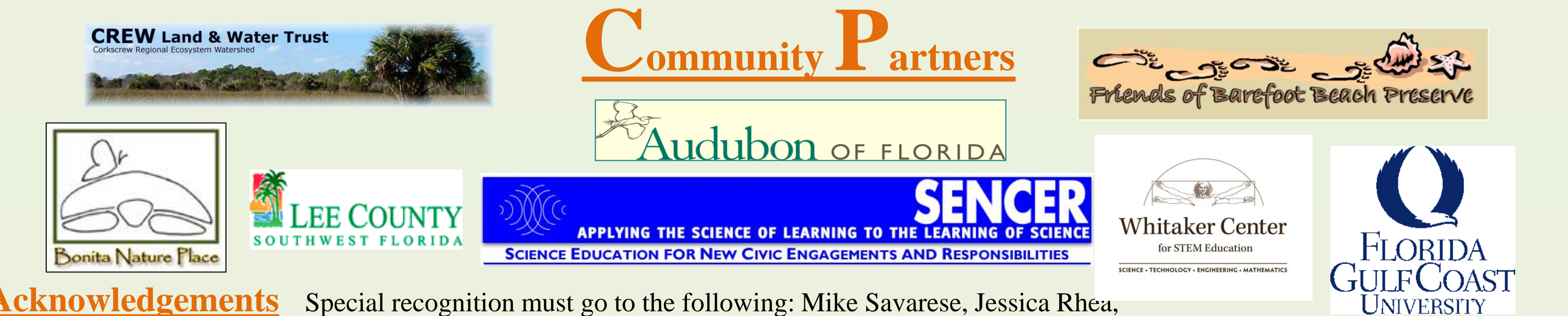


# Implementing Hierarchical Civic Engagement Strategies Into Two Environmental Sustainability-focused General Education Course Redesigns

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**Abstract** Meaningful academic experiences in the environmental sciences, likely the goal of most educators, is challenging in today's urbanized world. Through a combination of activity-based and experiential learning opportunities, today's learners are challenged to connect course content with other classes and with their daily decision-making processes. Combining technological advancements with traditional pedagogical strategies provides an innovative springboard from which to launch a stimulating science experience for General Education non-major students. Civic engagement projects enhance the community-minded thinking of the younger generations while simultaneously serves the needs of local environmental education partners. Two environmental sustainability-focused courses were redesigned and a two-semester sequence was established that linked a hierarchical civic engagement structure to an activity-based curriculum. Using feedback from "Student Assessment of Learning Gains" (SALG) surveys, students demonstrated significant advancements related to their confidence in understanding core course concepts. Students responded favorably to the course redesigns and meaningful projects resulted, which are directly meeting the needs of the regional community. This poster describes the curricula redesigns, methodologies, innovative student civic engagement projects, and associated evidence of student learning. Future goals include expanding student-created biodiversity map projects across the region to enhance science, education, and outreach by creating web-based interactive tools for regional environmental education locations.

**From the Students:**

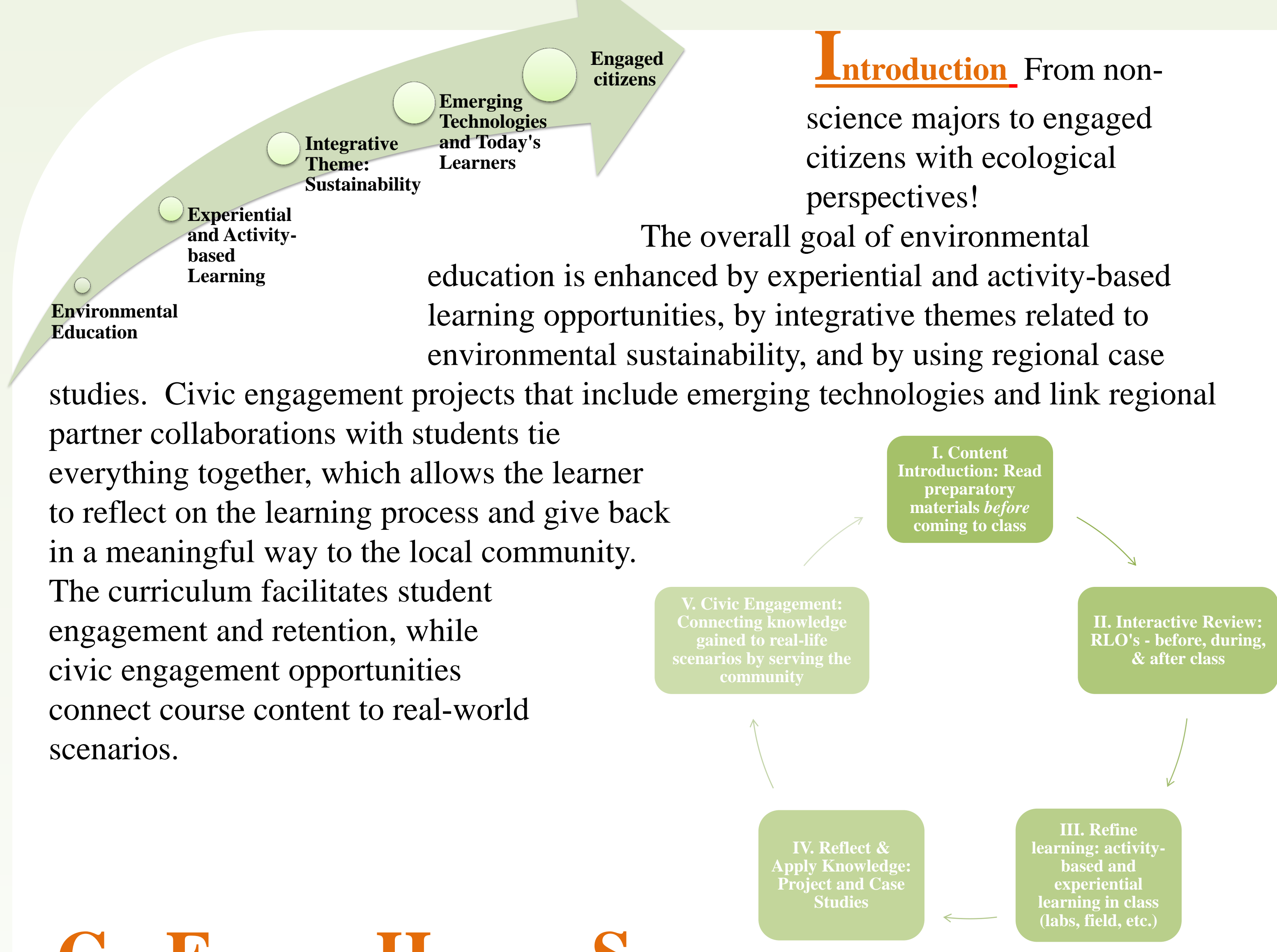
"I really enjoyed the teaching method and the way the professor was passionate about the subject and the way he passed it on."

"Project-based learning helped me a great deal, and was refreshing after other classes filled with just reading and tests."

"I think that this class is a class of the future and the way it is presented helps students of today's generation learn in a more convenient and realistic way."

**Introduction** From non-science majors to engaged citizens with ecological perspectives!

The overall goal of environmental education is enhanced by experiential and activity-based learning opportunities, by integrative themes related to environmental sustainability, and by using regional case studies. Civic engagement projects that include emerging technologies and link regional partner collaborations with students tie everything together, which allows the learner to reflect on the learning process and give back in a meaningful way to the local community. The curriculum facilitates student engagement and retention, while civic engagement opportunities connect course content to real-world scenarios.



**Environmental Biology: "A Journey Down the Corkscrew Watershed"**

**Guiding Question**  
How can tomorrow's generations of all southwest Florida inhabitants continue to benefit from the natural goods and services a healthy coastal watershed provides, by better understanding *our* role as citizens today?

**Primary Course Objective**  
Students will be able to positively influence southwest Florida and global communities to make evidence-based decisions regarding human use and impacts of coastal watersheds and ecosystems.

**Academic Expectations**  
To form educated responses to the "Guiding Question", students must demonstrate an advanced understanding of:

- The definition of sustainability;
- The ecology of a coastal watershed and human benefits / influences;
- The role of civic engagement & importance of an educated citizenry;
- The connectedness of main course concepts with their daily lives and decision-making processes.

**Marine Systems: "Our Dynamic Blue Planet"**

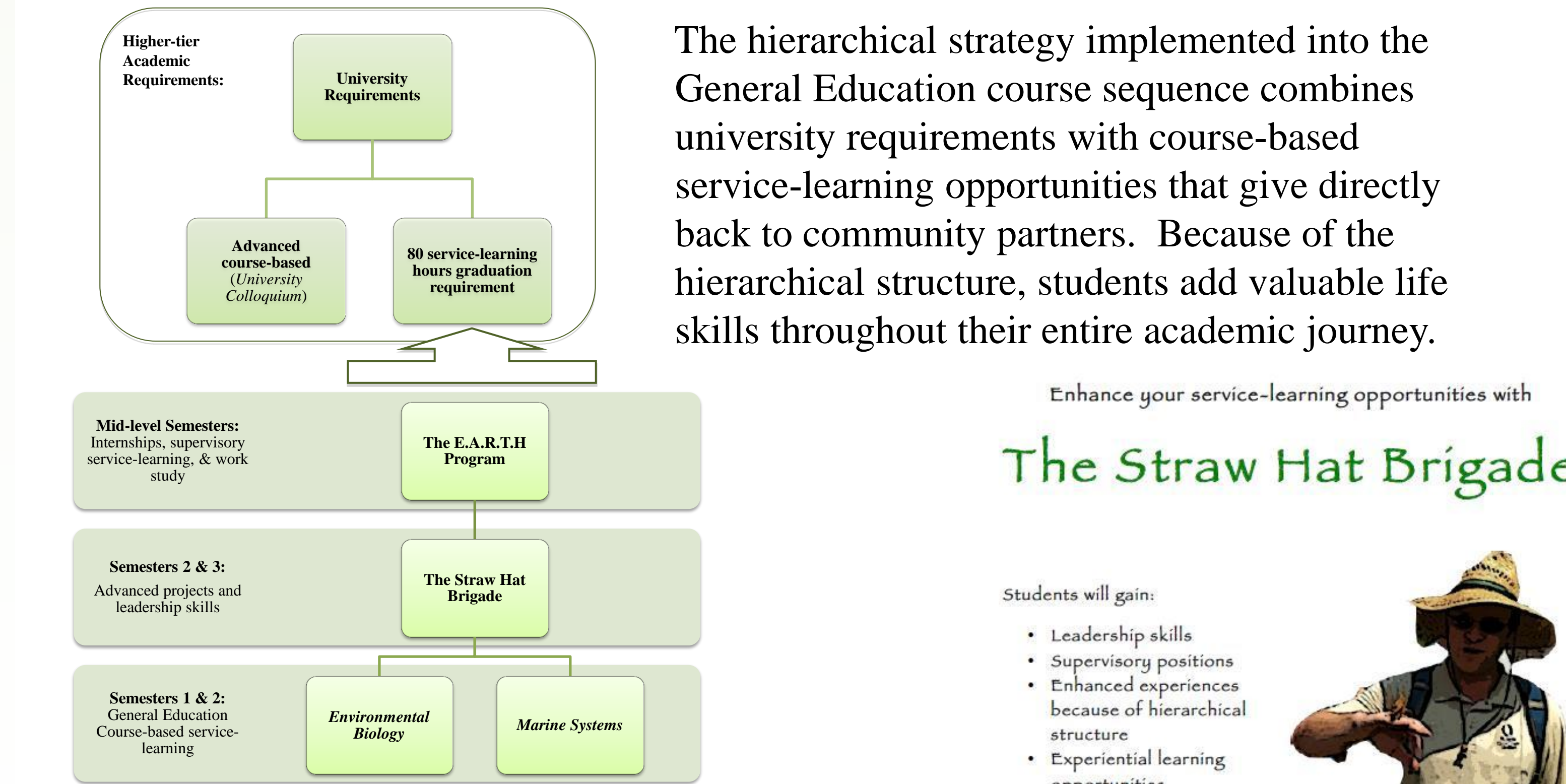
**Guiding Question**  
Given the current degree of human impacts on the marine world, how can tomorrow's generations of all inhabitants continue to benefit from the natural goods and services a healthy marine system provides, if we better understand *our* role as citizens today?

**Primary Course Objective**  
Students will be able to positively influence southwest Florida and global communities to make evidence-based decisions regarding human use and impacts of coastal and marine areas / resources.

**Academic Expectations**  
To form educated responses to the "Guiding Question", students must demonstrate an advanced understanding of:

- The definition of sustainability;
- Disciplines within marine science & human impacts on marine world;
- The role of civic engagement & importance of an educated citizenry;
- The connectedness of main course concepts with their daily lives and decision-making processes.

## Civic Engagement Hierarchical Strategy



- Examples of Student Projects:**
- Created an "iTrails" system that use QR codes and YouTube videos to explain local ecology for a nature preserve;
  - Created high-quality GIS maps & botany surveys for a budget-limited nature center;
  - Created an interactive web-based map of campus showcasing current scientific research studies based on a faculty survey they implemented.

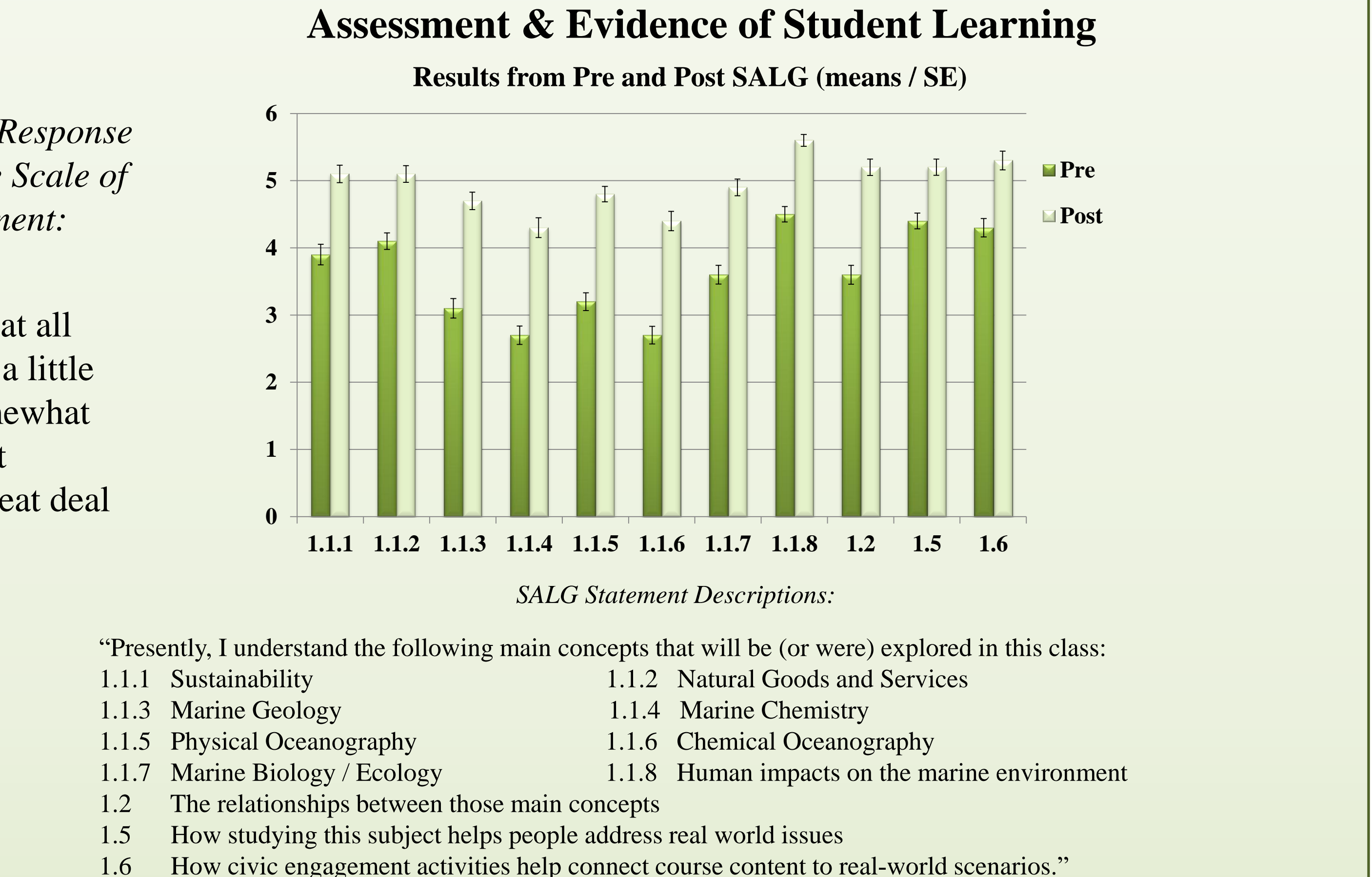
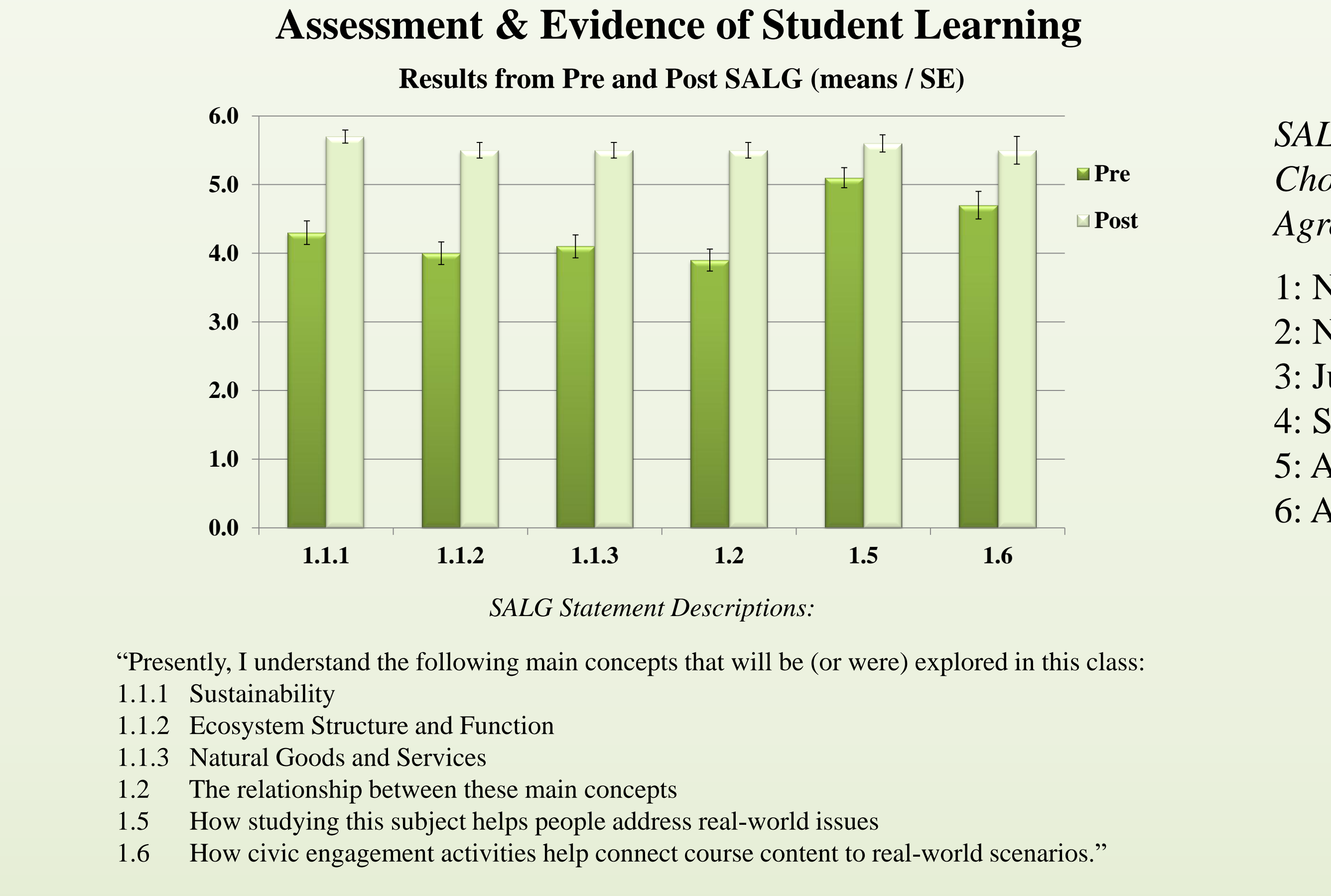
Enhance your service-learning opportunities with

### The Straw Hat Brigade

Students will gain:

- Leadership skills
- Supervisory positions
- Enhanced experiences because of hierarchical structure
- Experiential learning opportunities
- Worthwhile participation in projects that matter

**Mission Statement**  
Dedicated to civic engagement, environmental stewardship, educational excellence, and economic opportunity.



## Summary of Course Retrofits

- The SENCER approach to pedagogy enhanced the environmental education experience for General Education-level non-major students;
- Integrative themes helped students draw natural connections to difficult course content and concepts;
- Emerging technologies engaged students and prepared them for their future professional lives;
- Students expanded community-minded thinking by producing high-quality projects that directly benefited informal science education centers;
- Students demonstrated increased confidence in all categories measuring learning gains (SALG) and responded favorably to the SENCER approach.