

UCSD StudentTECH 2012

Advanced Technology for Middle and High School Students

Sponsored by the San Diego Supercomputer Center, University of California, San Diego

Our Planet Ocean: Exploring the Wild and Wondrous Waters of our Deep Oceans, Coastal Plains, and Sandy Beaches

Monday- Friday, July 30 – Aug 3, 2012

Class meets at the University of California, San Diego from 8:30am- 3:00pm.

Exploring the Wild and Wondrous Waters of our Deep Oceans, Coastal Plains, and Sandy Beaches

Course Overview:

Join us for this virtual workshop to explore the world's oceans, inhabitants and processes. We will use free open source computer mapping software, ArcGIS Online, to explore geospatial datasets collected by real world scientists. In this class, more aptly called a "fun" shop than a workshop, we will create beautiful maps and explore the tallest mountains on Earth and the deepest canyons on the ocean sea floor. We will explore a sampling of current conservation projects, marine science research and physical oceanography processes that affect all of our daily lives. Each day will build on technical skills, with the week ending in a student created map gallery and presentation. Each student will build and collate a portfolio to take home and share with others.

Students will be introduced to many of the basic techniques of computer mapping and learn how to query, arrange and visually manipulate geospatial data sets. By asking scientific questions, students will follow a wonderful path of discovery all about our great oceans, including the gentle giants that migrate along our coasts and across vast ocean basins, as well as a physical exploration of the ocean floor, deep submarine canyons and complex marine environments. We will explore deep water coral, coral reefs, hydrothermal vents, kelp forests, open oceans, seafloor communities, volcanoes, salt marshes and sandy shores.

At the end of these exciting intensive workshops, students can expect to have generated their own map collection of oceanographic data sets, choosing from a variety of data options such as migrations of whales and turtles, sea floor bathymetry and physical processes in the ocean that influence and often dominate our terrestrial lives.

What you can expect from this workshop:

- * Dedicated and knowledgeable instruction, from an experienced computer mapping specialist and marine scientist who has traveled the world studying marine mammals and sea turtles..
- * In depth tutorials and attention to the exciting techniques that blend the art and science of computer mapping.
- * Increased knowledge of digital techniques that make beautiful maps that tell a story about our wonderful world.
- * An original map layout to print and add to a personal portfolio to take home at the end of the week.
- * A whirlwind tour of the 7 seas with no chance for seasickness or bad weather!
- * A whole lot of fun and bit of a challenge too!

Five days of intense, fun workshops will include detailed instruction on the basics of computer mapping, geospatial data sets, technology related to student presentations, art skills of beautiful cartography and the real world methods of studying our oceans and its inhabitants.

All workshops will be using ArcGIS Online, an open source mapping software.

San Diego Supercomputer Center Summer Workshop Application 2012

Following is a list of the workshop events including a summary of the themes, tools and techniques that will be covered:

Monday, July 30, 2012 –Journey Across The Pacific. Students will begin learning the basic navigation and cartography skills of ArcGIS Online software. Students will work with datasets collected by real world scientists and explore the migratory paths of gray whales, humpback whales, green sea turtles, killer whales and sharks. The migrations will be analyzed for patterns according to bathymetry and oceanographic variables such as food sources and sea surface temperature.

Tuesday – Wednesday, July 31 – Aug 1, 2012 – Diving Deeper and Climbing Higher. To build upon basic skill and refine mapping expertise, students will explore the sea floor bottom using nautical charts and data collected from oceangoing vessels. Students will sail to the Arctic Circle, and circumnavigate the globe to explore Antarctica as well as tropical waters with vibrant coral reefs and sea turtles. Maps offer powerful visual patterns to help understand concepts such as conservation, ecosystems, pollution prevention and healthy oceans. Each student will choose a conservation campaign of interest and create a map layout highlighting current issues and possible solutions.

Thursday, Aug 2, 2012 – Conservation Approaches to Studying the Ocean. We will tour the oceans and explore the worst environmental disasters and current ecological issues affecting our oceans. Students will explore data sets covering the Gulf of Mexico Oil Spill, pollution, coral reef bleaching, overfishing and coral reef bleaching. Each lesson will include information on positive action each student can take and share with others to improve the health of our world's oceans.

Friday, Aug 3, 2012- Maps As Tools of Science. Using favorite data sets from the week's adventures, students will create a final map layout showing any aspect of marine science or oceanography that interests them. Students will use Powerpoint and create a 3-5 minute presentation on their ocean maps. Students will upload their presentations to YouTube and share with the class.

Prerequisites:

- Must be a current middle or high school student in grades 7-10.
- Minimum level of computer proficiency – comfortable navigating Windows Explorer, Surfing the Web, Creating folders and saving data to folders.
- Interested in marine science, computer mapping, and artistic expression through maps!

Course fee: \$225.00. Registration deadline: June 15, 2012. Space is limited.

Please visit our web site for additional information and an application
<http://education.sdsc.edu/teachertech>



Our Planet Ocean

July 30-August 3, 2012

Applicant Information:

Name: _____
Last First Middle

Mailing address: _____
Street Address or Post Office Box City/State Zip

Telephone: _____ Email: _____

Date of birth: _____ Age as of June 30, 2012: _____

Gender: _____ Male _____ Female

San Diego County Middle or High School: _____
School name District

Grade completed by June 2012: _____

Email: (optional) _____

Parent or Legal Guardian Information (if applicant is under 18): (Please Print)

Name: _____

Mailing address: _____
Street Address or Post Office Box City/State Zip

Telephone: (Home) _____ (Work) _____

Email: (Please Print) _____

Course fee: \$225.00

Please make your check or money order payable to UC Regents and submit both payment and application in a single envelope to the following address:

Ange Mason
Attn: Student Summer Workshops
San Diego Supercomputer Center
University of California, San Diego
9500 Gilman Drive, Mail Code 0505
La Jolla, CA 92093-0505

If you have any questions regarding this workshop or the application process, please contact Ange Mason via phone at 858 534-5064 or email at amason@ucsd.edu.