

BioMass

Student Coordinator: Brenna Peterson '17



Dr. Sukumar signing a copy of his book for the library

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Dutchman's Breeches, named for their upside-down flower structure

Spring Ephemerals: The community you might be missing

by Student Naturalist Katelyn Myhre '16

While chatting with Curator of the Natural Lands Kathy Shea, I expressed how excited I was for the leaves to pop and green to take over the Natural Lands, and said that the trees' leaves were the best the part of spring. However, Kathy was quick to correct me. Sure, the green is beautiful, but the spring ephemerals are the best part of spring.

Spring ephemerals can be easy to miss if you don't let your eyes wander or take a slower pace, especially with all there is to look at in Norway Valley. But, when you awaken to the beauty of the details in these tiny wildflowers, and take the time to bend down and take a deeper look at the smattering of white, spring will take on a whole new meaning.

If you visit the Student Naturalist Website, you'll find that former St. Olaf students compiled a list with descriptions of 15 spring ephemerals in Norway Valley, including one of my favorites, Dutchman's Breeches (*Dicentra cucullaria*). No one knows who first dubbed the wildflower's common name, but the plant was clearly given its name based on the shape of its unusual flowers, which resemble a pair of pantaloons. Some refer to the plant as "wild bleeding heart" due to its similarities to the *Dicentra* bleeding heart. The flowers' pantaloon shape plays a vital role in pollination. The upside down blossom seals in pollen, protecting it from wind, rain, and invaders who steal nectar.

According to the Naturalist Website, the seeds are dispersed by ants in a process called "myrmecochory." In this process, ants are attracted to the seeds by a fleshy seed organ called the elaiosome. The ants retrieve the seeds and bring them to their nests to eat the elaiosome, discarding the remains. This serves to protect the seeds during germination and allows them to grow in a rich environment provided by the ant nest debris.

Perhaps I shouldn't have piqued your curiosity too much – dutchman's breeches are actually a toxic plant. When ingested, the isoquinoline alkaloids in the plant may lead to paralysis and tremors. In fact, some people recommend using gloves when touching the plant.

Dutchman's Breeches are just one example of the beautiful community of spring ephemerals. In recent phenology walks we have spotted bloodroot, blue cohosh, early signs of jack-in-the-pulpit, rue anemone, white trout lily, and wild ginger, just to name a few! I encourage you to check out the great wildflower resources on the Naturalist Website and try your hand at spotting the wildflowers before spring turns into summer. The spring ephemerals are a wonderful example of the incredible natural community we have in the St. Olaf Natural Lands—don't miss out!



Liz Townsend is also a member of both the St. Olaf Band and Orchestra

Senior Reflection: The Road Less Planned

Elizabeth Townsend '15

Everyone enters college with at least some form of a plan. For some it's aiming to make it into med school after these four short years. For others it's the pursuit of a particular major, such as biology, history, or possibly music. For others it's a plan to test the waters, be indecisive just a little bit longer, and explore a little bit of everything to see what truly lights their fire. Part of the liberal arts education is to expose us to a wide breath of disciplines, ideas, and opportunities.

Yet, too often we shy away from the things that intrigue us because they deviate, even if ever so slightly, from our perceived perfectly planned path to success.

When I first came to St. Olaf I was convinced, like every other pre-med student, that I was going to be the best pre-med student that there ever was. My plan was to take all the right classes, at all the right times, with all the right professors, go straight in to med-school, and eventually practice medicine. I am happy to tell you I deviated from this plan. Not a lot, but certainly a lot more than I thought I would.

At the start of my junior year, I took an opportunity to pursue cellular biological research here at St. Olaf. Research was not apart of this original plan, and it turned into one of the most fulfilling experiences I have had during my time here. This slight detour allowed me to consider career possibilities that I had not previously thought about. It modified my plan, and helped me define my motivation for pursuing a career in medicine. Just treating patients was not going to be enough. I suddenly found it fascinating that changes occurring in a cell could lead to very different outcomes for a patient. Today there are people who are stuck because of living with a condition that no one knows how to effectively treat. Why not maintain patient contact while being the person on the ground searching for a better understanding of the molecular or cellular basis of a disease in hopes of improving the technologies for treatment and possible cures? Why not hope to help someone whom today we don't have adequate treatment to get back into the life they want to lead?

Life after St. Olaf will be an adventure. For those of us leaving this May, we will still be learning years from now from what we did here. We will succeed if we remember a few lessons from our time here on the Hill; to embrace uncertainty, to be thoughtful to find passionate mentors and friends, and to follow through with the pursuits that we find fulfilling regardless of how well they fit into our planned paths.

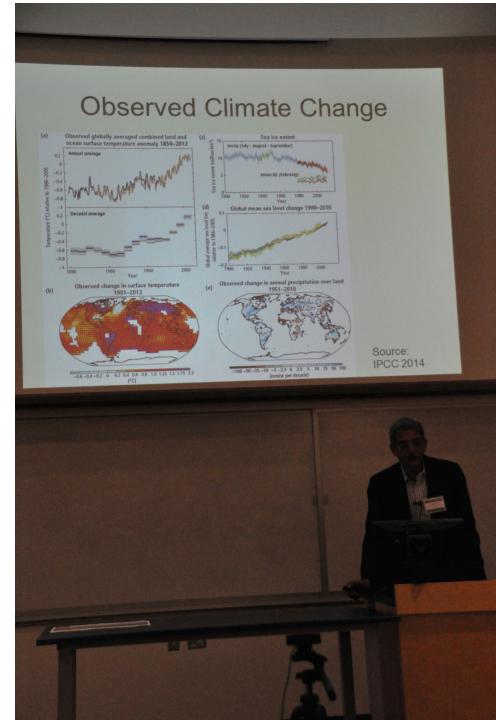
A Few Photos from Dr. Sukumar's Visit:



Lunch with past and future Biology in South India students



Dr. Sukumar attending the Honor's Day Poster Session



Giving his Climate Change Seminar Talk

Grad School FAQ's with Professor Alyson Center by Brenna Peterson '17

When should I start the grad school application process?

Beginning in early or mid-summer you should start actively doing research about different schools and thinking about your research interests. Really do your homework before you apply, and apply in the fall.

Where can I learn about applying?

On graduate program websites there are blurbs about the application process and some websites have specific sections for prospective students.

I have no idea where to start my school search. How should I begin?

Read research papers, find some that you like, and then look up the authors of those papers. Find out which universities they're at, and read the faculty bios on those universities' websites. You can also talk with your professors at St. Olaf to get ideas of where to look.



Okay, I've read a bunch of papers and identified some research advisors that I'd like to work with. What's next?

Cast out a net of directed emails. For example, "I read X paper and I like the way you approach Y." You can also ask if they're taking any students in the fall. Cast out a wide net. A few advisors might respond and encourage you to apply, and some might ask to set up a phone interview.

Do you have any advice for visiting schools?

It's really important to visit grad schools and meet with graduate students. Grad students can give you a candid response about the research and the culture of the program and lab. It's also important to find out about the research advisor's advising philosophy (how hands-on or hands-off they are). You have to realize that the advisor/advisee relationship is a two-way street—you want it to be a good fit for you and a good fit for them.

How will I know which lab I'll be working for in graduate school?

It really depends on the field. In some areas you go into grad school knowing which lab and advisor you'll be working with. In other fields you might enter graduate school and rotate in a few labs and before deciding which lab to join.

What is the general timeline for graduate school programs?

In general, your first couple years are mainly spent taking classes. Then you have a preliminary oral and written exam, and if you pass you continue on to do research for your last three years.

Still have questions? Stop by Professor Center's office (RNS 386), or send her an email (center1@stolaf.edu).

*This spring Professor Alyson Center will receive her Ph.D. in Plant Biological Sciences from the University of Minnesota. Center's research focuses on how long-lived trees respond to changes in their environment. Specifically, she examines how juvenile evergreen live oaks (*Quercus oleoides*) in the tropical dry forests of Central America respond to seasonal changes in water availability.*

Reminder from Joy your AAA:

Now is the time to start thinking about turning in your keys! Your keys will be due during Finals Week before you leave! Please turn in your keys to my office once you finish your final work.



What is the Class of 2015 Doing After Leaving the Hill?

- **Megan Ecker** - I will be working as a canoe guide in the Boundary Waters this summer and then will begin dental school at the University of Minnesota in the fall.
- **Nadia Baka** - Attending medical school at Jefferson Medical College in Philadelphia.
- **Lauren Nichols** - Gap year plans to work with College Possible in the Twin Cities. Applying to medical schools in June of 2015.
- **Anisha Chada** - Position: Education Coordinator and Pathology Aide- Hospital Pathology Associates at Abbott Northwestern Hospital for one year. Description: Organizing and preparing HPA-patient care conferences and coordinating HPA review of medical literature and publications.
- **Ben Marolf** - Working as a guide in Rocky Mountain National Park over summer 2015, then beginning a graduate fellowship position at Eagle Bluff Environmental Learning Center.
- **Megan Norby** - Moving to Vermont to work at a therapeutic farm for people with histories of mental illness and/or substance abuse. Planning on eventually attending graduate school in Colorado and pursuing a career in psychedelic-assisted psychotherapy.
- **Geoff Gieni** - University of Wisconsin - Madison School of Veterinary Medicine
- **Henry Raether** - I plan to work in the solar energy industry in a small startup company.
- **Katherine Kuefler** - Attending medical school at the Medical College of Wisconsin.
- **Matt Seitzer** - I will be attending medical school at the University of Minnesota starting in the fall to eventually become a physician.
- **Claire Pitstick** - Medical school at Midwestern University (Downers Grove, IL)
- **Taylor Hermundson** - I will be attending the University of Minnesota College of Veterinary Medicine and pursuing my DVM.
- **Sarah Bransford** - Next year I will be in the Student Naturalist/Environmental Educator program through Wolf Ridge Environmental Learning Center in Finland, Minnesota. This program combines graduate school in outdoor education through the University of Minnesota Duluth with an outdoor education teaching program through the Wolf Ridge Learning Center.
- **Sonja Helgeson** - I plan to apply to veterinary school this coming fall.
- **Rory Anderson** - I will be working as a research assistant for two graduate students at University of Nebraska-Lincoln's School of Natural Resources. I will be assisting doctoral research on bobwhite quail chick weight gain in diverse grassland habitat and contributing to masters research on otter repopulation in Nebraskan rivers.
- **Amy Waananen** - Research internship with the Echinacea Project on prairie ecology
- **Nora Flynn** - Work at the University of Minnesota Landscape Arboretum
- **Emily Berry** - I will be attending Iowa State University this fall for a masters in statistics.
- **Webster Crist** - After taking a gap year to work, I plan to pursue a Masters program in Environmental Studies abroad at the University of Oslo or Bergen.
- **Kristin Heslep** - I will be working as a clinical assistant in an ophthalmology clinic and applying to medical school.
- **Megan O'Connor** - I will work as a Clinical Assistant at a dermatology clinic while applying to medical schools.
- **Jordan Pesik** - Attend Eastern Illinois University for a master's degree in fisheries conservation and management
- **Liz Townsend** - After St. Olaf, I am taking a gap year while applying for MD/PHD programs. During this gap year I will be working as a post baccalaureate researcher at the National Institutes of Health (NIH), researching the inflammatory processes of liver disease. On the musical side of things, I hope to audition for the NIH Philharmonia.
- **Laura Newton** - I will be working as a medical assistant at a migrant health clinic.
- **Julia Wolter** - Biomedical engineering master's program at the University of Minnesota.
- **Andrea Jumes** - This summer I will work as a Wildlife Rehabilitation Intern at the Bay Beach Wildlife Sanctuary, and then am heading off to veterinary school at Iowa State in the fall!