Thank you, David. I have to say, when David asked me to give this speech, my first reaction, once the panic cleared, was what am I going to say? After all, I've done the math, many of you have already sat through 3700 minutes of me lecturing, what more could I say in another 8? Particularly without my colorful ball point pens and overhead projector to back me up. But, just like in that last minute of class when you are all packing up your stuff, eager to get on to your next class, it occurred to me I do have a few more things to say…

Before I get to that, I'd first like to introduce myself to the parents, families and friends of our graduates. I taught many of these students in one or two courses in their sophomore and junior years. The first course, Mathematical Physics is a bit of a mishmash course to help a physicist put together a toolbox of mathematical skills and tricks that they might find useful through out their careers. The other course was Quantum Mechanics, the study of how nature works at the atomic scale. This is the first class where physics students have to struggle with the foreign notions that quantities that we consider continuous and smooth in our every day experiences are actually quantized and lumpy, and other objects that we consider discrete and localized are not.

These two classes were my first chance to teach the physics majors. Before these, I had taught big classes that the met general education science requirements. While all WM students are eager and curious, it was a completely different experience to work with a small group of students who were genuinely interested in what I had to say and even went off to discover more about the topics on their own. I also had the opportunity to talk to many of these students outside of class, at outreach events, or poster sessions, or mixers, or award receptions. Over the past 4 years, I've seen these kids grow into competent physicists and researchers. And while I've only known them for a relatively short time, I share some measure of the pride that you parents and family have in their accomplishments. I also share your excitement as you leave us to move on to new adventures.

I may have met some of you as long as 5 years ago, when you accompanied these graduates, then high schoolers, on grand tours of all the colleges and universities, trying to find that perfect match. Some of you inevitably asked me what good is a physics degree from William and Mary; what kind of job will my kid get when they get out? While my answer now is the same as it was then, I'm much better able to enunciate it, so I'm glad of the second chance to explain. In physics, we strive to teach our students how to think critically and analytically, to break a problem down into its simplest parts, then ask questions, perform experiments, write programs, do computations to solve those small problems. Then, to systematically assemble these insights into a solution to the bigger problem.

These skills prepare our majors for a wide range of careers, and today's graduates corroborate the assertion. One of you is going off to be a firmware engineer at Tesla. Another of you is going into health care technology and software. Others are going into Veterinary medicine, neuroscience, aeronautics, and marine science.

Of course, many physicists choose to go on to advanced degrees. Over half of this class is going on to pursue a PhD, and they're going to places like UCLA, Michigan State, Dartmouth, UVA, Washington, Rice, Princeton, and Harvard. I know from trying to make small talk, college football isn't very popular with this group. A few of you are going to have to learn to tolerate it, though. Not even Steven Weinburg has guaranteed campus parking on Texas Game Days. You will think your research is the highest priority everyday, but the tow truck guy probably won't see it your way.

To those of you who haven't yet figured out your dream job, or to those of you who might discover your dreams have changed: It may seem that you learned a lot of specific facts and formulas during your time in physics, but you will find that somewhere along the way, you also developed a flexible and creative mind. Don't be afraid to go in a different direction. You may need to invest a lot of hard work to start fresh, but you've done it once already.

No matter what you end up doing out there, whether you stick with physics, or you start afresh, someone will ask you what is physics, or what is it good for? Actually, the conversation usually starts when someone asks you what you study, and you say physics, and they respond "Oh, physics. That's hard." Its difficult to know how to respond in those cases, but I suggest you embrace it as an invitation to become an ambassador of physics.

Of course, I realize I'm preaching to the choir, here. This particular class has already embraced their role as ambassadors of physics. They are adept at sharing their excitement in what they study with the University community, and the wider Williamsburg community. This class has rejuvenated the W&M branch of the Society of Physics Students, garnering national awards, grants, and in one instance a scholarship recognizing their leadership and activities. On the smallish scale, they held weekly meetings to recreate some of the iconic physics demonstrations and experiments, including dancing oobleck, a hover craft, and cardboard trebuchets. I'm sure there were other projects going on late night in Small Hall, but I'd prefer to maintain plausible deniability.

On the larger scale, they hosted a now yearly event, Physics Fest, where we invited the whole Williamsburg community to our building to learn about the research we do, watch demo shows, get hands on experience in our physics playroom, and sample some of our now famous Liquid Nitrogen Ice Cream. They took Physics Fest on the road, into the classrooms of local Middle and Elementary schools. They shared physics with their peers through Demos in the Sun. Many of the grad students here organized a public viewing of the transit of Venus, the rare opportunity to watch the planet move across the face of the Sun. The phenomenon happens in pairs, spaced about 8 years apart, but with more than 100 years between the pairs. This class also contributed to the festivities surrounding Newton Fest, the planting of a clone of the apple tree that stood outside Newton's office window in

Cambridge. On that day everyone was treated to a phenomenon even more rare than the transit of Venus: Marc Sher in a suit.

As physicists, we answer fundamental questions about how our universe works, and we are indispensable to humanity. That sounds like hyperbole, but if you look through the program at the titles of the senior research projects, you can see your kids are already tackling important humanitarian issues. From studying diagnostic techniques for apnea in premature babies, to studying water filtration techniques suitable for developing countries, to investigating algae for new fuel sources. Others of the titles are more difficult to decipher, but behind the jargon and technical terms are 511 pages of the beginnings of answers to questions on the cutting edge of science. Many of these projects are, at their core, aimed at understating the symmetries of nature and how the smallest pieces of matter behave, or understanding the interactions of light and atoms, or atoms and atoms. Some of these projects have immediate effect, like improving an algorithm that scientists world wide use in spectral analysis. Others have medium term applications like making ultra precise clocks, fabricating unique materials, developing quantum computing, improving navigation or information storage. Some of these projects may not have currently apparent applications, but could be the seeds to enabling revolutionary technologies. Your talents are an essential part of our increasingly technical society, and you shouldn't be shy about letting others know about your enthusiasm, nor about encouraging the next generation of scientists.

At any rate, I'm sure I am coming to the end of my 3708th minute in front of you. So, let me just say good luck, keep having fun with physics, and come back and visit us for Physics Fest.