

Ryan Johnson doesn't need the luck of the Irish; he has their education!

When Alworth Scholarship recipients say they're going away to school, it often means to the University of Minnesota or another Twin Cities area university. Or perhaps somewhere in Wisconsin.

Ryan Johnson took that concept a lot further (and farther!) by getting his Master's degree in Public Health from University College Dublin. Not Dublin, Ohio. Ireland.

First, the 2013 Hermantown High School grad attended St. John's University in Collegeville, Minnesota, graduating with a natural science major and a psychology minor.

"I knew I wanted to get into medicine," says Ryan. "While at St. John's, I volunteered in the emergency department at the nearby St. Cloud Hospital. I also took a class to become an EMT and became interested in being an emergency medicine physician."

His St. John's education included one semester in Ireland. "About 30 of us studied Irish history, literature, culture and theology there in 2015, living in cottages in western Ireland," he says. "I learned so many lessons and made so many friends in Ireland, that I hoped to someday go back."

Upon graduating from St. John's in 2017, Ryan applied to medical school for the first time. He was invited in for one interview but was put on a wait list.

"I ended up not getting in the first time and planned on applying again, but I needed a change of pace before I could mentally go



▶ Ryan Johnson

through the process again," he adds. "I wanted to do something to stay on track academically, and I remembered there was an excellent public health program at University College Dublin, so I enrolled."

He graduated from there with first-class honors in 2018. While in Dublin, he also volunteered at a local hospice. His Master's thesis – on the effects of care setting on palliative care outcomes for neurodegenerative conditions – was selected for a poster and short oral presentation at the Royal College of Physicians in Dublin in December 2018.

Back in the U.S., he began working as a research assistant for the Stress and Resilience Research Labs at the University of Minnesota Medical School in 2019. He helped assist with a project investigating stress responses related to nicotine addiction.

"For example, say someone is a chronic nicotine user," he explains. "Their stress responses may be different from non-users, and the lab is trying to identify what causes people to act certain ways. The brain is like the oceans. They're right there, but we know so little about them."

Ryan reapplied to medical school and was accepted to the U of MN Medical School in the Twin Cities, where he began classes in the fall of 2020. He is still undecided about which area of medicine he'll focus on, but he's thankful the Alworth Scholarship selectors weren't undecided about him.

"The Alworth people are magic makers. Their love of science is obvious," says Ryan. "They are literally and figuratively invested in helping people in the sciences." ■

"I took a lot of science-based classes in college. Once in the nursing program, there was more science – anatomy, physiology, pharmacology and so on – which I enjoyed." She graduated from college debt free, thanks to funding from the Alworth Scholarship and several other smaller scholarships. "I'm very appreciative of the opportunity the Alworth Scholarship gave me," she says. "I hope other students will be impacted the way I was."

How does being a frontline worker during these times affect her? "We're very careful. Everyone in the hospital wears a mask and

we sanitize constantly," she says. "Unfortunately, research shows that 20% of the U.S. population passes away during their stay in the ICU or shortly after. It's challenging to care for such sick patients, but when you have patients who recover and get to transfer out of the ICU, there's nothing more rewarding. Even if I only see a patient for one shift, I try to give them the best care possible and positively impact their health and wellbeing."

Her humility aside, Jillian has undertaken a line of work that would scare most people off right now. Something tells us we'll eventually be measuring her compassion in decades, not shifts. ■

Stars align for Lori Huseby to get internship with NASA

See how at: [AlworthScholarship.org/STEMtalks](https://www.alworthscholarship.org/STEMtalks)

This past summer Lori Huseby, a 2017 graduate of Northeast Range School in Babbitt, took stargazing to a level unfamiliar to most of us. She created grids of spectra, invisible to telescopes, as part of her internship with NASA, modeling the extreme ultraviolet spectra of stars.

The above paragraph might never have been written if not for an observant teacher. "In seventh or eighth grade, one of my shop teachers said I should try a math class," says Lori.



▶ College of St. Scholastica student Lori Huseby and her dad, Mark, have NASA in common.

"And I was like, 'OK, if you think I can do it, then I think I can do it.' I took that math class, and that was probably when I decided I wanted to go into a STEM field."

Now, she's in her senior year at the College of St. Scholastica in Duluth, studying math, chemistry and computer science.

Learn her whole inspiring story during an 11-minute "STEM Talks with Professor Alworth" video – including her father's relationship with NASA, how Lori almost didn't apply for an Alworth Scholarship, how she fits time in her busy schedule to play goalie for the CSS women's team and much more. ■

Introducing STEM talks with Professor Alworth



▶ Prof. Alworth

Watch online interviews with amazing Alworth scholars!

There's a new way beyond this newsletter for you to learn about Alworth Scholars. We just launched "STEM talks with Professor Alworth," an online video series that features recent scholarship recipients.

Each segment, which you can access at [AlworthScholarship.org/STEMtalks](https://www.alworthscholarship.org/STEMtalks), runs about 10 minutes with a current or past student interacting with Professor Alworth. (She's also known as Victoria Main, an engaging professional actor who has performed everywhere from Duluth to New York City.)

The segments are not only interesting and fun, they often include advice for other young people thinking of applying for an Alworth Scholarship. Some teachers in some northern Minnesota schools are showing the videos during class, as reminders that Alworth Scholarships are for STEM students from a wide variety of backgrounds and interests.

Check back to our website often, as new "STEM Talks with Professor Alworth" are being added all the time. ■



We're looking for more great stories!

People tell me they look forward to our newsletters each fall, because of the inspiring articles about smart and dedicated young people from northern Minnesota.

Those features certainly are inspiring, but they only tell half the story. Those of us involved with awarding Alworth Scholarships get to know these students before they go on to STEM success, when we review their applications.

And believe me, the information students share in their applications about motivation, mentors and more is as often better than anything we include in this newsletter! We're not surprised when Alworth Scholars succeed, because we could see how determined they were while still in high school.

Unfortunately, there are thousands of other students in our region who are just as smart and dedicated, but they don't apply because they don't think they'd be selected. Some of those featured here today felt the same way. But they applied, received a scholarship and look at them now.

If you know a student who is similarly uncertain, please encourage them to apply. They might be pleasantly surprised, and the rest of us might get to see them in this newsletter someday! ■



Patty Salo Downs
Executive Director

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ALWORTH MEMORIAL FUND NEWSLETTER

Alworth Scholars Meet Health Care Challenges

Duluth native Joe Mattson's work at Corning helps contain COVID-19 and its vaccine

If asked to name the most important invention in the past two years, most would probably say it's the coronavirus vaccine. Yet few of us would think about another invention that was needed to get the vaccine from the manufacturer to hospitals and clinics all over the world. The vials.

Fortunately for us, Alworth Scholar Joe Mattson and his colleagues at Corning *did* think about the vials.

"Corning makes the vials themselves, as well as the proprietary polymer coating that protects them as they bump into each other at high speeds on the production line," says Joe, who graduated from Duluth Central in 2009 and UMD in 2013. He earned his PhD in chemical engineering from Cornell University in 2019.

"People have made glass containers for thousands of years," Joe continues, "but we were able to put forward a new way to

treat and process the glass that was better for vaccine protection purposes."

Joe's work at Corning deals with another aspect of the pandemic, too. He tested paint and coatings that have been shown to kill more than 99.9% of SARS-CoV-2, the virus that causes COVID-19.

"We need to make sure what works on a small scale works at the mass production level, because things happen differently at each level. Ultimately, the physics don't change but the way we can leverage them does."

▶ Joe Mattson continued on page 4...



▶ Joe Mattson

Frontline worker Jillian Ewald knows there's a science to caring for people

Traits most Alworth scholars have in common are intelligence, drive and an interest in STEM fields. When it comes to Jillian Ewald, you can add compassion and even bravery to the description.



▶ Jillian Ewald

That's because Jillian, a 2017 Brainerd High School and 2021 South Dakota State University graduate, recently began her nursing career at Sanford Health in Sioux Falls. In an intensive care unit. With COVID-19 all around her.

"Going into healthcare at this time is a challenge with the

pandemic," says Jillian, who earned a Bachelor of Science in Nursing degree. "But I like critical care because of the impact you can have on patients and their families."

Ever since high school, Jillian knew she wanted to go into the medical field.

"I always loved biology and science classes," she says. "I thought of being a doctor but didn't want eight to ten more years of schooling. Plus, I noticed nurses have more interaction with patients than doctors do, and that's what I wanted."

▶ Jillian Ewald continued on page 5...

▶ How To Apply for \$20,000

Go to our website to fill out the application.

Applications are accepted from November 1 to January 15. Recipients receive \$20,000 distributed over eight semesters providing they maintain our eligibility requirements in a STEM field of study.

www.alworthscholarship.org

Dream it. Achieve it.



▶ Joel Gustafson



▶ Luke Heine

From the Northland to New England: Joel Gustafson and Luke Heine are shaping the future

This is a story about two Alworth Scholarship recipients who graduated from high schools 15 miles apart (Cloquet and Hermantown), attended prestigious East Coast institutions just a mile apart (Harvard University and Massachusetts Institute of Technology, both in Cambridge), and until recently had never met!

The story about Joel Gustafson (Hermantown Class of 2014, MIT) and Luke Heine (Cloquet Class of 2013, Harvard) isn't as much about geographic proximity as it is about how far their talents are taking them - and the rest of the world. We recently caught up with Joel and Luke during a lively Zoom interview that's part of our new "STEM Talks with Professor Alworth" video series. (See page 6.) We encourage you to view the entire 12-minute program at AlworthScholarship.org/STEMtalks to enjoy the full benefit of their incredible creativity, personalities and love of science.

Luke has created an app called Swipehouse, which already has over a billion followers who meet online through short-form video content. Joel is developing a decentralized knowledge graph to provide shared public infrastructure for exchanging knowledge, which also has worldwide applications.

The two of them began their college careers in similar fashion: not knowing what they wanted to do.

"I had no idea what I really wanted to study, so I thought I'd try chemistry," says Luke. "I still think chemistry is awesome, but then I looked at econ and then computer science as majors. I ended up focusing on sociology with computer science."

"I was pretty sure I wanted to do something in STEM, so I started as a computer science major," adds Joel. "Then my junior year at MIT I switched to math. I still took mostly computer science classes, eventually getting a math degree."

Luke says the flexibility the Alworth Scholarship provides to

explore other STEM majors was important to both of them.

"Sometimes STEM fields can have rigid boundaries around them that make it hard to change course, but the Alworth people allowed us to be fluid as we were settling in at college," he says. "It's cool that they respect their scholarship recipients and have faith that we'll get to the right place."

Joel found that right place during a class his sophomore year at MIT.

"Computer science is a playground I'm going to play in for the rest of my life!"

"My thinking before then was that programming was interesting, you'd get a job as an engineer and eventually move to another engineering

job," he explains. "Then my professor just blew my mind when he talked about programming and computing as an art, where you can explore and express yourself. That just changed me forever. After that, I didn't think of what I wanted to do for a job. I thought of computer science as a playground I'm going to play in for the rest of my life!"

Both men realize they're doing things that could change the way we all live our lives, and that there's great responsibility in doing so. "Technology has a disproportionate impact on all of us," says Luke. "It's amazing how often we use our phone. In a world where we're always using technology, it will force conversations about tech and we'll have a better idea of the tradeoffs we're making with it. For example, do we care about this, do we not care about that? Carefully thinking these things through will just help everyone come to better decisions."

Joel adds, "Software isn't going anywhere. There's definitely going to be more and more uses for it, and the limit is only your imagination. How are we going to settle the future? Hopefully we'll do it in a participatory way, because software is such a flexible power. You can apply it in some way or learn how to use it for basically any goal you want, which is kind of scary. But it's also really fun."

So how is it that these two guys hadn't met earlier, with so much history and vision in common?

"I'm walking down the street in Cambridge and see a guy jogging toward me, wearing a sweatshirt that says University of Minnesota Duluth," says Joel. "It doesn't immediately register, but then I turn around and yell, 'Hey, are you from Duluth?' It turned out that Luke lived a couple blocks from me and we had never met. And then we just hit it off."

They sure did. These young men are carrying forward Marshall W. Alworth's desire to have STEM careers make our world a better place, and we thank them. ■

Med school student Mahtahn Jenkins is committed to rural communities

Mahtahn Jenkins, a smalltown kid with big plans and big talent, is hoping to soon make a difference as a primary care physician in rural Minnesota.

But first, the 2017 Two Harbors High School graduate and Alworth Scholarship recipient is focusing on his studies at the UMD School of Medicine. After graduating from the University of Minnesota Twin Cities campus as a neuroscience major in the Spring of 2021, Mahtahn has just begun med school.

"I want to get into family medicine in rural communities," he says. "I'd like to end up in northern Minnesota. Not necessarily in Two Harbors, but that would be great if I did."

Some role models and helpful teachers helped shape Mahtahn's thinking.

"Dr. Shawn McMahon was everyone's primary care physician in Two Harbors. The way he impacted the community beyond medicine inspired me," he says. "Giving back to my community in that way would be rewarding."

He also credits Two Harbors High School teachers Anthony



▶ Mahtahn Jenkins

Altiere and Penny Juenemann for inspiring him to go into the science field. His family played a big role, too.

"My brother received an Alworth Scholarship four years before I did, and that inspired me to apply," says Mahtahn. "I've seen how generous the scholarship program has been to people across northern Minnesota. It allowed my brother and me to focus on our studies."

John (Asher) Jenkins is currently doing his surgical residency at Mayo Clinic in Phoenix. "I find surgery rewarding because you see immediate improvement in patients for whatever area needed attention," says Dr. Jenkins, who graduated from Two Harbors High School in 2013.

Back to Mahtahn, he sees the impact nutrition has on rural life.

"As a physician, I'd look for areas of improvement regarding food

scarcity in smaller communities," he explains. "Larger cities have established nutrition programs, but rural communities are often overlooked."

Marshall W. Alworth, when creating the scholarship fund in his parents' name, certainly had an affinity for rural Minnesota. Mr. Alworth would have liked Mahtahn as much as we do. ■

Joe Mattson continued from page 1

There are different ways to look at things, to see where energy is coming from and where it's headed," he explains. "Some of my training at Cornell was focused on which physics transferred best with an increase in scale, and that's part of what we did with this project."

That's pretty heady stuff for someone who had other ideas for a career while growing up.

"Our family would watch 'Law & Order' every Wednesday night when I was a kid, and I wanted to be a judge. Unfortunately, my bedtime was 9:30 so I only got to see half the show each week. Sadly, I never really got to see the courtroom scenes," he says. "When I got to high school, I enjoyed chemistry and calculus, so it made sense to put them together for my area of interest."

Joe, who lives in Painted Post, NY, with his wife, Megan, credits a fortunate set of circumstances with leading to his being hired by Corning.

"In 2018 I gave a talk at Cornell during an annual symposium, which was attended by industry representatives," says Joe, whose topic that day was about formation of crystalline and non-crystalline alloys in the planar flow casting process. "My eventual boss was in the audience, and afterward he invited me to visit Corning. They waited for me to get my doctorate, and I'm glad they did because I love working there."

And we love seeing yet another Alworth Scholarship recipient using his education to make a very important contribution to society. Thank you, Joe! ■