



The NASA West Virginia Space Grant Consortium (WVSGC) supports many programs that focus on research, collaborations with high-technology industries, student fellowships as well as K-12, and public outreach programs. In this summer issue, we highlight students with recent outstanding achievements within and in addition to the NASA WVSGC.

## **NASA West Virginia Space Grant Scholars also awarded Goldwater Scholarships**

*Submitted by West Virginia University*

The Barry Goldwater Scholarship and Excellence in Education Program was established by Congress in 1986 to honor Senator Barry Goldwater, who served his country for 56 years as a soldier and statesman, including 30 years of service in the U.S. Senate. The purpose of the Foundation is to provide a continuing source of highly qualified scientists, mathematicians, and engineers by awarding scholarships to college students who intend to pursue research careers in these fields. This year, West Virginia University was the only University in the state to have a Goldwater Scholar. All three recipients are WVU students and two of these students also received Undergraduate Affiliate Fellowship – Trevor Butcher and Virginia Cunningham. The Undergraduate Affiliate Fellowship awards students at affiliate academic institutions funding towards their research project.

Virginia Cunningham (pictured above) is an undergraduate student studying physics. Her research “The Clustering of HII Regions with Friends-of-Friends and Minimum Spanning Tree Algorithms,” seeks to give insight into the life of cycles of massive stars and how they interact with their environments. When asked how she got into Physics she indicated she was an unsure freshman on what she wanted to study but took advantage of opportunities that led to research. Cunningham’s advice for students who are unsure of what field to study or what career they want to go into was, “Just take a class that interests you. You never know what it can lead to. For me, it lead to research opportunities and learning what career path I want to pursue.” Cunningham plans to earn a Ph.D. in astrophysics.

Trevor Butcher is an undergraduate student studying chemistry. The NASA WVSGC Undergraduate Affiliate Fellowship allowed Butcher to work on his research, “Hydrogen Fuel Production from Acids: Redox-Catalytic Proton Reduction by Cobalt (II)” which aims to develop chemical compounds that can be used to increase the efficiency of hydrogen fuel



**Virginia Cunningham poses next to where her name will be added as a Goldwater Scholar**

production from acids (which may be supplied from industrial waste or otherwise produced). The topic is an important one because the methods currently employed to produce hydrogen fuel rely on coal and natural gas resources which are, of course, limited in supply. As part of his fellowship, he attended the National American Chemical Society Conference in Dallas, TX. The conference provided lectures about some of the most recent advances in chemistry. He was also able to present a poster on his research and receive valuable feedback from other chemists in his field, which further helped progress his research project. Butcher’s career goal is to earn his Ph.D. in chemistry and attain a research position in either academia or industry upon graduating.

## **NASA Undergraduate Research Fellow Receives the West Virginia University Foundation Outstanding Seniors Award**

*Submitted by West Virginia University*

Established in 1995 to signify the 40th anniversary of the West Virginia University (WVU) Foundation, the Outstanding Seniors award recognizes undergraduate students for their contributions and achievements in scholarship, leadership and service. This past March, this award was given to 34 undergraduates. Of the 34 students is Cyrus Hajiran, also a recipient of the 2013-2014 NASA WVSGC Undergraduate Research Fellowship (pictured at the top of page two).

Hajiran excels in his achievements. He’s received numerous scholarships such as WVU Department of Biology Outstanding Senior, Eberly College of Arts and Sciences Scholarship, Henry W. Hurlbutt Memorial Research Award, Ethyl C.

Montiegel  
Scholarship, Alpha  
Epsilon Delta Lloyd  
Gribble Award, WVU  
President's List,  
Mortar Board National  
Collegiate Senior  
Honor Society,  
Chimes Junior  
Honorary and the  
Helvetia Sophomore  
Honorary. He's also  
been awarded the  
NASA WVSGC  
Undergraduate  
Research Fellowship,  
the Mary Babb  
Randolph Cancer  
Center Fellowship and  
the WVU Science,  
Technology,



**Cyrus Hajiran, named a WVU  
Foundation Outstanding  
Seniors**

Engineering, Mathematics (STEM) Fellowship. Hajiran has experience working as a teaching assistant at WVU and his service experience include working with WVU Global Medical Brigades, Wheeling Hospital, Ruby Memorial Hospital and the Spina Bifida Mountaineer Camp.

When asked about his advice to students on seeking opportunities, he outlined several helpful tips: 1) academics - the basis of applying to any opportunity is your academic record, 2) teaching assistance - seeking out professors to be a teaching assistant allows you to learn leadership skills from teaching other students, and 3) career shadowing - contact experts in fields you are interested in to observe their work so you can get a first-hand look of the day-to-day aspects



**Jenna Klemkowsky working at the Challenger Learning  
Center in Wheeling, WV**

required. With a good academic record, teaching and career experience you would be a well-rounded student to apply for fellowship and scholarship opportunities. He also emphasized to build relationships with mentors and to build your social circle around friends with the same goals because surrounding yourself with those who want to be on the same track will make academics enjoyable and part of your social life.

Hajiran would like to thank NASA WVSGC for giving him this opportunity. The fellowship has allowed him to further pursue additional research. He would also like to thank past and present members of the Sooter Lab for their help and guidance and a special thanks to his research mentor Letha J. Sooter, Ph.D., Assistant Professor in the Department of Basic Pharmaceutical Sciences.

### **Wheeling Jesuit Graduate and WV Space Grant Scholar Pursues Studies in Aerospace Engineering**

*Submitted by Margie Cooke, Wheeling Jesuit University*

Not everyone knows when they are in grade school what they want to do when they “grow up.” Young boys dream of being a fireman or a policeman, girls tend to lean toward becoming a teacher or a nurse. But for Jenna Klemkowsky (pictured to the left below), she knew what path she wanted to take early in life.

When Jenna was in the second grade, she came from her hometown of Morgantown, West Virginia to Wheeling Jesuit University (WJU) to attend space camp that was offered at the Challenger Learning Center. As a result of attending the two-week space camp, she developed an interest in space and science. As Jenna completed elementary school and went on to high school, she discovered her strengths were in science and math. She pondered various careers in the science field and thought about becoming an optometrist. However, aerospace engineering rose to the top of her list of interests.

When Jenna came to WJU as a freshman in 2010, she majored in physics and applied for the West Virginia Space Grant scholarship, which she received in 2011 and 2012. During her four years at WJU, Jenna worked at the Challenger Learning Center from 2011-13, where she created videos, lesson plans and activities conveying the concepts of Newton's Three Laws of Motion. The lesson plans were implemented to educate middle school students through a distance learning program. She developed humorous videos full of examples and experiments which were all ideas created in order to excite the students as they carried out the lesson plans. The three e-Lab videos all coincided with each other, and Jenna created the same “Mad Physicists” as consistent characters throughout all of the videos. This allowed the students to gain familiarity and remain connected to the characters as they learned about each topic, and became more aware of how each of these three laws applied to daily life on Earth and in space.

During Jenna's second year at the Challenger Learning Center, she continued on this project, keeping with the consistency of the characters. She developed two more characters, Dr. Newton and Dr. Law, who were crazy scientists always opposing each other. This not only created a lot of humor in the silly schemes toward each other, but allowed the students to develop a relationship with these characters as they worked their way through each law.

During the summer of 2013, Jenna was one of 13 students who was selected nationwide to attend the University of Birmingham in the United Kingdom for 10 weeks to do research in physics through a grant from the National Science Foundation via the University of Florida. The research was relative to gravitational waves. Upon returning to the United States, Jenna presented her research at the University of Florida.

Jenna has had numerous accomplishments while at Wheeling Jesuit that include: Dean's List all four years; Gloriam Award, West Virginia PROMISE Scholar; Presidential Scholar; member of WJU's women's soccer team, where she served as co-captain during spring 2011 and fall 2013, and an Arrupe scholar. Among many of Jenna's academic and extracurricular activities, she finds time to volunteer each semester at Catholic Charities, Special Olympics, disc dances, and participate in WJU's immersion trips to rural West Virginia, New Orleans, Chicago, and El Salvador. She also led a service trip in Wheeling for visiting college students. Jenna was recently inducted into Alpha Sigma Nu, the National Jesuit Honor Society.

Jenna graduated on May 17 with a Bachelor of Science in physics and has been accepted to Auburn University where she is enrolled in the Master's and Doctoral programs of aerospace Engineering. She applied at numerous universities, but she finally chose Auburn, not only for its prestigious aerospace engineering department, but knowing that Huntsville and Marshall space flight centers are also located in Alabama was quite attractive to her. While at Auburn, Jenna will be a graduate teaching assistant to undergraduates who are majoring in aerospace engineering, and eventually she will become a research assistant. After Jenna graduates from Auburn, she hopes to obtain a position with NASA or a private space industry.

So, you are never too young to decide what you want to do when you grow up. Just ask Jenna. Someday, we may see Jenna at Johnson Space Flight Center at Mission Control, or working with kids at one of the space flight centers at Marshall or Huntsville.

"The West Virginia Space Grant has provided me with an opportunity to excite younger generations about STEM related topics in the same manner that excited me when I was growing up. Science is such a fascinating field, and it's important to

convey that concept starting at a young age. I'd like to thank WJU, the Challenger Learning Center, and the West Virginia Space Grant Consortium for allowing me to gain experience in valuable hand-on projects, which are crucial for the success of future STEM related research."

## **Bethany College Holds Annual NASA WVSGC Poster Session**

*Submitted by Bethany College*



**Bethany College students presenting their research at the Annual NASA WVSGC Poster Session**

The 2013-2014 recipients of NASA West Virginia Space Grant Consortium Scholarships at Bethany College presented research posters describing their projects in the Richardson Hall of Science on April 24. Conducting a research project is required for NASA/WVSG Consortium Scholarship recipients at Bethany College, in addition to their maintaining a high GPA.

Presenters were: Biology major Amber Lancaster of Weirton, West Virginia, who was mentored by Dr. Amanda B. Stewart, Associate Professor of Biology and Director of Equine Studies, on a project investigating the relationship between diet-induced insulin resistance and sporadic AD pathology in *Drosophila melanogaster*; Chemistry (Biochemistry) major Alexander V. DelGiorno of Wadsworth, Ohio, whose research with Assistant Professor of Chemistry Dr. Carolyn Kitchens was a spectroscopic analysis of meat proteins in varying pH and temperature conditions; Chemistry and Mathematics major Jacob E. Fischer of Huntington, West Virginia, who is working with Dr. Kitchens on determining low-level concentrations of compounds by using conducting polymers; Chemistry major Samuel W. Duvall of Shadyside, Ohio, who is working with Assistant Professor of Chemistry Dr. Scott Brothers on capillary electrophoresis; Chemistry (Biochemistry) major Morgan M. Jacobs, of Hurricane, West Virginia, who is investigating with Dr. Kitchens the synthesis of algal biodiesel from different

colored algae; and Chemistry major Kristen Sroka of Elizabeth, Pennsylvania, who was mentored on her project on Omega 3s in seafood: potential for depression treatment by Dr. Lisa M. Reilly (Goulding-Woolery Professor in Chemistry, Associate Professor of Chemistry and Chair of the Department of Physical Science and Mathematics). The student presenters are pictured on the right side of page three.

The afternoon session was attended by numerous students, faculty mentors, and administrators, including Bethany College's previous NASA/WVSGC Representative Dr. Robert A. Paysen, Emeritus Professor of Chemistry. Dr. John T. Burns, Professor of Biology, is the current representative. The poster session provided a venue to recognize the achievements of

these students and to celebrate the sciences at Bethany College, an institution that encourages students to continue their interest in STEM coursework, research and careers.

This year, Dr. William Hicks, Chair of the Department of Biology, and Dr. Katrina D'Aquin (Assistant Vice President for Academic Affairs, Associate Professor of Psychology, Director of First Year Studies, and Chair of the Department of Psychology) served as on-campus NASA/WVSGC Advisory Committee members to assist in decisions regarding the awarding of the scholarships. The WVSGC funding was matched 1:1 by Bethany College to provide a total of \$22,000 for the scholarships.

### 2014-2015 Undergraduate Research Fellows

Billups, David (WVU)  
Carte, Destiny (Marshall)  
Carter, Arrin (Marshall)  
Collins, Evan (WJU)  
Eisenhart, Andrew (WJU)  
Fankhanel, Erin (Marshall)  
Gray, Miles (Marshall)  
Kagen, Shane (Marshall)  
Meyer, Elijah (WVU)  
Robinson, Emily (WJU)  
Searls, Noah (Marshall University)

Strader, Jared (WVU)  
Wieland, Melanie (WVU)

### 2014-2015 Graduate Research Fellows

Burkhart, John (WVU)  
Cavender, Hannah (WVSU)  
Graves, Andrew (WVU)  
Hypes, Alexander (WVU)  
Komar, Colin (WVU)  
Nande, Rounak (Marshall)  
Rice, Caleb (WVU)  
Tamski, Holly (Marshall)  
Timm, Shelby (Marshall)

### Upcoming Events

NASA Career Opportunities Session at West Virginia University	September 18, 2014
Deadline for NASA WVSGC Undergraduate Fellowship Applications	September 22, 2014
Plastics Day at West Virginia University	September 23, 2014
Mid-Atlantic Regional Meeting in Williamsburg, VA	September 24-26, 2014
NASA-SPACE Day at WV Wesleyan College	October 11, 2014
Women & Technology Conference in Wheeling, WV	October 16-17, 2014
FIRST Lego League State Tournament at Fairmont State University	December 6, 2014
2015 National Council of NASA Space Grant Directors' Spring Meeting	February 26-28, 2015

### New Website

We've moved to [wvspacegrant.org](http://wvspacegrant.org)! Make sure to check out our new website and subscribe to our e-mail list to be kept up-to-date on latest news and events. Be sure to contact us to share your story or upcoming events, we would love to feature you in our next issue!

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