

## **UW CSE DawgBytes 2013-14 Annual Report**



DawgBytes, the University of Washington Computer Science & Engineering K-12 outreach program, aims to introduce both students and teachers to the exciting world of computing. In the 2013-14 academic year, we increased our collaboration with local partners. We also reached new groups including high school counselors and elementary school children.

Our new initiatives included a conference for counselors hosted in partnership with the National Center for Women & Information Technology, a class taught to 8th graders in partnership with Rainier Scholars, an award ceremony for the Youth Apps Challenge organized with the Technology Alliance, and several new camp offerings.

In the 2014-15 academic year, we intend to continue increasing community involvement in outreach initiatives. Our focus will be on maintaining and improving existing programs.

Descriptions of our 2013-14 programs follows. More information is available on the DawgBytes website: <http://www.cs.uw.edu/dawgbytes>.

## New initiatives

### Rainier Scholars 8th Grade Computer Science Course



In fall, we taught a computer science course to 40 8th graders who are part of the [Rainier Scholars](#) program. Rainier Scholars provides enrichment activities and broad academic support for low-income students of color. Our evaluation of the course showed a marked increase in students' awareness of and interest in computer science. In particular, many students now plan to take computer science courses at their high schools. Half of our students were girls and they reported being particularly inspired by the experience. Our course was based on the [Bootstrap curriculum](#).

### Counselors For Computing (C4C)

<https://sites.google.com/site/counselorsforcomputing/home/c4c-event-summaries>

In winter, we hosted 62 high school counselors from the greater Puget Sound region for a workshop organized in collaboration with the National Center for Women & Information Technology. Counselors guide their students both in choosing high school courses and exploring career options, so their understanding of computing can have a big impact on who participates in the field. During the workshop, the counselors completed hands-on activities to learn about the field and received materials to share with their students.



### Pacific Science Center “Science on Wheels” CS Lesson

The Pacific Science Center’s “Science on Wheels” outreach program brings high-quality STEM activities to schools across Washington State. This year, we partnered with Google and the Pacific Science Center to develop a computer science lesson targeted to middle school students. This pilot lesson has been given at several schools, and the Pacific Science Center is working to expand its computer science offerings to up to 5 lessons.

## **Summer Camp Expansion**

<http://camps.cs.washington.edu>

This summer, we added camp opportunities for younger students and for returning campers. Two local teachers joined our camp team to design and deliver camp curriculum specifically targeted to elementary and middle schoolers. Our advanced camps gave previous years' campers an opportunity to further expand on their computer science knowledge. We had a total of 11 camp sessions this summer serving over 230 students.

## **High School Teacher Scholarships**

This summer, we funded 3 local high school teachers to take CSE 142, the first course in our introduction to computer science series. These teachers gain computer science content knowledge while working through projects and lessons that they will be able to use with their own students. A growing number of local high school teachers report success in using CSE 142 materials in their courses and these scholarships help broaden access to high-quality CS courses.

## Continuing Initiatives

### **Girls' Summer Camp Reunions (various dates)**

We organized several reunions for the girls who participated in our 2013 summer camps. Each reunion included hands-on activities to build on what campers had learned over the summer and a shared meal to build camaraderie. One of our high school reunions was hosted by Zillow and allowed students to see what working for a mid-sized software company is like.

### **Classroom Visits (various dates winter and spring quarters)**

UW CSE undergraduate and graduate students as well as faculty members visited local middle and high school classrooms to discuss computer science. We use a standard presentation including content about UW CSE's undergraduate program, internship experiences, social impact of computing and futuristic CS research.

### **K-12 Computing Education Seminar**

<http://courses.cs.washington.edu/courses/cse490o/14sp/>

Undergraduate and graduate students meet weekly to discuss readings on computing education in K-12. This year, we continued to assign a small hands-on project. Students took this opportunity to do exciting work including the creation of materials to teach Human Computer Interaction using MaKey MaKey kits and a Kinect-based curriculum module for summer campers.

### **Puget Sound CSTA Meetings (various dates)**

<http://www.pscsta.org/>

We host and participate in monthly meetings of the Puget Sound Computer Science Teachers Association (PSCSTA) chapter. (CSTA is a national organization for K-12 teachers of computer science.) These meetings are an opportunity for local computer science teachers to learn new teaching strategies and discuss their classroom practices. In the context of PSCSTA, we have moderated discussions and led mini-workshops on new CS education topics. This year, we provided clock hours for participants.

## **Computing Open House (Saturday, December 7th, 2013)**

<http://www.cs.washington.edu/openhouse>

During Computer Science Education Week, over 1000 community members came to the Paul G. Allen Center for Computer Science & Engineering to participate in hands-on activities and research lab visits designed to demystify computing. UW Computer Science & Engineering students, faculty and academic advisors along with representatives from local technology companies ran stations.

## **Programming Competition (Saturday, December 14th, 2013)**

<http://www.pscsta.org/2013/12/december-2013-contest-results.html>

Programming competitions allow like-minded students from various schools to share their excitement for computing while deepening their programming expertise. Students participate in teams of 1 to 3 students and solve small to medium scale programming problems in a language of their choice over the course of 3 hours.

We have used this gathering as an opportunity to expose students to exciting research going on at the University of Washington. This year's competition brought together nearly 250 students from 24 different schools.

## **NCWIT Award for Aspirations in Computing (Saturday, March 8th, 2014)**

<https://www.facebook.com/media/set/?set=a.791866007508325.1073741857.416582038370059&type=3>

The NCWIT Award for Aspirations in Computing “honors young women at the high-school level for their computing-related achievements and interests.” We hosted the award ceremony for 20 Washington state winners and 1 education award winner. We used this opportunity to expose winners to novel computer science research and get them to work together on problem-solving activities.

## **APCS Review Day and Ice Cream Social (Saturday, May 3rd, 2014)**

<http://www.cs.washington.edu/outreach/k12/apcsreview/>

Around 50 local K-12 students who were enrolled in Advanced Placement Computer Science came to the Paul G. Allen Center for Computer Science & Engineering to eat ice cream and do some last-minute review for the AP exam. Sessions on different topics were led by UW students and faculty.

## **AP CS and UWHS Workshop (July 14th-16th, 2014)**

<http://homes.cs.washington.edu/~reges/uwhs/workshop/>

In this two-day workshop, teachers from around the Puget Sound gathered to learn about the structure and pacing of a high school course offering based on our introductory programming course, CSE 142. We discussed course philosophy, grading strategies, specific assignments and more. Teachers left the workshop with copies of Building Java Programs and free, complete materials to use in their classrooms. We will also be providing follow-up throughout the year.

## **CS4HS (July 16th-18th, 2014)**

<http://cs4hs.cs.washington.edu/>

UW CSE partnered with Carnegie Mellon and UCLA seven years ago to create Google's CS4HS, an initiative designed to promote computer science and computational thinking in K-12. UW CSE's three-day CS4HS workshop targets math and science teachers because they can help expose a representative cross-section of the student population to computing.

During our three days with teachers, graduate students presented cutting-edge CSE research, professors shared their vision for why CSE is an exciting field to be in, and we provided a variety of ready-to-use activities appropriate for a broad range of classrooms.