

## Biomedical Engineering Graduation Reception

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Remarks by  
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Distinguished members of the Faculty and administration, parents, family, friends, and most importantly, Graduates of the Class of 2011, Congratulations! You made it!...Crisis averted! Parents, friends and family, you must be very proud!

What an odyssey it's been! Take a moment to reflect on the transformation you have witnessed. Just 20 years ago, the internet was being cobbled together and, Parents, you were busy caring for one of these Graduates. It was hard work and the future was uncertain, but somehow you managed.

Your Graduates have accomplished a lot since taking their first steps and uttering their first words, "mama, dada, matlab" ...

Graduates, this is your day; a day to savor the victory, a day to remember what you had to do to get here. Close your eyes, think back, reflect on that journey. Each of you have made significant accomplishments. You have done well, very well. You excelled in high school, you scored well on achievement tests, you were admitted into a rigorous, and a nationally-ranked BME Program.

But making your way through the BME curriculum wasn't easy. Chemistry, Calc, Stats, more Chem, Physics, more Chem, more math, more physics, ...and then it happened..... BME 2101, Bio-thermo-dynamics. At first you felt like you were adrift at sea in a rubber dingy, with sharks circling ...wow...fond memories are forged in the crucible of your mind. Breathe deeply. Your heart rate will soon return to normal.

And while Biothermo may have seemed difficult at the time, and you wondered if the bleeding would ever stop.... I am suddenly reminded of a story that involves bleeding from a time early in my career. I was performing an experiment in the lab one day... busily suturing a sensor to the surface of a beating pig heart, when I inadvertently nicked a pretty big blood vessel with the suture needle, ummm, well ...the surgeon overseeing my work said, "is it a vein or an artery?" With one eye burning and closed tightly, I said, "it's definitely an artery" and the surgeon casually offered the following observation..."one way or the other, the bleeding always stops" And it's true, the bleeding did stop...eventually.

All of you survived the BME course work, including Sr. Design which consumed every waking moment in the last 3 weeks of Spring Semester. Sr. Design reinforces the notion that a little procrastination isn't all bad...especially in the last Semester of your senior year.

If life is like a book, today you sit here, in this place, at the end of one chapter, anxiously awaiting a beginning of the next. For some of you, that next chapter looks well-defined and you may already have an outline prepared with copious notes in the margins. However, for others in the Class, the path forward is still in formative stages. Like an embryologic state, genes are being robustly expressed, RNA is floating about, proteins are forming, cells are dividing, but the fully differentiated phenotype (...your future) is still not yet defined.

But, that's OK. Your future is never really knowable....we try to convince ourselves that we know what we will do and exactly how we will get there. But, truthfully, we don't really know what the future will hold. Those of us, myself included, that believe we can see the future, are actually slightly deluded.

And, while the future can often appear daunting and complex, I contend that Life is simple, very simple. It really boils down one thing. And, just like when you boil the ocean, you get one thing, salt...When you simplify life, it's all about Learning. We learn through intake and processing of sensory inputs that send neural information to our central nervous system. When this information gets encoded into neural networks, we create memories on which we can draw in future to assist when attempting to perform tasks, recognize words, facial expressions, or avoid harm. Learning is being.

Learning is a source of personal and professional stimulation and satisfaction. Without learning, our skills atrophy. And, according to Napoleon Dynamite, there is nothing worse than weak skills.

Learning is part of living. When we stop learning, we start dying.

Learning is about acquisition and integration of knowledge. Learning helps us solve problems and avoid repetitive mistakes. You will be very successful and happy if you always make new mistakes and never revisit the old mistakes.

Learning helps us prepare for the future.

The Future presents itself as a dizzying array of choices; opportunities and obstacles. The opportunities wiz by; here today, gone tomorrow. In contrast the obstacles seem to linger. They put sand in the gears and threaten to derail us...

Your Future will be defined by your preparation to efficiently address and disposition opportunities and to process and mitigate obstacles or impediments. Seize opportunities, learn from adversity and setbacks. These are the keys to navigating the present, into your future.

So what is in your future? About half of you will seek employment or volunteer opportunities now, the other half will go on to graduate school or medical school.

Whatever you decide to do, do it well. If you always do your best, you will rarely be disappointed.

The economic downturn over the last few years has created both challenges and opportunities. Navigate the obstacles and seize the opportunities. In times like this, "old school" is closing, status quo is being disrupted. Change is rampant. Be part of the change and you will find your way. Be creative, be purposeful, be positive, make a difference through whatever you do.

...early in life I heard the saying, "never say never." As I reflect on the meaning of that saying, it probably is used most often to mean "in most circumstances there is always the chance that something unexpected will happen." Nothing in life is absolutely certain. I'm sure you all will agree that life isn't binary. We don't experience life in a series of 1's and 0's. Instead, life comes at us on an analog scale. Everything about life is presented on a spectrum of inputs and outputs. So, on the spectrum of qualified possibilities, on the left we have "never" and on the right we have "always"... Never.....always. Optimists frequently use the word "always."

So, I will leave you with a 5 key optimistic admonitions:

First, Always balance confidence with humility. Know what you want and know how to get there. But along the way, remember your roots....remember where you came from. Be humble. If you get separated from your roots, life gets challenging. Confidence when coupled with humility, hard work and perseverance will take you a long way in life.

Second, Always have something to say. This doesn't mean, talk all the time. It does mean, anticipate, think ahead, always be ready to respond to a question or offer an informed, helpful opinion or suggestion. Be present, in the moment.

Third, Always learn...learn from successes, learn from mistakes. Always learn. If you approach life with an insatiable desire to learn, a thirst for knowledge, you will never be disappointed, because everything starts to look and feel like a learning experience. Obstacles will melt away and life becomes a portfolio of enjoyable experiences.

Fourth, Always listen more than you speak...you will be amazed by how much you learn when you listen.

And last, Always gravitate toward change...the status quo is will hold you back and limit the possibilities you encounter. Enjoyment and fulfillment are most strongly correlated ( $R^2=.87$ ) with possibilities and opportunities.

Life-long learning is key. Look for ways to help others enjoy the enriching benefits of learning. This world needs great teachers.

In closing, the 20<sup>th</sup> century author Eric Hoffer said,

"in times of change the Learners will inherit the earth, while the Learned find themselves protecting a world that doesn't exist."

Keep moving forward, keep learning.

Finally, I know that as students you were forced to rapidly consume and process vast quantities of information. I've been told that "occasionally," Cliffs Notes or the more contemporary version, SparkNotes crept in to the picture. I would like to leave you with the SparkNotes version of this speech.

Just 7 words....7 words to remember...

Learn to Live and Live to Learn

Thank you