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Learning Through Communities at St. John's University

Students within the **Discover New York** and **Scientific Inquiry** programs were afforded the opportunity to discover the hardships encountered by Hurricane Sandy that devastated many parts of New York as they connected the learning objectives from these two linked courses and embarked on a journey to solve a real-world problem through student centered and experiential learning

What is Discover New York

Discover New York is an innovative course that encourages students to engage both intellectually and personally with the remarkable global city. Students have the opportunity to “observe” New York City through a particular perspective with an emphasis on critical thinking skills and information literacy as pedagogy of learning.

The city becoming the laboratory for the students’ application to the course focus (e.g. Social Justice, Art, Immigration, Homelessness, Architecture) .

Discover New York (DNY) Focus

Our learning community (LC) DNY course focuses on the themes of New York history, the environment, immigration, poverty, and leadership through on-campus class sessions, outside lectures, and required participation in field assignments.

With an the emphasis on **Academic Service Learning**, students experience the city as a place populated with “real people,” many of whom live in difficult situations and need assistance

Discover New York Learning Objectives

- Demonstrate an understanding of selected aspects of New York City history and how they impact on the city today
- Relate the diversity and contributions of immigrant groups who have come to New York to the development of the modern global city
- Demonstrate a basic knowledge of information literacy skills and critical thinking skills
- Experience a significant cultural and educational aspect of New York City
- Connect the idea of civic engagement to larger social issues and the University's Vincentian mission
- Demonstrate awareness and behaviors appropriate to the transition to higher education

Scientific Inquiry: A Core Course for Non-Majors

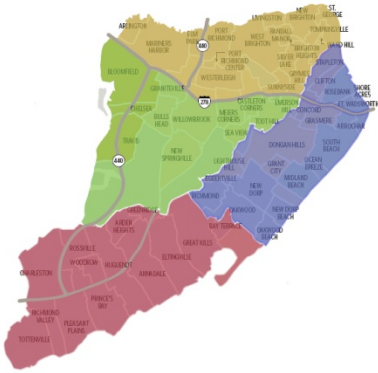
RATIONALE & LEARNING OBJECTIVES

- Practice evidence-based reasoning skills
- Understand how the scientific method is applied to real-world issues and problem through student centered classroom activities and experiential learning practices.

THEN, life intervened...

Superstorm Sandy Hits Staten Island

October 29 2012



Staten Island is one of the 5 Boroughs of NYC, east of New Jersey, south of Manhattan, and southwest of Long Island. It is approximately 122 miles long by 22 miles wide at the widest point.

Old Orchard Shoal Lighthouse after Hurricane Sandy Before and After the Storm



Superstorm Sandy Aftermath Staten Island NY October 2012



SENCER IDEALS: Immediate Need

- SENCER invites students to put scientific knowledge and the scientific method to immediate use on matters of immediate interest to students.
- SENCER helps reveal the limits of science by identifying the elements of public issues where science does not offer a clear resolution.

Post-Sandy Reality

Change the Learning Objectives

- What happens to nature & people's lives when the Ocean changes it's boundaries
- Learn by doing Salt water Intrusion Modeling
- Demonstrate/ Analyze the Limitations of science in predicting a natural disaster and a social understanding of the event in the context of scientific literacy

COORDINATED Learning Community ASSIGNMENTS

Presentation Learning Objective Focus

Based on their civic engagement experiences in the field during the Hurricane Sandy relief during the Fall 2012 semester and the neighborhood projects surrounding the hurricane affected areas of Staten Island completed by the students within the Spring 2013 semester all learning objects were met

Fall 2012 Assignment

- Taking into consideration the **academic service learning projects** performed by the students enrolled in the fall 2012 learning community during the aftermath of Hurricane Sandy the final class project in the Discover New York course revolved around sustainability as it relates to the future of New York City, an area that was believed to never endure such devastation that was just witnessed
- The students were required to take a deep look at the area in which they served and investigate the damage incurred by the hurricane noting the proximity to the ocean, the types of buildings in the area, the disaster response and through research note some of the ways presented for the communities to be more prepared in the future in case of another disaster

Fall 2012 Assignment (continued)

Students, divided into groups of four, were given 90 minutes to discuss and research the following questions in their group, and then randomly report their findings over the next 45 minutes

In the wake of the recent hurricane that hit the eastern seaboard of the United States it is time to take a deeper look at the sustainability of New York City and what measures should be taken in the case of another disaster through the following questions:

1. Investigate if the hurricane caused more damage in certain areas and why?
2. Are there areas that are more susceptible to flooding and is there a way to fix that to mitigate the harm of future hurricanes?
3. Investigate disaster response to see if different communities received different support and why?
4. Can communities be more prepared in the future?

Fall 2012 Student Participants

- Students were registered in the Liberal Arts & Sciences College who were considered undecided majors
- 13 females and 8 males of mixed ethnicities including both resident and out-of-town students
- Previous ASL project gave students a greater desire to participate in the hurricane relief efforts
- Hurricane relief consisted of helping people in the affected areas rearrange their lives as they moved their belongings out to the curb for trash

Spring 2013 Assignment

Students enrolled in the two core classes, Discover New York and Scientific Inquiry of the LC studied the effects of Hurricane Sandy in relation to the neighborhood, the health factors, and ecological changes

Groups of students observed and conducted research on the neighborhoods within New York City that were affected by Hurricane Sandy looking at the ecological issues such as water pooling and plant life, the health factors, mold and lung problems, as well as social issues that surfaced in the aftermath of the storm and what measures have been taken, and if not already taken, what measures should be taken to correct these problems.

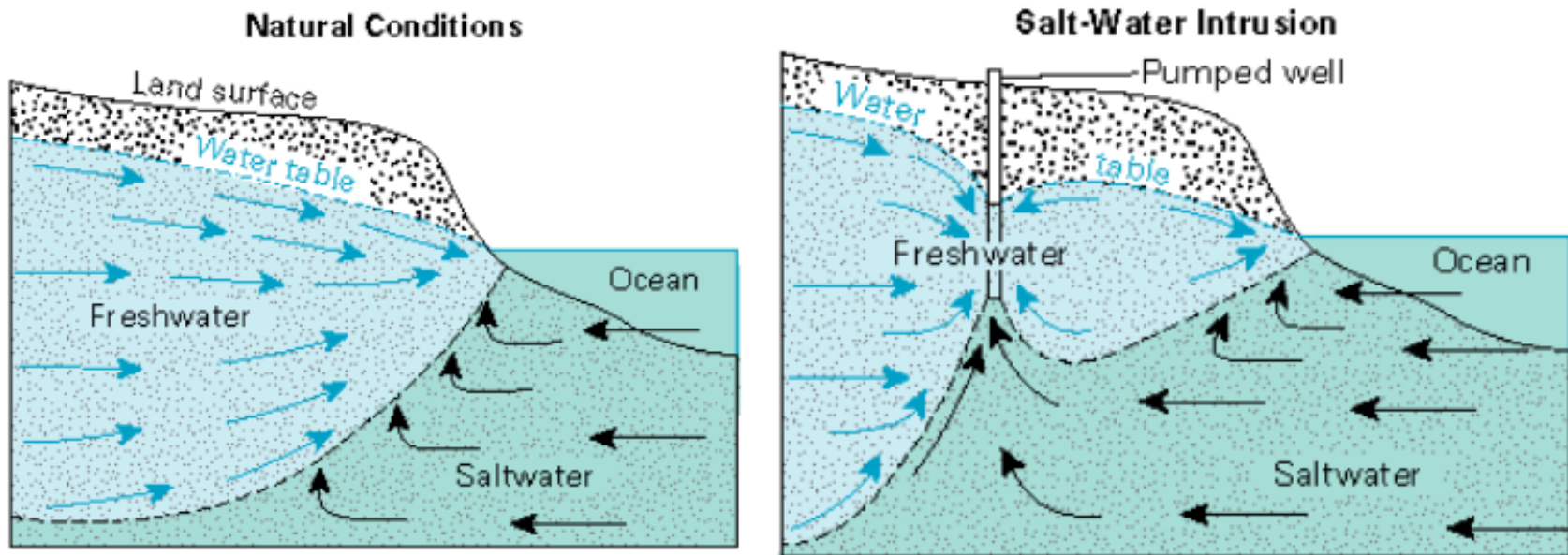
Spring 2013 Assignment (continued)

- Through their research as well as physical observations the students became part of the community to which they were assigned, taking pictures, interviewing residents and store owners, looking into the materials used in the destroyed buildings as well as those buildings that did not sustain much damage.
- They compared the areas that were still in disrepair and those neighborhoods that were almost completely rebuilt noting if all areas received similar government support services and were responded to in the same manner

Spring 2013 Assignment (continued)

- They looked at the capacity of the city to endure what had happened through this hurricane and ways in which people can move on to achieve a basic quality of life
- At first glance they observed the plant life and then after further investigation made additional observations of the ecology of the affected areas as well as noting the health factors of each neighborhood

From US Geological Survey “Ground Water”



Scientists have studied coastal areas and the changes that may occur when populated by humans that need and remove fresh water from the local aquifers--- but what happens if 8-12 feet of water are dumped on top and need to be absorbed? Does this change soil and salt contributions to the “fresh” water environment in the immediate and long-term future? Would plant survival and health be an indicator of that change? Are there specific plants that are more likely to be salt tolerant? Which ones are growing near the beach areas? Which are native species and which are artificially introduced?

Modeling of Salt water effects on Pea Plant Seed(ling) Growth

LEARN by Doing

Type of Plant: Peas Dark Seeded Early Perfection / Guisante Dark Seeded Perfection

Date	Plant #1: 0% salt (tap water)	Plant #2: 0.75% salt solution	Plant #3: 1.5% salt solution	Plant #4: 3% salt solution	Plant #5: 6% salt solution
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Students continued to water the different groups of pea plant seeds with either tap water or a dilute solution of saltwater (1.5%)

Salinity

- In the open ocean, salinity varies from about 34 ppt to 36.5 ppt
- Lowest salinity occurs near the equator where evaporation rates are lower than precipitation
- Highest salinity occurs in subtropics where evaporation is greater than precipitation

OUTCOMES

Outcomes

Through research and physical observations during the storm relief efforts, students presented responses that took into consideration proximity to the ocean, the type of houses that were destroyed, buildings of the future, community response based on economic factors within the affect communities, preparedness of the city agencies as well as the home and shop owners as to measures to be taken for future hurricanes, as well as ways of blocking water through sea walls or levees and climate changes. They looked at the capacity of the city to endure what had happened through this hurricane and ways in which people can move on to achieve a basic quality of life

Outcomes (continued)

It was found that by the end of the fall 2012 semester the majority of undecided students had chosen a major with the majority moving toward the field of psychology or business. Quoting one student who stated that “this experience was a turning point for me, I was overwhelmed by the impact Sandy had on the community that it made me realize how geography and economic status can be dramatically altered by external factors like climate”. This led the student to decide that he wanted to become a journalist in order to report on pressing economic and social issues.

ASSESSMENT

SENCER -SALG

Student Assessment of Learning Gains

GOAL: Feedback about what really enables learning
Students Self-assess

- Activities or assignments that helped them **LEARN**
Not what they “liked”
- Understanding of content areas
- Improvement or acquisition of new **skills**

Five-point Likert-style scale

1-No gain

3-Moderate Gains

5-Great Gain

2-A Little Gain

4-Much Gain

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

SENCER- SALG example

SUMMARY Class Overall (Moderate to Great, 3-5)

Rank	%	Skill or Objective Realized
1	(61%)	Analyzing scientific data
1	(61%)	Learning how real science is done
3	(60%)	Learning scientific information
4	(59%)	Addressing real-world issues
5	(58%)	Summarizing scientific results
6	(56%)	Interplay between science and civic issues
7	(56%)	Using scientific methods
8	(53%)	Gathering scientific data through demonstrations or in the field
9	(41%)	Learning from the textbook

SENCER- SALG example

Which **ACTIVITY CLASS HELPED YOUR LEARNING** most?

Students that answered “Moderate to Greatly” (3-5)

Rank	%	Activity or Assignment
1	(56%)	Presentations/ lectures from the course instructor
1	(56%)	Taking quizzes before major tests
1	(56%)	Completing written assignments (individual or group)
4	(53%)	Reflecting and performing peer review on others & your own work
5	(52%)	Discussions in class about readings or homework
6	(50%)	Media such as videos or PowerPoints on Blackboard
6	(50%)	Using the Digication e-portfolio
6	(50%)	Participating in Group or Team work
9	(49%)	Individual work in class
9	(49%)	Preparing for case studies or in-class debates
11	(47%)	Blackboard-based homework or discussions

SENCER- SALG

SUMMARY Increases in your SKILLS

Rank	%	SKILLS	Students that answered “Moderate to Greatly” (3-5)
1	(57%)	Work with others	collaboratively on a project
2	(55%)		Obtain scientific data from a demo or in a field setting
2	(55%)		Determine the difference between science or pseudo-science
4	(54%)		Determine what is -- and is not -- valid scientific evidence in the media
4	(54%)		Find scientific articles using the library or internet
4	(54%)		Extract main points from a scientific article and develop a summary
4	(54%)		Create a presentation about a science topic
4	(54%)	Pose questions	to answer by collecting & evaluating scientific data
9	(53%)	Apply scientific information to social and civic concerns	
10	(52%)		Interpret tables and graphs
10	(52%)		The ability to discuss scientific concepts with my friends or family
10	(52%)	Make an argument using scientific evidence	to friends or family
13	(50%)		Write a report using scientific data as evidence
14	(49%)	Think critically	about scientific findings I read about in the media
14	(49%)		Organize a systematic search for relevant data to answer a question



Thank you
for your Attention