

# SAGATAGAN

Saint John's  
**OUTDOOR**  
UNIVERSITY



## Tom Kroll Announces Retirement

JENNY KUTTER

After fifteen years of service as the Outdoor U director and Abbey Arboretum land manager, Tom Kroll has announced his retirement effective May 1, 2017.

“It has been an honor and a pleasure to have served here since 2001, following twenty years with the Minnesota Department of Natural Resources and the German forest service before that.”

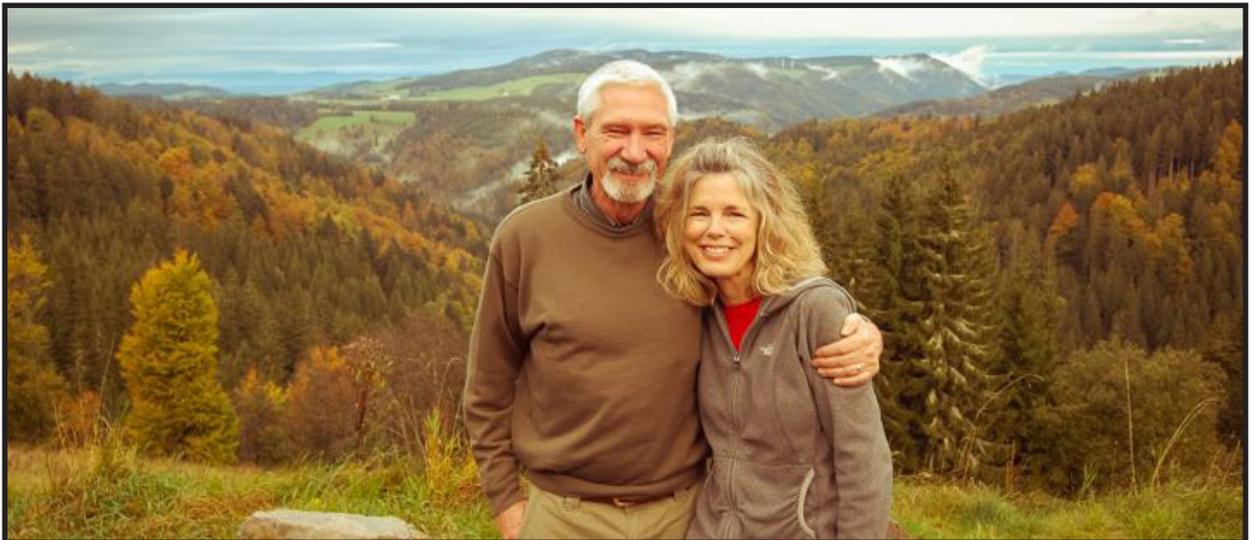
Under Tom’s leadership, the Outdoor U educational programs and Abbey Arboretum stewardship efforts have thrived. This is due in no small part to Tom’s approach coming into his position: “We need to look at chaos theory a little bit. Nature’s not that neat; it doesn’t cut squares, doesn’t plant everything exactly. It’s kind of messy.”

A balanced approach, blending commitment to ecological principles with a long history of wise-use, applies equally to land management as it does to engaging the community. And while Tom would credit much of the success of Outdoor U and the Abbey Arboretum to the support of the staff, members and volunteers throughout the years, his colleagues would credit his leadership: recognizing the great potential in the people and place here at Saint John’s, setting the tone for all that we’ve accomplished these past fifteen years.

While it is a little bittersweet to celebrate Tom’s retirement, we know the future is bright both for Tom and his family as well as all of us at Saint John’s. As we look to fill the position of Outdoor U director and Abbey land manager, we can draw on the same energy and enthusiasm Tom expressed for the challenges and potential in starting his position fifteen years ago: “supporting sustainable land use in the surrounding community; working with diverse groups of people in the Saint John’s community; and promoting the unique educational potential provided by Saint John’s wealth of natural resources.”

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*JENNY KUTTER is a 2003 graduate of the College of Saint Benedict and is the Outdoor U department coordinator. Reading the summer 2001 issue of Sagatagan Seasons that introduced Tom to the Arboretum community (archived online), it is clear to her that “the more things change, the more they stay the same.” Tom has led us in the traditions of the German forest service and the Benedictines, working with the wisdom of the “long view” to sustain the people and the land for generations to come.*



After his retirement from his position at Outdoor U and the Abbey Arboretum, Tom and Mary Kroll will lead a group of CSB/SJU students on a semester abroad in Salzburg, Austria in the fall of 2017. This will undoubtedly give them another chance to visit the Black Forest in Germany, as pictured in this photo from 2012. OUTDOOR U ARCHIVES.

## Editor's Note

JENNY KUTTER

Early autumn will bring a new addition to my family. While I am taking an extended leave to attend to my new baby, I am sorry to announce that we will not be publishing a Winter 2017 edition of *Sagatagan Seasons*. For those of you who flip immediately to the events page (yay!), I've included information about as many of our upcoming fall and winter events that we currently have planned in this issue. Hang it on your fridge and mark your calendars. For those of you who read the issue cover to cover when it arrives (double yay!), you can look forward to fresh articles in the spring issue to be published in March.

**In the meantime, tell us how we're doing!** Watch for an email with the direct link or visit [csbsju.edu/outdooru/newslettersurvey](http://csbsju.edu/outdooru/newslettersurvey) to complete a brief survey about *Sagatagan Seasons*. Your opinion matters!

## Chapel Trail Bridge Dedication: Sunday, September 25, 11:45 a.m.



Join Saint John's Abbey in celebrating the building and installation of a new timber frame bridge on the Chapel Trail. Mass at the Abbey begins at 10:30 a.m. on Sunday, September 25 followed immediately by the bridge dedication at approximately 11:45 a.m. at the bridge site. All are welcome!

If you can't make it to the dedication, we hope to see you at Collegeville Colors on Sunday, Oct 16 where you can learn more about the timber frame structure and building process (see page 7).

TOP LEFT: A crew of volunteers and summer staff help dismantle the old concrete block bridge. MIDDLE LEFT: A group of Saint John's Abbey monks and volunteers spent two weeks in Grand Marais, Minnesota at the North House Folk School building the pieces for the new bridge. The pieces were then transported back to Saint John's to be prepared for installation. BOTTOM LEFT: Bridge crew member John Benschoter drives one of the last pegs into the frame. BELOW: The roof beams are up! Pictured below, from the August 27 bridge crew (L to R): Chris Morgan, Fr. Lew Grobe (crouching), Mike Roske, Br. Walter Kieffer, Jeff Thompson and Fr. Nick Kleespie. OUTDOOR U ARCHIVES.



## Zoology, Entomology and Teaching Kids

ASHLEY WALKER

I was feeding filth flies in an entomology lab at North Carolina State University when I received a voicemail from Outdoor U environmental education coordinator Sarah Gainey asking to discuss the environmental education fellowship position a bit further with me. Upon arriving at my apartment after work and pacing around my room, I called Sarah back expecting a few additional questions about references or an elaboration on something I said in my interview a week before. Shockingly, Sarah offered me the position instead, and my journey to Minnesota suddenly began.

Ever since I was a kid I have always loved learning new things about animals and the environment. In my parents' backyard in the tiny town of Chadbourn, North Carolina, I would talk stray kittens down out of trees and adopt them as my own, watch tadpoles go through metamorphosis in the ditches nearby, or go explore right after dusk to see how many small white moths I could catch as they fluttered around above the grass.

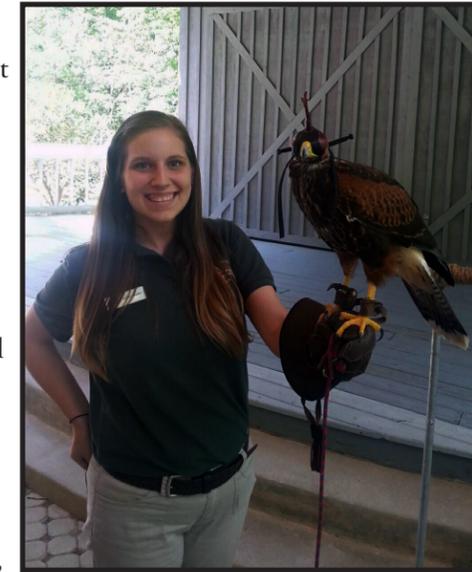
When I was in middle school and I learned what the word "zoology" meant, I was determined that I would go to college, get a degree in that field, and end up as a zookeeper, wildlife photographer or something similarly exciting where I could get hands-on interaction with animals.

With big dreams like those, I decided to attend college at NC State University where I double majored in zoology and environmental sciences. Along the way I stumbled upon the world of entomology and fell in love. I've always had a thirst for knowledge and with a field as vast and diverse as entomology, I soon discovered that I would have the opportunity to continue learning about insects for the rest of my life. I worked multiple jobs in the entomology department on campus where I completed a variety of tasks, such as conducting my own short-term research project on thrips, rearing mosquitoes and filth flies and even serving as an undergraduate teaching assistant for a forensic entomology course.

While my school years were full of entomology-related fun, I decided to broaden my experiences by completing other internships and activities during my summers off. The summer after my freshman year of college, I returned home and found myself bored after about a week of "doing

nothing," so I contacted the local museum to inquire about volunteer opportunities. I met with staff there to discuss potential prospects for the summer and was offered to help with educational events that they put on for local schools, daycares and the general public. I had zero interest in the education field, but was simply excited for something to do.

On my first official day of volunteering I tagged along with staff to an outreach event where the museum would be conducting a program on reptiles found in that region of North Carolina. At this event, with an Eastern box turtle in tow, I presented my very first program to a small group of second graders who fidgeted with excitement and whose faces lit up with intrigue. And just like that my eyes were opened to the field of environmental education and I was hooked. Afterwards, I was always on the lookout for environmental education opportunities in a multitude of settings, from short outreach events in downtown Raleigh to an entire summer as a conservation education intern in the beautiful mountains of Pisgah National Forest.



Working as a conservation education intern at the Cradle of Forestry in Pisgah Forest, North Carolina, Ashley presented a falconry program to teach about birds of prey and the history of falconry as well as hands-on interaction with birds such as the Harris's hawk pictured above. ASHLEY WALKER.

As my last semester of college was coming to a close this past spring, I was faced with that dreadful question of "what do you want to be when you grow up?" With so many interests

and experiences, I tossed around the idea of becoming a licensed teacher, going to graduate school for entomology or simply entering the work force directly after graduation. When I saw a post about the Outdoor U fellowship, it seemed like the ideal blend of continuing education while gaining experience in the field.

When Sarah called to give me the news about getting the fellowship, I could barely contain my excitement! After tackling a twenty-hour drive from North Carolina and experiencing my first Minnesota summer, I'm very eager to see what the fall has in store for me here at the Outdoor U. From overly-excited field trip groups to my first real snow (not the occasional icy slush I'm used to!), I'm sure my time as a fellow will be full of exploration, professional and individual growth, and frankly, just plain fun.

ASHLEY WALKER is a 2016 graduate of North Carolina State University and is the 2016-17 environmental education fellow at Outdoor U as well as our new de facto "bug" expert!

# A Head in the Clouds

DAN BEYER '19

## What are Clouds?

We see them nearly every day. Soaring high above the Earth, embraced by nothing but the sky. They vary greatly from day to day and season to season. Forming in white fluffy bunches or menacing gray sheets, they may inspire lackadaisical daydreams or terrible nightmares. Clouds provide many more services than merely bringing rain for our gardens. Not to mention that what clouds are able to tell us about the upcoming weather is truly astonishing.

A cloud is a collection of water droplets around a central particle, such as dust, sand, or a pollutant. Wind may transport water vapor from a moist region to form clouds in another area. As water vapor rises into the atmosphere, it cools down and condenses more easily to form the clouds we observe.

Clouds have a large influence on regulating global temperatures. Oddly enough, clouds are able to both keep the Earth warm and cool it down. As solar radiation enters the atmosphere, it is reflected by clouds back into space. When the clouds send the solar radiation outward, they cool the atmosphere and prevent the energy from reaching the Earth.

If the solar radiation is able to reach the Earth's surface, clouds will reflect and trap heat close to the Earth, consequently warming the planet. In this sense, clouds act like a blanket and trap solar heat and radiation.

## Clouds and Water

One of the most prevalent services clouds provide is precipitation. When the weather is warm, rainfall is the most common. Varying from a fine mist to heavy downpour, there are three unique ways rain may form. The most common in Minnesota is when two air fronts meet. In that case the warmer, moist air will be forced upwards where it will be able to condense in frontal rainfall.

As the Earth experiences intense heating, air expands and rises to form convectional rainfall. This type of rain will commonly bring early summer showers in Minnesota, as the sun is the most intense.

The final type of rain formation is relief rainfall, formed when air is forced upwards by a mountain. Often



colder near the top of the cloud and the water droplets freeze as they rise. The more times the icy droplets rise and fall in the cloud, the larger they grow until the balls of ice become too heavy to stay in the cloud and begin to fall to the ground as hail. If you cut a hailstone in half, you can sometimes see the rings of multiple layers of ice that formed in the clouds, much like the rings in a tree.

## Clouds and Weather

Clouds can help us anticipate the weather. When the puffy cumulus clouds of summer roll past, a dry afternoon and evening are expected to come. If the clouds begin to build up and grow in size, cumulonimbus clouds may form and bring thunder and lightning storms.

Earth. When the clouds roll away and reveal a clear sky, the heat will escape and a cold chill will invade.

Across all seasons, if the high altitude wisps of cirrus clouds are present, the weather is expected to change in the coming days. This movement of a high altitude air mass will drag the lower levels of the atmosphere with it, accompanied by the changing weather below.

## Clouds and Seasons

Autumn is a period of change and the clouds reflect the change in the season. Summer is filled with large cumulus clouds drifting by in the afternoon.

During the winter, with less water vapor and more cold air, we do not see as many cumulus clouds or thunderstorms. High altitude cirrus clouds are far more common. With more ice in the atmosphere and colder temperatures, the small wispy clouds form high above the surface and hang in the atmosphere for many to observe.

The clouds reflect the changes we see on Earth. Throughout this fall, don't stop at observing the changing foliage. Find a moment to drift into the clouds and appreciate their beauty in the sky.

DAN BEYER is a sophomore biology major at Saint John's University and a student office assistant at Outdoor U. Despite a head in the clouds, Dan was

well-grounded doing good work at Outdoor U this summer.

occurring near the coasts, these mountains are said to cast a rain shadow in the direction the wind is traveling as the majority of the rain falls on the windward side near the ocean.

Snow, hail and sleet are all frozen types of precipitation that vary in their formation. In order for snow to form, ice crystals must build up in clouds. As the ice joins together, it falls out of the clouds when the weight is too great to be suspended in the atmosphere. If the temperature is close to freezing, the snowflakes will be larger and accumulate more ice. As the temperature drops, snow does not stick together as well and finer particles will fall.

Sleet forms when falling snow melts in the upper atmosphere and then begins to refreeze as it nears the surface of the Earth. Sleet is similar to melting pellets of ice.

On the other hand, hail forms when water droplets rise through a cumulonimbus cloud in an updraft. It is



In winter, a blanket of low altitude stratus clouds will occasionally insulate the Earth. Trapping heat when the clouds are dense overhead, a mild winter night will accompany the stratus clouds. The process of convection is interrupted by the clouds, as warm air is unable to leave the atmosphere, trapping heat closer to the surface of the

- 1 Cumulus clouds**, iconic in the summer sky, form as water vapor rises with warm air. When conditions are right, they build into **cumulonimbus** clouds that bring rain, lightning and thunder. MJ BACH.
- 2 Cirrus clouds**, high altitude wispy clouds, appear across all seasons. The movement of these high altitude air masses will drag along the lower level air masses, bringing a change in weather. LISA TSANG.
- Equally beautiful in winter, **Cirrus clouds** form more readily in colder temperatures. With more ice in the atmosphere, the small clouds form high above the surface and hang in the atmosphere. SARAH SORENSEN.
- 3 Stratus clouds** are thick, large, heavy, gray blankets that form at very low altitudes. Resembling a high altitude fog, they usually don't bring precipitation and can offer some insulation on cold winter nights. ADAM LISKE.
- Many combinations of common cloud formations join some of the features and traits of each cloud type. **Cirrocumulus** and similar lower altitude **Stratocumulus clouds** resemble ripples or rows of cotton balls which are both usually precipitation-free. OUTDOOR U ARCHIVES.

# BIOL 101: The Saint John's Waterscape

HANNAH WEIS '19

For more than a decade, college students enrolled in the spring session of the CSB/SJU introductory biology series have hiked out to the sugar shack to learn the physiology of maple syrup. Outdoor U staff and biology professors have created a lab that is both relevant to the biology coursework and connects students to the history and uses of the Abbey Arboretum. Each spring nearly 200 college students learn the structure of the sugar maple tree, what we do (and do not) understand about the science of maple sap flow as well as how we make maple syrup.

Building on the success of the maple syrup lab, Outdoor U and the biology department are adding a new lab to the fall introductory biology series. During the second week of classes, more than 450 (mostly) first-year students will participate in a walking tour of the Saint John's waterscape. This three-hour lab aims to show to students that in order to be a scientist, one must wonder how and why the natural world operates as it does.

Outdoor U staff will lead these students and professors on a journey through the history, hydrology, ecology and management of Lake Sagatagan, East and West Gemini Lakes, Stumpf Lake and the restored wetlands. On this walking tour of the waters of the Abbey Arboretum, the biology students are expected to take what they hear and observe about the water and landscape and develop their own scientific questions about the water bodies. They will also take water samples and apply what they learn to studies and experiments later in the semester.

Working as a student naturalist at Outdoor U this summer, I was able to participate in the development of this new water lab. As I dove into the Saint John's waterscape, I realized very quickly that each water body has a unique story behind it, a story that both answers and inspires many questions. I found myself particularly drawn to the story of Lake Sagatagan.



CSB/SJU biology classes have always utilized the Abbey Arboretum. The introduction of a new lab at the beginning of their introductory coursework looks to enhance their background and knowledge of the landscape. OUTDOOR U ARCHIVES.

## History

Lake Sagatagan has had many names: Lake St. Louis after King Louis of Bavaria who was a contributor to the Benedictines; St. John's Lake; and finally Sagatagan, an Ojibwe word meaning "punk," named after a minor Indian Chief known to settlers. The word "punk" refers to fungus growth on wood used for tinder.

The north shore of Boniface Bay in Lake Sagatagan contained large amounts of clay that the monks handmade into bricks for their buildings until 1886. During peak construction, over 15,000 bricks a day were made to help build the Quadrangle.

## Hydrology

The lake has a surface area of 176 acres and reaches a maximum depth of about 42 feet. What makes this lake unique is that there are no direct inputs or outputs. It is instead fed by underground springs, rain, and snow. "Flushing time" is defined as the amount of time it takes for existing water in the lake to be replaced by new water. For Lake Sagatagan, the flushing time is 2,607 days, or seven years. This flushing time is the longest out of all the water bodies in the Abbey Arboretum.

## Ecology

Lake Sagatagan has high water clarity which allows for many different species to thrive in this habitat. Beaver lodges and chewed down trees can be found along the shores. Purple martins, a species of special concern in Minnesota, can also be found nesting in houses and gourds. While in the water, one can commonly find Northern pike, sunfish, and bass.

## Management

Saint John's Abbey owns the land surrounding Lake Sagatagan, which is undeveloped except for the north shore near the Saint John's campus. Only non-motorized boats are allowed in the waters. Retention ponds were installed and expanded near the Abbey Guesthouse this summer to help slow the water runoff from parking lots and other areas of campus from flowing directly into the lake.

What questions about ecology, animals or land management will these labs inspire? We can't wait to find out. In the meantime, Outdoor U staff are energized by the opportunity to directly impact the knowledge of and relationship to the Abbey Arboretum for so many students as they settle into their first weeks at home at CSB/SJU.

HANNAH WEIS is a sophomore biology major at the College of Saint Benedict and is a student naturalist for Outdoor U. This new lab almost inspires her to sign up for BIOL 101 again!

# Get Involved

SAINT JOHN'S OUTDOOR UNIVERSITY

## BANFF MOUNTAIN FILM FESTIVAL WORLD TOUR

Tickets on sale beginning Sept. 19  
Films shown on Wed. & Thurs., Nov. 16 & 17  
7:30 p.m., Pellegrine Auditorium, SJU

Journey to exotic locations, paddle the wildest waters and climb the highest peaks. The Banff Mountain Film Festival World Tour begins immediately after the Film Festival held every November in Banff, Alberta, Canada. Attend one or both nights of inspiring films.

## A WALK WITH POPE FRANCIS

Free and open to the public

A hike in the Abbey Arboretum with readings and discussion of Pope Francis' encyclical letter, Laudato Si.

Saturday, Oct. 8  
9:00 a.m. - 12:00 p.m.

## THE NATURAL WORLD OF WINNIE-THE-POOH

Meet author Kathryn Aalto

Free and open to the public

Come and explore the inspiration for the magical Hundred Acre Woods of Winnie-the-Pooh. This literary and natural history of one of the most beloved children stories will charm audiences of all ages.

Thursday, Oct. 13  
7:00 p.m.

Pellegrine Auditorium, SJU

## COLLEGEVILLE COLORS

Where art and nature invite you for a walk.

Pre-register and SAVE! [csbsju.edu/outdooru](http://csbsju.edu/outdooru)

Spend the afternoon hiking in the woods of Saint John's Abbey Arboretum as you enjoy the fall colors, artwork, live music, nature activities, and more along the Chapel Trail - rain or shine!

Sunday, Oct. 16  
1:00 - 4:00 p.m.

## ANNUAL OUTDOOR U PHOTO CONTEST

Free and open to the public

Submit your outdoor photos from CSB/SJU! Five photos can be submitted in each of three categories. Plants & Critters; Earth, Lake & Sky; and People. A panel of judges will pick the best photos from each category in three age groups: Under 18; 18-22; 23 & Up. Best in Show will be voted for on Facebook.

Entries due Nov. 8

## MEMBER & VOLUNTEER OPEN HOUSE

Invitations will be mailed by early November

Celebrate the holiday season with good food, entertainment and conversation with friends, new and old. Fundraiser valet service, silent auction and other opportunities to support Outdoor U and the Abbey Arboretum at the best party of the year.

Friday, Dec. 9

## LANGLAUF NORDIC SKI RACE

Skate 25K or 9K OR Classic 16K or 7K Collegiate and Citizen Races

The Langlauf @ Saint John's starts and ends in Clemens Football stadium and skis through the hills of Saint John's Abbey Arboretum. This is a naturally challenging hilly and wooded course. Collegiate racers can choose between skate 25K and classic 16K; citizen racers can choose technique as well as the shorter distances. Electronic chip timing provided by Pickle Events.

Sunday, Jan. 22

## SKI & SPIRITUALITY RETREAT

Single room: Fri-Sun, \$229 | Sat-Sun, \$159

Double room: Fri-Sun, \$399 | Sat-Sun, \$299

Join Saint John's Abbey and Outdoor U for a weekend of skiing and reflection. Fill your weekend with learning, walking, meditating, reading, relaxing and of course, skiing. Ski the Abbey Arboretum trails on your own, with a monastic guide or have lessons targeted to your interest and ability.

Friday - Sunday, Feb. 26-28

Prices include lodging, meals, spirituality classes, ski guides, ski equipment and ski lessons.

## MAPLE SYRUP FESTIVALS

Pre-register this spring and SAVE! [csbsju.edu/outdooru](http://csbsju.edu/outdooru)

Join us for what has become our most popular event of the year! Sap collecting, syrup cooking, horse-drawn rides, demonstrations, and hot maple syrup sundaes await the whole family during this fun-filled event! Preregistration for families is preferred but not required.

Saturdays, Mar. 25 & Apr. 1

1:00 - 4:00 p.m.

### Saint John's Outdoor University Staff:

THOMAS KROLL  
Saint John's Outdoor U Director  
Abbey Arboretum Land Manager

SARAH GAINEY  
Assistant Director  
Envr. Education Coordinator

KYLE RAUCH  
Assistant Director

Envr. Education Coordinator

JENNY KUTTER  
Department Coordinator

Editor, Sagatagan Seasons  
ASHLEY WALKER

Environmental Education Fellow  
DAN VOGEL

Abbey Arboretum Forest Technician

### Student Staff:

- 1 OFFICE ASSISTANT
- 2 LAND LABORERS
- 7 NATURALIST AIDES
- 9 NATURALISTS
- 14 OLC STAFF
- 43 PRP FACILITATORS

### Education

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# SAGATAGAN SEASONS

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UNIVERSITY

## THE PROGRAM

Saint John's Outdoor University provides environmental and outdoor education through classes, events and initiatives with the Abbey Arboretum, Saint John's University and the College of Saint Benedict.

## THE PLACE

Saint John's Abbey Arboretum is more than 2,500 acres of lakes, prairie, oak savanna and forest owned by Saint John's Abbey and surrounding Saint John's University.

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**SUN JAN 22 2017**  
*Langlauf*  
NORDIC SKI RACE

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Sunday, Oct 16 1-4 pm

**Nov. 16 & 17**

**BANFF MOUNTAIN FILM FESTIVAL WORLD TOUR**

The Nature of Saint John's  
An Abbey Arboretum field guide

Discover a new favorite trail. On sale at the CSB/SJU bookstores. \$12.95.