

Office of the Chair

July 8, 2010

Fashion Merchandising

Project SEARCH Summer Academy

Industrial Technology

Instructional Design  
and Technology

Marketing Education

Mathematics Education

Occupational and  
Technical Studies

Science Education

Technology Education

Training Specialist

Military Career  
Transition Program  
In Technology

The NOAA/B-WET-funded **Project SEARCH Summer Academy** provides Portsmouth Public School 5<sup>th</sup> graders with an opportunity to engage in authentic scientific inquiry and make a positive impact in their community. In collaboration with Old Dominion University's Department of STEM Education, ODU's Center for Coastal Physical Oceanography, NOAA, Portsmouth Public Schools, Elizabeth River Project, Southern Coalition for Social Justice, and others, PPS 5<sup>th</sup> graders will design, build, and deploy an observation buoy that will be used by citizens, schools, governmental and non-governmental organizations to collect data regarding water quality in the Chesapeake Bay watershed. During this intense weeklong academy, participants will learn about –

- \* Science, Technology, Engineering, and Mathematics (STEM) Concepts
- \* STEM-Related Careers
- \* Environmental Stewardship and Community Engagement

The academy is scheduled for July 26-30 at Victory Elementary School in Portsmouth, VA. There is no cost to participate in the *Project SEARCH Summer Academy*. Students' parents/guardians are responsible for transportation to and from Victory Elementary School Monday through Thursday and for transportation to and from City Park in Portsmouth on Friday. Additionally, parents/guardians are responsible for providing their child with a bag lunch Monday through Thursday. On Friday *Project SEARCH* will provide lunch for the students. Enclosed are the academy schedule, informed consent form, and photo release form. Parents/Guardians, please complete the informed consent form and the photo release form and bring them to the academy on Monday morning when you drop off your child. For additional information, please contact Dr. Daniel Dickerson at 683-4676 or [ddickers@odu.edu](mailto:ddickers@odu.edu) or visit us at [http://www.odu.edu/~ddickers/grant\\_noaa\\_search.htm](http://www.odu.edu/~ddickers/grant_noaa_search.htm).

Thank you,

Dr. Daniel Dickerson  
Associate Professor of Science Education  
Department of STEM Education and Professional Studies  
Old Dominion University  
NOAA Project SEARCH - PI



**Project SEARCH Summer Academy – July 26-30, 2010**

***Overview of Project SEARCH Academy***

|                         | <b>Monday<br/>July 26</b><br>Building a Buoy<br><i>What's a buoy and why should we care?</i> | <b>Tuesday<br/>July 27</b><br>Building a Sensor<br><i>How do you make a scientific instrument?</i> | <b>Wednesday<br/>July 28</b><br>The Real Deal: Part 1<br><i>Designing an authentic instrument buoy</i> | <b>Thursday<br/>July 29</b><br>The Real Deal: Part 2<br><i>Building an authentic instrument buoy</i>            | <b>Friday<br/>July 30</b><br>Deployment Day<br><i>Put it in the water!</i> |
|-------------------------|--|--|--|---|--|
| <b>9:00am – 12:00pm</b> | - Welcoming Remarks<br>- Build a Buoy Challenge  | - Observational Buoys (digital)<br>- STEM Career Education (Environmental Law)                     | - Research Questions/Problems<br>- Design Principles   | - Build the Observational Buoy<br>- Integration with Elizabeth River Project and others (who will use the data) | - Launch the Observational Buoy at City Park                               |
| <b>12:00pm-1:00pm</b>   | - Lunch  | - Lunch  | - Lunch  | - Lunch   | - Lunch<br>- Closing Remarks   |
| <b>1:00pm – 3:00pm</b>  | - Final Tests of the Build a Buoy Challenge<br>- Observational Buoys (analog)                | - Buoy Electrical Systems<br>- Buoy Communication Systems<br>- Buoy Social Concerns                | - Build the Observational Buoy   | - Finish Building the Observational Buoy<br>- Test the Observational Buoy                                       |  |

## Project SEARCH Summer Academy – July 26-30, 2010

### Detailed Daily Agenda

Monday, July 26

- 8:30-9:00am Parents/Guardians drop off students by 9:00 am at Victory Elementary School and proceed to room 402. A registration table will be set up outside the room. Mrs. Hathcock will check students in and provide them with an agenda, nametag, and tshirt. Additionally, students and parents will turn in completed IRB and photo release forms for the academy.
- 9:00am Dr. Dickerson, ODU Associate Professor of Science Education, will administer the research instruments.
- 9:45am Dr. Dickerson will provide welcoming remarks. Purpose, logistics and timeline for the day and the full event will be explained.
- 10:00am Dr. Dickerson will lead the Build a Buoy Challenge. Participants will learn about density, buoyancy, and center of gravity.
- 12:00pm Participants will eat their lunches they brought from home.
- 1:00pm Participants will finish building and testing their buoys. A winning team from the challenge will be identified. Each member of the team will receive a prize.
- 2:00pm Participants will convert their buoys into observational buoys using thermometers. The participants will explore the nature and role of observational buoys.
- 2:50pm Closing remarks for Day 1.
- 3:00pm Participants depart.

## Project SEARCH Summer Academy – July 26-30, 2010

### Detailed Daily Agenda

Tuesday, July 27

- 8:30-9:00am Parents/Guardians drop off students by 9:00 am at Victory Elementary School and proceed to room 402. A registration table will be set up outside the room. Dr. Patti Horne, Assistant Professor of Elementary Education at Averett University, will check students in and help facilitate activities throughout the day.
- 9:00am Dr. Dickerson will lead the build a thermometer activity. Mrs. Deans, EnviroBase Teacher, will lead students in the exploration of the LabQuests and Dr. Dickerson will focus on the difference between analog and digital sensors.
- 10:30am Mrs. Mirtenbaum, a University of North Carolina at Chapel Hill environmental law student from the Southern Coalition for Social Justice, will speak about integrated STEM careers.
- 12:00pm Participants will eat their lunches they brought from home.
- 1:00pm Dr. Dickerson will lead the light bulb circuit activity. Dr. Katsioloudis, ODU Assistant Professor of Technology Education, will conduct activities that explore the difference between communication methods for observational buoys. In groups, participants will consider what social concerns exist when using a buoy.
- 2:50pm Closing remarks for Day 2.
- 3:00pm Participants depart.

## Project SEARCH Summer Academy – July 26-30, 2010

### Detailed Daily Agenda

Wednesday, July 28

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|-------------|---|
| 8:30-9:00am | Parents/Guardians drop off students by 9:00 am at Victory Elementary School and proceed to room 402. A registration table will be set up outside the room. Dr. Patti Horne will check students in and help facilitate activities throughout the day.  |
| 9:00am      | Dr. Katsioloudis will introduce Design Principles to participants. Using those principles, participants will begin designing the large observational buoy. Dr. Dickerson will address the Nature of Science and the relationship between science, technology, engineering, and mathematics. |
| 12:00pm     | Participants will eat their lunches they brought from home.   |
| 1:00pm      | Participants will begin construction of the large observational buoy foundation and superstructures.  |
| 2:50pm      | Closing remarks for Day 2.  |
| 3:00pm      | Participants depart.  |

## Project SEARCH Summer Academy – July 26-30, 2010

### Detailed Daily Agenda

Thursday, July 29

- |             |  |
|-------------|--|
| 8:30-9:00am | Parents/Guardians drop off students by 9:00 am at Victory Elementary School and proceed to room 402. A registration table will be set up outside the room. Dr. Patti Horne will check students in and help facilitate activities throughout the day. |
| 9:00am      | Robin Dunbar from the Elizabeth River Project will talk about how observational buoys are used to protect the environment and specifically how the buoy the participants are building will be used to support ERP's and VADEQ's efforts.             |
| 10:30am     | Participants will begin construction of the large observational buoy electrical and communication components.  |
| 12:00pm     | Participants will eat their lunches they brought from home.  |
| 1:00pm      | Participants will finish construction and begin final testing of the buoy.   |
| 2:50pm      | Closing remarks for Day 2.   |
| 3:00pm      | Participants depart.   |

## Project SEARCH Summer Academy – July 26-30, 2010

### Detailed Daily Agenda

Friday, July 30

- 8:30-9:00am Parents/Guardians drop off students by 9:00 am at City Park in Portsmouth and proceed to Triple Shelters (near the tennis courts). A registration table will be set up there. We will post signs at City Park that will provide direction from the parking lot to our meeting location. Dr. Patti Horne will check students in and help facilitate activities throughout the day.
- 9:00am Dr. Dickerson will administer the post-intervention research instruments.
- 10:30am Participants will test the large observational buoy and launch it. News media may be in attendance.
- 11:30pm Closing remarks for Day 2 and lunch provided by ODU.
- 1:00pm Participants depart.