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### **WKU students take on the Climate Change Challenge abroad**

Climate change is a major challenge facing the world of today and the future. The implications of this global phenomenon are far-reaching, and will impact every person on the Earth. Political, economic, and social complications will need to be addressed with the increasing changes it will cause on Earth's natural systems. These problems will be complex, and will require leaders well versed in interdisciplinary learning and in international understanding. A team of nearly 60 WKU faculty, staff, and students participated in a program in the summer of 2014 to study the influence climate change is having on the world in which we live. This program combined interdisciplinary learning, service learning and international understanding in a way that strove to prepare the leaders of tomorrow with the skills to address climate change challenges.

The inspiration for this program, Toppers at Sea, came from a group of students at WKU who recognized that climate change is a very real and pressing issue. During the two-week adventure, participants set sail aboard the Semester at Sea ship, MV Explorer, to study the effects of climate change from the perspective of numerous disciplines. The itinerary took students to six different nations around Northern Europe, including Stockholm, Sweden; Copenhagen, Denmark; Lerwick, Shetland Islands; Reykjavik, Iceland; Akureyri, Iceland; Ísafjörður, Iceland; Belfast, Northern Ireland; and Southampton, England.

This interdisciplinary program included several diverse courses from which students discovered climate change. On the voyage students participated in a course related to climate change science and communication, economics, future trends, or education. Each student also participated in a *The \$100 Solution*<sup>™</sup> service-learning course. In addition, there was a Junior Toppers at Sea program led by Keely P'Pool and Julie Ransdell that included participants in the 9- to 14-year-old range who followed designed curriculum and participated in the field trips and presentations on climate change. Together the group not only learned how climate change affects the world from varied academic perspectives, but also how more often than not these perspectives are closely interrelated.

While in port each class engaged in a discipline-specific activity related to the climate change topic. For instance, in Copenhagen, Denmark, students in the climate change science and communication course, co-taught by Dr. Leslie North and Dr. Jason Polk in the Department of Geography and Geology, visited the University of Copenhagen Centre for Ice and Climate which is world-renowned for being a leader in the ice core research. Students

were able to tour cutting-edge research facilities and even step into the ice core freezer and see the very ice cores used in climate change research. Similarly, Dr. Andrew West of the School of Teacher Education and his students were able to visit with University of Copenhagen teachers and collaborate on the design of a climate change curriculum. Former Honors College faculty member, Dr. Nathan Phelps, led his students on a tour of a geothermal power plant in Reykjavik, Iceland, and a bike tour of the sustainable features in Copenhagen, Denmark, as they studied future trends in climate change. Also during the voyage, economics students accompanied Dr. Cathy Carey, Chair of WKU Department of Economics, and Dr. Dan Duran of Whittier College to fisheries, geothermal plants, and other industries that are likely to be faced with economic-based climate change challenges. When back on the ship, students shared their experiences in port and frequently discovered.

All team members were not only engaged in learning in port, but also while onboard the MV Explorer. Students participated in traditional class time, listened to shipboard lectures by international experts in their respective fields, and engaged in conversations with life-long learners who shared the voyage with us. In short, the group capitalized on every teachable moment and the learning never stopped.

A culminating point of the study abroad experience was when the WKU group presented to a group of more than 100 people in Iceland from the University of Akureyri, representatives of Icelandic communities, regional environmental agencies and ministries, and tourism bureau officials about what they had learned regarding climate change during their travels. By communicating their experience, the students were able to share their knowledge, which in turn gave them a deeper understanding of the issues they were learning throughout the voyage. During the presentation, each class revealed plans for their *The \$100 Solution™* projects. These included adopting a glacier and donating to the Extreme Ice Survey (climate science group), developing an online platform for the dissemination of a climate change curriculum (educators group), purchasing a carbon offset (economists group), and planting a climate change tree at the University of Akureyri (futurists group). The latter idea was such a success that two sister trees were planted on WKU's campus in October of last year and together they will serve as meeting points for future discussions about climate change. In fact, the tree in Iceland has already been visited the President of Iceland and the Crown Prince of Sweden. In addition, the Toppers at Sea program was recognized by *The \$100 Solution™* as an outstanding service project for 2014 for implementing five international projects during the voyage.

Overall, the voyage was a life-changing experience for many participants. The growth of ideas held by students and faculty continued from beginning to the end. Geography and Geology undergraduate student Isaac Bowers commented, "Before I went on this journey, I found it hard to explain and debate climate change with others because I only knew a very small amount of the available information. As the voyage progressed, I quickly gained the knowledge I needed to help others understand our changing climate. Ice cores, peat bogs, and personal interviews with some of the locals (and a special guest) slowly opened my eyes and mind. The curriculum we covered was difficult at times, but never impossible, and I believe that all of our instructors did a wonderful job leading us along. The opportunities granted to me aboard the MV Explorer were once in a lifetime. I know the friendships I've

made, the knowledge I've gained, and the experiences I've had will stay with me far into the future, helping me in my career and giving me stories to tell for years to come."

The students maintained a blog about their voyage, which can be found at <https://toppersatsea.wordpress.com/>

As a result of this study abroad program on the ship, there will be a land-based study abroad program in Iceland from May 26-June 9 focusing on the climate change challenge. The course will include visits to different sites on the island, including glaciers, a geothermal plant, volcanoes, and cover subjects like sustainable resource management, climate change and rural healthcare, and ocean acidification. It will be taught in conjunction with professors from the University of Akureyri and their students will also participate in the course with WKU students. For information, visit <http://www.wku.edu/flsa/programs/icelandclimate2015.php>

Collectively, the summer 2015 course and the initiatives that began during the 2014 voyage have culminated in a growing relationship with partners in Iceland on climate change research and education. This new collaboration has set in motion several new and exciting developments that will provide opportunities for students from both WKU and Iceland to engage in learning and research on an international level.

For information of the Toppers at Sea voyage from 2014, contact Bernie Strenecky at [bernie.strenecky@wku.edu](mailto:bernie.strenecky@wku.edu) or Jerry Barnaby at [jerry.barnaby@wku.edu](mailto:jerry.barnaby@wku.edu). For information about a specific course from summer 2014, contact Dr. Leslie North (climate science and communication) at [leslie.north@wku.edu](mailto:leslie.north@wku.edu), Dr. Cathy Carey (economics) at [cathy.carey@wku.edu](mailto:cathy.carey@wku.edu), or Dr. Andrew West (education) at [andrew.west@wku.edu](mailto:andrew.west@wku.edu).

For information about the Summer 2015 land-based program in Iceland, contact Dr. Jason Polk ([jason.polk@wku.edu](mailto:jason.polk@wku.edu)) or Dr. Leslie North ([leslie.north@wku.edu](mailto:leslie.north@wku.edu)).