

MARSHALL H. AND NELLIE  
ALWORTH MEMORIAL FUND

Providing Scholarships in Science and Math Since 1949



# the **Scholastic**REPORT

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Alworth Memorial Fund Newsletter

## OUR MISSION

### Helping Others To Climb \$20,000 Award for Aspiring Students

Students can be intimidated by the cost of higher education, so the Alworth Memorial Fund aims to make the climb less steep. Our scholarship has one of the highest monetary awards and helps passionate students focus on their studies, rather than how they are going to pay for school. So we want to team up with dedicated educators like you to let the next generation of climbers know about this valuable resource. ■



  
"We rise  
by lifting others."  
- Robert Ingersoll

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[www.alworthscholarship.org](http://www.alworthscholarship.org)  

*Dream it. Achieve it.*



## \$20,000 - Inspiring the Climb

Educators are instrumental in our quest to help fund the future of math and science majors. That is why we team up with dedicated educators to assist with cultivating future applicants - worthy students reaching for the summit pursuing STEM careers.

Each year we receive approximately 200 applications. Of these, 60 - 70 are each awarded \$20,000. One-third of applicants go on to become Alworth Scholars!

Many of these applications come from students who would not have considered or pursued the Alworth Scholarship without the encouragement from their teachers or counselors.

Students mistakenly assume that these funds are only doled out to valedictorians and future rocket scientists.

Indeed we have the rocket scientists -- like Jim Spornick, who designed the rocket that propelled the New Horizons spacecraft to Pluto in 2015 and we are just as excited to propel any student with determination and aspiration to pursue a career in science and math.

That said, at any given time we have nearly 240 students making their way through school with these funds (\$1.2 million dollars in the current academic year).

Valedictorians and rocket scientists are the exception, and not the rule.

We have a special place in our hearts for kids with grit

and who have a love for math or science. Nothing excites us up more than stories from applicants who were inspired to apply because a teacher or counselor saw their potential and encouraged them to apply.

For example, meet Garrett. Garrett's counselor put a flyer into his hands in 9th grade, impressing upon him that this scholarship would help pay for college. From that day on, Garrett was motivated to work hard to position

himself as a contender. It paid off. Garrett graduated debt free from UMD with a double major in Mechanical and Industrial Engineering and now enjoys a successful career at Cirrus as a Process Engineer.

**"The man on top of the mountain didn't fall there."**

- Vince Lombardi

And there is Hannah. Hannah will soon graduate from CSS with a Bachelor's Degree in Nursing. It was at her father's insistence that she apply for the Alworth Scholarship. She never would have applied, if it wasn't for her dad's relentless encouragement to do so.

We have countless stories like this of educators and parents alike that are helping to mold lives - inspiring the climb.

Even though applicants may spend two hours completing the application - imagine being awarded \$10,000 an hour for that effort. The award comes with significant side effects of confidence and motivation that propel them throughout college and onto meaningful careers -ultimately reaching the summit. ■



## Alumni Success Stories



**Ron Ulseth**, PhD, PE is the Director of Academics and Research at **Iron Range Engineering (IRE)**. In 2009, Dr. Ulseth founded IRE, a four-year engineering program located in Virginia, Minnesota. He wanted IRE to provide a unique project-based learning curriculum that focuses on the **development of the whole engineer** as a professional person, a creative designer, and a technical person.

Students complete Itasca Community College's engineering program during their first two years and Minnesota State University-Mankato's program during their last two years, to earn their bachelors degree in engineering.

IRE's graduates work across northern Minnesota, and the world, in companies like Amazon, Procter & Gamble, Black and Veatch, Polaris, Minnesota Power, Barr engineering, etc. IRE has just been award the international **ABET Innovation Award** honoring organizations that are breaking new ground by developing and implementing innovation into their ABET-accredited programs.



**Charlene Saley** is a valued high school math teacher at Crosby-Ironton Secondary School. She attended St. Cloud State University for her undergraduate. With the help of the scholarship, she earned her BS in mathematics education, as well as participated for a full year as an exchange student in England.

For the last seven years Charlene has been helping to raise funds for the MN-based non-profit called **Educate Tanzania** (EducateTanzania.org). Their initial goal was to build a university in a very remote and poverty-stricken area of Tanzania where there were no opportunities for higher education. Charlene is happy to announce that with the hard work of their team and volunteers, KARUCO University will be opening on October 29th, 2017!

The entire region is hosting a Grand Opening Celebration where Charlene and her daughter, Michaela, will be two of the twelve representatives from the U.S. Michaela, an optician, along with students and teachers at Crosby Ironton Secondary School, have been collecting eyeglasses, jewelry and school supplies to take to the village. Last year, they raise funds and collected items to put together 80-gallon-size bags full of first aid supplies for the people of the village. **Educate Tanzania** will continue to support the region of Kawagwe by developing Opportunity Centers so graduates can return to their communities and have a place to grow their businesses.

*"Thank you Alworth team - your efforts and scholarships are greatly appreciated!" - Charlene*

**Special note:** Charlene's youngest daughter, Tara, was also an Alworth Scholarship recipient and is now beginning a 5-year doctorate program in Logan, Utah, where she is working on research involving the effect of global warming on the genetic makeup of living things. ■



# CLIFF NOTES



## Recipients Share Their Experience



▲ Pictured above: Alexandra with a student in her classroom.

▶ Pictured right: Alexandra and her dad, Tim Ringhofer, Math Teacher, Falls High School.

"I was honored to be a recipient of the Alworth Scholarship in 2009. I decided to pursue mathematics education. Thanks to the financial support and emotional stability the Alworth scholarship provided me, I was able to focus solely on becoming the best teacher I could possibly be as an undergraduate. I am fortunate enough to be able to teach math with my father and together we are able to share what the Alworth Scholarship was able to do for me"

– **Alexandra Ringhofer**, Math Teacher, Falls High School



"In my year and a half at Yale University I have had the opportunity to learn a great deal about computer science, a topic which I had previously not been exposed to. I'm also experiencing personal growth living in an urban east coast setting, far from my rural comfort zone. This opportunity would not have been possible without the Alworth Scholarship and for this reason I am very grateful. Thank you." – **Shane F.**

"My research is in underwater acoustics. Our broad goal is to better understand properties of sound in the ocean. I began at SIO on a project studying the ambient noise in the Arctic. My goal was to analyze data from a drifting vertical acoustic receiver array in order to determine its statistical properties. There were problems with instrument noise that limited useable measurements. I was able to make historical ambient noise comparisons and identify individual noise sources (likely Bowhead whales) to increase the scope of the study. These results will be published in October in the Journal of the Acoustical Society of America.

I also joined a research project using a Feed-Forward Neural Network (FNN) from Google's TensorFlow software to acoustically localize a ship in range. Mathematics-based approaches like FNN optimize weights for the input data that are nonlinearly transformed into the known labels, i.e. predicting ship ranges.



Thanks again for the support that allowed me to complete my Physics degree at Hamline. I feel fortunate that I can continue to use my physics knowledge in interesting and unexpected ways!"

– **Emma Reeves Ozanich**, PhD Student, Underwater Acoustics, Scripps Institution of Oceanography, University of California San Diego) ■

◀ Emma glacier mountaineering in Norway.



### TEACHER/PARENT STATEMENT

"AS A TEACHER, I see many students who have a difficult time paying for college, and the Alworth Scholarship has allowed many of the students to attend college with less of a financial burden to worry about during their studies.

AS A PARENT, what a blessing the Alworth Scholarship was to my daughter to help her achieve her collegiate goals."

– Tim Ringhofer