.

Formatting of Senior Sequence Courses: Austin indicated that in the BTE concentration all seniors have to do 3 separate design projects. One of them is in Tissue, one in Biomaterials and one in Senior Design.

He felt it would be advantageous for the three designs to connect somehow rather than being three separate projects.

Alumni Networking Events for BME Students as they Transition from senior year to post-grad: Austin thought that either DBUA or Dr. Dougherty's Alumni group could provide networking events that could help graduating students find jobs. I also mentioned that the SCDC has events such as Career Fairs, Resume reviews and other Career Services for seniors.

Follow-up Items:

- **Find out who is on the Board of DBUA and what events are taking place**
- **Determining whether our BME Alumni Network could host some alumni networking events for our seniors**
- **Provide courses that students want tutoring to our U.C.C. to see if they can find a solution (perhaps have some of our TA's in the ACE Center for BMES 201/202 and see if COAS will help tutor our BMES 310 with their other statistics tutoring)**
- **Determine whether industry speakers can be rotated into the BME freshman seminar courses.**

Student Advisory Board Meeting

April 17, 2019 5-6pm

Bossone 705

Attendees: Maryssa Erdman, Malena Farber. Laurie Lenz, Linford Smith and Amy Tieu

- 1. Concentration Panel Overview:** I spoke about the concentration panel that I moderated on 4/16/19 with Peer Mentors, Student volunteers and Alumni. Maryssa attended this event so she gave feedback that although she enjoyed it, it would be helpful if the students moderating it also were in the new curriculum so the courses they spoke about were ones the freshman class had to take as well. I explained that some of the courses are still in the curriculum and others can be added as electives, but she is in the first class with the new curriculum. I also pointed out that almost everyone on the panel felt the BMES 310 (statistics) was one of the most useful courses they took and they use on their co-op jobs.
- 2. Concentration Course List Update:** I updated everyone on the list of courses they asked for to enhance what they are learning in their concentration. I explained that I started a list from courses that were required in our old curriculum for reach concentration area as well as a list provided to me by upper classman. It is now being worked on by our faculty and should be ready by Fall term.
- 3. Concentration Restricted Elective (Arun)-** Arun did not show for this meeting so we could not review an item that he requested to be put on the agenda
- 4. Lack of Transparency Behind Recent BS/MS Reviews (Linford)-** Linford indicated that he and many of his classmates are between 90-120 credits and are ready to hand in their plans of study but they are being told that plans aren't being reviewed by the graduate school now or the criteria has changed for what is supposed to be in the plan of study. Nothing has been documented on our website or put in writing for students to follow and it is frustrating. He wanted to know why these changes are happening and what is required to apply and be approved for the BS/MS program now. I explained that all the advisors share in his frustrations and all the Deans are meeting with the varying components of the university to solidify what the new requirements are and getting these requirements listed online.
- 5. Welcome Week Information (Suggestions/Activities)-** I requested ideas for what activities/information they suggest be added to welcome week activities. I explained that we have Dr. Allen giving a presentation to the incoming students on what they need to expect and what is expected of them as freshman. I also explained that we have small group sessions to provide additional information to students. The only suggestion I received was to have Dr. McEachron speak as well since he is engaging when he lectures.

6. Questions/Suggestions:

- Malena talked about the study abroad she did for 10-days during the break. The course tied in religion with science (Priests that were astrophysicist). She learned about it through an email sent by the BME department. She would highly recommend it to other students.
- Linford explained that he had a hard transition from co-op back to classes. He felt like with co-op he was on a fluid timeline and then once he returned to class there is no structure. He thinks it may have been easier if he took one class on co-op. Malena agreed that going from co-op back into classes in a hard transition.

Student Advisory Board Meeting Minutes

October 10, 2019, 5pm-6:45pm

Bossone 709

Attendees: Ann Abraham, Arun Balaji, Malena Farber, Jessica Fegely, Majo Garcia, Laurie Lenz, Abigail Martin, Ethan Moyer, Rahul Rachen, Ahsan Sarwar, Ben Skeker, Jillian Saunders and Amy Tieu

- 1. Introductions-** Since half of the student advisory board is new this year, we had each student introduce themselves and indicate what year they were in.
- 2. AP BIO –** Ethan wanted to know why we cannot allow him to get credit for BIO 122 if he took AP Bio and took a Genetics class at another college. I explained that the Biology department determines what the equivalent is for the AP Bio course and they equate it to BIO 126. His Genetics class also counts BIO 244 so he is getting 4.5 credits for BIO 126 and 3 credits for BIO 244 rather than getting 4.5 credits for 1 course. I explained that he can approach the Biology department to request that he take BIO 122 in the spring as Credit By Exam. I explained that he would pay a fee, not attend the class but instead take a comprehensive exam for a grade.
- 3. BS/MS-** Both Abigail and Malena wanted to go over the policies surrounding the BS/MS program. She spoke with Financial Aid and was given specific requirements that differed between students who have federal loans and students who have federal grants. I was asked why all students are falling under the 12 UG credit minimum for the BS/MS program if some students aren't receiving any federal money. Comments were made explaining that is nearly impossible to take 20 credits every term and be successful in the BS/MS program because you are doing this at the same time you are working on your thesis or your senior design project. Students want transparency with this program/policy and want to see it in writing rather than hearing it from advisors and having the requirements change from one month to the next. Students also want consistency of approvals for what is and is not allowed in the BS/MS program.
- 4. Peer Mentoring Program (tutoring, workshops)-** I discussed that the Peer Mentors will be offering tutoring in all freshman classes and will now be tutoring for BMES 202 since there have been many students asking for help in this course. I also asked for suggestions on workshops or programs they would like to see for the winter and spring terms. Some of the suggestions included:

- Career Exploration in BME
- Alumni Panel talking about their jobs and the path they took to get there
- Co-op Show & Tell
- Academia Verses. Industry
- Have students from the labs discuss research opportunities
- Learn more about senior design/ thesis

5. **ABET Visit October 28th** – I explained a little about ABET and the meetings they will have by grade level on October 28th. I explained that they need to be honest when answering all questions that they are asked.

6. **Questions/Concerns-**

- Undergraduate students are receiving about 50 emails a day from the university including many from BME. They do not want to receive emails that are meant for graduate students but they seem to receive all emails sent out from our department.
- Students still do not understand why BME selected MATLAB as the language they are being taught when every industry employer they want to work for during co-op uses Python. MATLAB is too expensive for employers to use and Python is free. The only place they see MATLAB used is in research jobs.
- BMES 201 is a class where many students feel lost. They feel the “why” is not being explained when the information is being taught. They feel that the information isn’t being framed well in the beginning and students quickly get lost. They would like the class to be more question based. Students would like more examples to show them how to do what is needed in this class.
- BMES 202 has one section where the class is taught WF. Wednesdays is lecture based and Fridays is when you learn programs and how to do them. Monday is when an assignment is given that is due on Sunday but students do not learn how to do the assignment until Friday leaving them 2 days to complete the assignment. They would rather learn the assignment during the Wednesday class so they have 4 days to complete the homework with the understanding on how to do it.
- Student in the Bioinformatics concentration are learning GIT in CS 265 in their pre-junior year. Most Informatics companies use GIT so it would be helpful to have this course earlier in the curriculum.