Using Service-Learning & Community-Based Research
With the General Education Curriculum

Perspective:
Science Inquiry

Faculty Guide Series
ASU Service-Learning & Community-Based Research
University College | Appalachian State University
What is Service-Learning (SL) & Community-Based Research (CBR)?

Service-Learning and Community-Based Research are progressive ways of teaching that have been adopted by university faculty worldwide. Distinguished from traditional community service, service-learning is a “teaching method which combines community service with academic instruction as it focuses on critical, reflective thinking, and civic responsibility” (Introduction to Service-Learning Toolkit, 2003). Community-based research, a more specialized form of service-learning, is a collaborative effort between academic researchers (faculty and students) and community partners that has the goal of the achievement of social justice through research.

Why Use SL & CBR in General Education Courses?

With all the expectations and requirements of the general education curriculum, why include service-learning or community-based research? Simply put, because these pedagogies will allow you to meet many of the course objectives, goals, and expectations of the general education curriculum.

Goal 1: Thinking Critically and Creatively- SL/CBR students are given the opportunity to think critically about the problems in our communities and environments, as well as come up with creative solutions for improving the quality of life for those in need and our environment.

Goal 2: Communicating Effectively- SL/CBR students are expected to be able to make meaning of issues facing our community and environment, as well as be able to advocate for the solutions to those problems. By being an advocate, students must speak clearly, present the issues, and serve as a representative for change.

Goal 3: Making Local to Global Connections- SL/CBR students are able to relate the needs of their local community and environment to the global community and environment. Additionally, SL/CBR students are more likely to become involved in international social justice work.

Goal 4: Understanding Responsibilities of Community Membership- SL/CBR students are able to to become socially and environmentally responsible local and global citizens because they come to understand their own personal responsibilities to their community and environment.

Additionally, ACT’s assessment services can help you confirm and demonstrate that your course is doing what you want it to do. The ACT program has assessed all of its courses for the past decade, using an online survey to track student learning outcomes -- many of which are closely related to the general education learning outcomes. For example, students have reported an increase in their ability to:

- Identify problems in the community (87%), understand their causes (82%), and come up with possible solutions (84%).
- Understand how their personal (historical, cultural, etc.) viewpoints affect the way they perceive new knowledge (84%).
- Effectively communicate verbally (90%), in writing (69%), work in groups with others (87%), and be more comfortable working with people different than themselves (89%).
- Have a better understanding of their role as a community member (90%) and are more concerned about community issues (86%).

SL & CBR Project Ideas for Science Inquiry Themes

Biology and Society

In this theme, students are provided with an understanding of the interaction of science and society using a scientific inquiry-based approach. Students in this theme will learn to design and experiment, analyze the results, and present the findings to the general public.

Here at Appalachian State University, professor Shea Tuberty’s Environmental Toxicology class has had great success blending biology and service-learning. Students in this class have had the opportunity to make a big change in their environment by working with local non-profits to take water samples in local rivers and streams to determine the cause of the water pollution. As a result of the first class findings, a new semi-annual event, Operation Medicine Cabinet, was formed to help prevent medicine entering the watershed.
**Chemistry: Connections to our Changing World**

In this theme, students will learn how chemists study matter by exploring the fundamental principles and applications of chemistry. Students in these classes will be introduced to a breadth of chemical concepts and how chemistry is connected to biology, physics, geology, and mathematics.

At Colorado State University, professor Nancy Levinger incorporates service-learning into her *First Year Seminar in Chemistry* class by allowing her students to teach local elementary students about basic chemistry principles and practices. By exploring chemistry with elementary school students several times throughout the semester, students in this class improve their understanding of chemistry and their ability to communicate concepts that are covered in the class.

**The Blue Planet**

In this theme, students will examine the hydrologic cycle and how it interacts with geology in the form of the rock cycles and plate tectonics.

At California State University, students in professor Dr. Steve Moore's *Interpreting the History, Geology, and Ecology of Monterey Bay* class learn about the area in a special topics course and then share their knowledge with K-12 grade children at local schools by participating in the Virtual Canyon Project. This project is an ongoing effort to develop an interactive, educational, website to help school children learn about Monterey Bay, its deep underwater canyon, and the research process through which scientists learn about the bay and its inhabitants.

**How Things Work**

This theme, aimed at non-science majors, was designed to allow students to discover and understand the fundamental concepts governing our technological world.

Don't feel like you have time to do service-learning with all your students? Consider making service-learning an opportunity for extra credit by letting your students choose to do a community-based research project in class. Students can work with community partners to carry out research and/or assessment projects that the partner needs so that they can function efficiently, can receive grants to further the goals of the organization, and/or represent the agency by presenting research at regional or national conferences.

**Global Environmental Change**

Students taking courses in this theme gain an understanding of the driving forces behind both natural and anthropogenic change as a key element of science. Topics include, but are not limited to, climate change, the global carbon cycle, land use/land cover changes, and species migration/extinction.

At Calvin College, professor Bert de Vries teaches his archeology students about modern American waste habits by having them work with the Calvin College Garbage Project. Students in this class are provided with an exercise in staging fieldwork, data recording, report writing and interpretation and publication, as well as having the opportunity to provide background data for improving disposal, recycling, and composting procedures.

**The Restless Planet: Earth, Environment, and Evolution**

Courses in this theme explore the physical aspects of the planet, its history, and the environmental challenges faced by humans as we interact and impact our environment.

Part of being a solution to the environmental crisis is being aware of the laws and policies regarding environmental reform. At Unity College, professor Chris Beach teaches a course entitled *Land and Water Law*. This course, aimed at upper level students preparing for careers in natural resource management, allows students to gain a better understanding of the legal and policy contexts in which natural resource managers function. Students then use this knowledge to create articles on environmental solution for an ongoing local water resource project.

**What do others have to say about incorporating service-learning with their science-based classes?**

“In the past, I have incorporated Service-Learning projects in my classes and found that these projects are very effective in stimulating student interest in Biology and lead to very favorable learning outcomes. SL projects allow students to experience biology in real-world settings and offer insight into concepts that underlie biological phenomena faced by our society in ways that cannot be adequately provided in the classroom.”

-Dr. Jack Kennell, Associate Professor, St. Louis University

**Due to limited space, not all Science Inquiry themes are represented in this brochure.**

For more ideas and full course descriptions, please visit: [www.compact.org/category/syllabi](http://www.compact.org/category/syllabi)
High Country Community Partners

Below is a list of non-profit agencies in the area that could be utilized in Science Inquiry themed courses. For a complete list of community partners, please visit act.appstate.edu/communitypartners.

➢ Appalachian Coalition for Just and Sustainable Communities
➢ Appalachian Regional Development Institute
➢ Appalachian Voices
➢ ASU Renewable Energy Initiative
➢ Blue Ridge Resource Conservation and Development Council
➢ Blue Ridge Wildlife Institute
➢ Building Performance Engineering
➢ Healing Harvest Forest Foundation
➢ High Country Conservancy
➢ Mountain Keepers
➢ Mountain Mission Farms
➢ Turtle Island Preserve
➢ Western NC Small Wind Initiative

Getting Started in Service-Learning

ACT has many resources and services available to make starting your service-learning journey easy. Not only is having your class recognized as an ACT sponsored service-learning course going to provide you with resources, assessment tools, research, and support, it will also allow your students with the opportunity to attend an ACT Service-Learning Orientation Session.

Additionally, students registered for ACT sponsored service-learning courses are now able to count those classes towards the Civic Engagement Certificate (formallyCitizen Scholar Certificate) Program which honors students who have participated in a significant number of service-learning courses throughout their collegiate career and have distinguished themselves by demonstrating an outstanding level of commitment to civic leadership and social responsibility.

For more information on registering your course as an ACT sponsored service-learning course, please visit the Engagement website and click on “Course Forms”. This link will provide you with more information about teaching a service-learning class and will provide you with instructions on how to submit your syllabus for review. This process will help you to enhance your course(s) by getting feedback from ASU faculty from various disciplines who have had years of experience with service-learning pedagogy.

Resources and Further Readings on this Topic


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