Good morning. Thank you for being here. I’ve never written a talk like this before, so I guess we shall see what happens. When I sat down to plan this with Pr. Paul, he asked, what text will you be using? And I thought—do I pick that out? Can it be something from my physiology text? Although I found writing this to be more difficult than I had originally thought, I admit I have enjoyed this chance to sit down and reflect about my calling and how it relates to my faith, so I thank Pr. Paul for this opportunity. I chose this reading today (with Pr. Paul’s help!) because I can relate it to both my faith and my research. These men are walking along and Jesus begins walking along with them, yet, they are kept from recognizing him. They start telling Him all about what had just happened to Jesus of Nazareth, and they don’t even realize that it is Jesus with whom they are speaking. How many times, my scientist colleagues, have we found out that the answer we were seeking needed to be found by looking at the data in a different way, or doing one more experiment that puts it in perspective, or have another set of eyes look it over for new patterns and connections. We are sometimes blind to what is obvious and we need new perspective. That evening, when Jesus breaks bread with them, they realize that it is him, but as soon as they do, he disappears. This is a bit how it is when you do an experiment and it works perfectly, and you get beautiful data, but try as you might, you can’t repeat it, and you don’t know why. It just disappears. It seems to me that research is like tapping the mind of God—tapping into this infinite pool of knowledge, and, when and if you are successful, you get out a tiny, tiny, miniscule piece of that knowledge, and you try to take that piece and relate it back to other little pieces. These men were obviously surprised, flabbergasted most likely, to see Jesus alive. I see the same sort of amazement and wonder in research—when I am surprised by a result that I thought would turn out
differently, but yet, after thinking about it and doing a few more experiments—it makes sense. And now I have found a piece of knowledge that is new and can contribute to the totality of knowledge about this topic. It is the same with Jesus. He rose from the dead. Imagine that! What an absolutely amazing physiological feat! Who would have thought that could ever happen? But when you think about it—it makes sense. God needed to show us how much God loved us. How could that be done? God sacrifices God’s only son to a painful death, yet, it doesn’t end there. Jesus rises to new life—to give us hope, to give us wonder, to encourage us that death is not the end.

I haven’t been doing research for all that long compared to many others, at the moment it has been 9 years. And, to be honest, I began graduate school as a “means to an end”, in that I entered knowing fully well that I wanted to teach at a place like Augustana, and research would be secondary to my teaching, and that I would “survive” five years of research to get to my end goal of teaching. But, much to my surprise, I very much enjoyed the five years I spent in the lab, and there’s times when I miss the days of being totally dedicated to a research project and not having to think about much else. I love having my summers here to “almost” recreate that atmosphere of immersing oneself into a research project and putting the pieces together.

My research involves studying the ways that ovarian cancer spreads, and also the interactions between the immune system and cancer. I spend a lot of time imagining cancer cells and how they behave. How does a tumor cell detach from a clump of tumor cells, float around in the abdominal cavity (in the case of ovarian cancer) and then attach somewhere else? What processes are involved? Can we stop that process? How do the immune cells around interact with the tumor cells? Why don’t they kill them? There are so many questions, and it takes a very long time, lots of resources, lots of dead ends and failures, many people working together (and sometimes made more complicated by people competing against one another) to find a part of the answer to even one of those questions.
I believe that my call to research is fundamentally based on the fact that I take much joy in finding out how the natural world works, and for me, its especially true about the human body. Last January I was reading about conception in the new edition of my physiology book. The book noted something that I have never read before. They have recently found that sperm have olfactory receptors—the same receptors in your nose that are used for smell. The egg releases a chemical that smells, so sperm literally find their way to the egg by smelling their way to it. And the best part is, the chemical that the egg releases is the same chemical that is released by lily of the valley. Eggs smell like lily of the valley, and sperm smell their way to them. These are the kinds of things that I find worthy to post on Facebook. I was so blown away by this fact, I shared it with everyone I ran into that day—my biology colleagues can attest to that. It absolutely made my day. I just think about the researchers that found that out, and what a great process of discovery that must have been.

Having my own experiments that finally work after months of troubleshooting and failure brings an even greater sense of joy and satisfaction. I’m going to take you back to last May. It was the beginning of my third summer of research here at Augustana. I was stressed and nervous—very nervous. There are high expectations for research here, as there should be at an institution as prominent in the sciences at Augustana, and I felt I was not living up to them. The past two summers of research had yielded little to no results, and I was getting worried—something needed to work. As the first week of research with my students progressed, and experiments were again not working, I began to feel more stressed than I had ever felt in my life. I had a very difficult time sleeping, I couldn’t eat much—I was all-consumed with the experiments we were performing and trying to figure out why they weren’t working. I was up in the middle of the night searching online for papers that would give me some clue as to what I was doing wrong, or a different experiment to try. This went on for about a week. Then one night, sitting at the computer at 2 a.m., I decided you know, I don’t really need to read another paper. Being the “good” Catholic I am, at this point, I need a saint. I needed the patron saint of female scientists who are
working to get tenure at a small liberal arts college who are married and have two daughters. Well, needless to say, Google couldn’t come up with that, but I did find the patron saint of natural scientists, St. Albertus Magnus, or St. Albert the Great who lived in the 11th century. I said some desperate prayers. Prayers not for the experiments to work, but for the wisdom to know what to do next, and went to bed. The next morning, I talked to my collaborators and vented my frustrations, and decided to switch directions. I stopped the experiments I was doing all together, and changed angles completely. This was on Wednesday. By Friday of that week, I had the first piece of positive data I had gotten in two years. What a fantastic moment when I saw the data. It had worked! The rest of the summer was a success. We are now very close to publishing a paper on this topic.

Why do I tell you this story? I think it may give you insights into many of the parts of research. The frustration of having things not work—over a long period of time. The joy (and sometimes, relief) one feels when something finally works. I think it also gives you an idea of how scientists pray. Scientists pray for wisdom, for perseverance when failure after failure happens, for steady hands and eyes that are quick to see details that could be missed. Because if we prayed for the experiment to work, it would be like telling God how God’s world should work—and that would be wrong. You would literally be saying, “Please, God, let your world work the way I think it does.” I feel this story ties in together both my calling to do research and my faith in a very real way. I’m sure many of you can relate to the frustration and sometimes complete lack of control one can feel when things aren’t going your way. And perhaps, times when you question your calling. However, I believe God (and good ‘ole St. Al, as I now call him) was there for me that week, and continues to be.

I often joke to family and friends that I’m not the kind of doctor that helps people, but sometimes I wonder if I should take that back. Although sometimes it feels as if what I do doesn’t matter much, that the one protein I’m studying is one of hundreds that are involved in metastasis, that I’m studying these
cells outside of the body, and not in their real environment, so I’m not sure if they behave the same way in the body. And could this research actually lead to a drug, and would that drug even work? But I am reminded that what I do does matter to people—when by chance in the GSC hallway I met the husband of a woman who died of ovarian cancer. He was so thrilled that ovarian cancer research was being done in the building where he and his wife met that he donated to support my research. Just last week I had lunch with an ovarian cancer survivor. The first thing she said to me after giving me a huge hug (I had never met her before) was, “I am so proud of you.” She continued to tell me her story—she was diagnosed with ovarian cancer, and two weeks after treatment started her husband died of a heart attack. Then, after her ovarian cancer was in remission, she was diagnosed with breast cancer. After she got the breast cancer under control, her ovarian cancer recurred and she underwent treatment again. This woman had been through the trenches and yet was so positive, upbeat and inspirational, it was amazing. Through others, God continually reminds me that what I do (and what all researchers do) is sacred. Not sacred because its religious, but sacred because it matters to people and their lives.

In the science world we often comment that we stand on everyone else’s shoulders who came before us—it’s a collective knowledge that we are all building. One last aspect of research that I’d like to share with you, is the idea of “knowing.” We know as scientists that we can never make absolutely concrete claims of knowledge. For example, I can do an experiment with cancer cells in a dish and get a result, but in real life these cells are in the body with many other factors and interactions happening, so I can’t say for sure if my observation would hold true in the body, but I do the best I can with the information I have. I sometimes feel as if I’m a donkey, and complete and total knowledge about what I’m studying is a carrot hanging just out of my reach. I can grab it and get bites every so often, but I will never know the complete picture—its impossible. Unless I get to heaven. My vision of heaven is probably a bit different than other people’s. If and when I get there, I would ask God for a small favor. I would want to stand on an immune cell as it hunts around for cancer cells. I imagine it would be something like Honey I
Shrunk the Kids, but much, much smaller. I’d hang on to a protein receptor on the surface and watch as the NK cell (my favorite immune cell) hunts around and finally finds a cancer cell that it wants to kill. Then I would watch what happens in real time. Then if I could ask another little favor of God, I would ask if I could watch it in slow motion, and maybe with some labels on all of the proteins, and possibly a running narrative, so I could follow along in detail as to what is happening, so that I could finally KNOW if I was really right! I could finally KNOW! Because, as far as I can tell, that is the only way that researchers ever get to know if they are really, truly, absolutely correct. We do what we can with the tools and expertise and best guesses that we have, but we never REALLY know. And I’d like to think that someday we will all have all of our questions answered.
MORNING WORSHIP
Monday, May 6, 2013

Prelude
“Holy Manna”  by Wood/Held
Marilyn Schempp, Organist

Welcome and announcements

Invocation

Prayer
ALL: God, you call your servants to ventures of which we cannot see the ending, by paths as yet untraveled, through perils unknown. Give us faith to go out with good courage, not knowing where we go but only that your hand is leading us and your love supporting us, through Jesus Christ, our Lord. Amen.

Hymn
“God Who Stretched the Spangled Heaven”  ELW # 771

Scripture

Sermon
“Called to Research”  Dr. Jenny Gubbels, Biology

Hymn
“Earth and All Stars”  ELW #731 vv 2, 4, 5

Benediction

Postlude
“Toccata”  by Johann Pachelbel
Michael LeVan, Organist

The Common Ground/Outreach Bonanza will be held out on the Green on Friday, May 10th from 6:00pm to Saturday, May 11th in the morning, to celebrate a great year of fellowship and get excited for next year; ALL are welcome! Friday evening we will be playing games, singing songs, enjoying a bonfire, eating snacks and star gazing. Big group events will end that evening but the option is available for people to spend the night on the Green; Augie Outdoor Club will be providing some camping materials (sleeping bags, etc.) but consider bringing your own sleeping bags/blankets/etc.

Taize at Pine Ridge, May 24-27. Any students interested in going to the Taize International meeting at Pine Ridge in May are encouraged to meet with Pr. Paul. We want to spread the word widely about this rare and exciting weekend of solidarity with our Native neighbors! Sign up sheet is on the Narthex table. Students interested in attending the May 24-27 Taize weekend at Red Shirt Table please sign up in the narthex, or speak to Pr. Paul.

Want to learn more about Taize??? Come to the chapel for conversation and worship on Wednesday, May 8, 7-9pm. Brother John and a team of friends from Taize, France will be present as we learn about what Taize is and the impact this movement is having on young adults around the world. All are welcome.

Bread for the World's National Gathering will be held June 8-11, 2013, in Washington DC. In addition to inspiring workshops and advocacy training, there is an opportunity to meet with our South Dakota congressional delegation to personally discuss hunger issues locally and globally. BFW-SD would cover transportation, registration fees, and lodging. If you are interested or know of someone who is interested, please contact Nancy Olson, 605-332-4350, s10andyw@sio.midco.net for further information and to request an application before April 15, 2013. You can also find information about the event at www.bread.org.

CAMPUS MINISTRY ANNOUNCEMENTS

South Dakota Synod Assembly, ELCA will be June 7-8 at Our Savior’s. Our student congregation may send one male and one female delegate. Please see Pr. Paul or Pr. Ann if you are interested. Preference is given to students from South Dakota.

CHAPEL SCHEDULE

Tues., May 8th  Catholic Mass, 10 am - Fr. Kevin O’Dell
Wed., May 9th  Holy Communion, 10 am - Pr. Ann
Fri., May 11th  Morning Worship, 10 am - Katie Hjerpe, Sr. Spkr.
Sun., May 13th  Morning Worship, 11 am - Pr. Paul
Mon, May 14th  Morning worship, 10 am - Patrick Hicks, Eng.
Tues., May 15th  Koinonia, 10 am
Wed., May 16th  Holy Communion, 10 am - Peg Preston; Collegiate Chor.
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