



AguaClara Program Model



R.I.D.E. : Research, Invent, Design, Engage

AguaClara's hands on learning approach engages students in real world problems and exposes undergraduates to a diverse array of expansive issues that foster a sense of global citizenship.



AguaClara as an Educational Model

Engaged Learning - Engineering in context

Global Citizenship - Service Learning

Student Research - Undergraduate & Graduate

Multidisciplinary Teams - Diverse learning environment

Empower - Critical thinking & Group work



AguaClara Academic Program Model



Theory

CEE 4540 teaches the students the governing principles of AguaClara plant design.

Students learn to identify design constraints and solve complex problems using an array of tools from physics to fluid mechanics.



Research & Design

Teams of students conduct research, build working models, design full-scale prototypes, create design algorithms, and compile educational materials for technology implementation and transfer to AguaClara plants.



Engaged Learning

A January intersession trip to Honduras offers students an intensive engineering in context experience. Students visit AguaClara communities to gain perspective on the challenges and complexities that are inherent in work in the global south.

Multidisciplinary Cornell



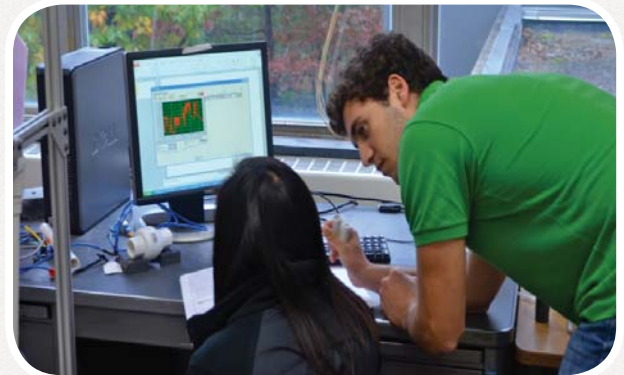
AguaClara Student Perspectives

“The best part of this course is that we are able to make it our own, and guide our learning towards research that **interests** us.”

“I have never taken a course that has allowed me this much **freedom**, and it has really **challenged** and **excited** me to go to lab each day.”

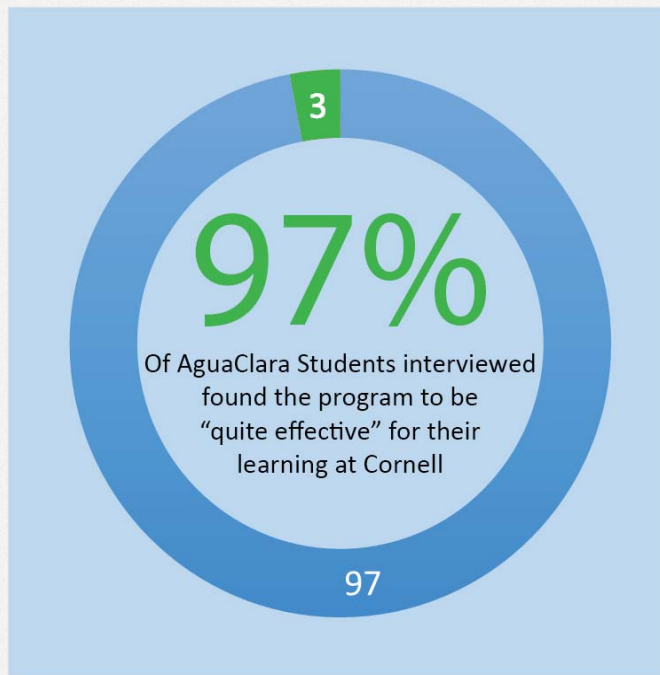
“... students are invited to use their own **creativity** and intellect to solve problems presented to them and **investigate** problems that present themselves during the process.”

These quotes come from anonymous responses to an unbiased survey regarding the AguaClara program.





The AguaClara Model



local
scal
rese
susta
comm
electric
water tr
plants
AguaClara
sustainably
gravity-powe
infrastructure
affordable cl
long-term m
customizabl
integrated e
educate fl
resilient
hand

In Numbers & Figures



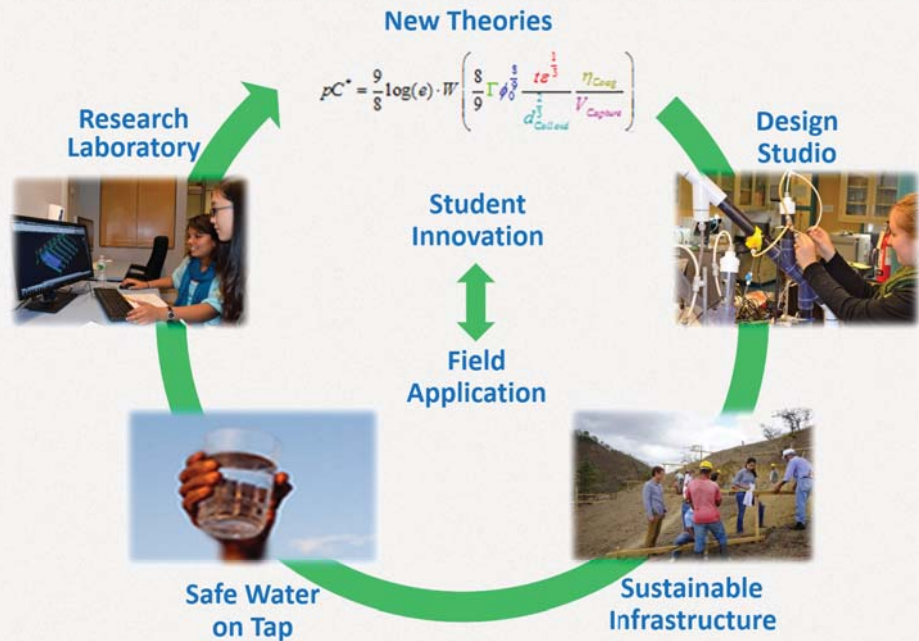
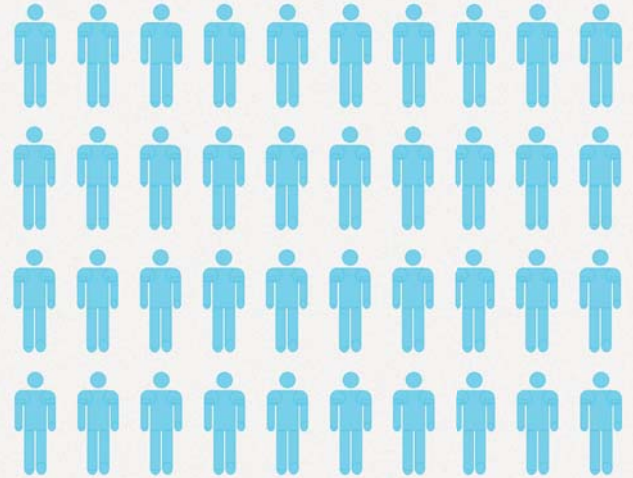
cal
able
arch
inable
unities
ity-free
eatment

Clara

engineered
red feedback
e robust local
ean drinking
model vision
e innovation
empowering
oculation
filtration
s-on

40

THOUSAND
PEOPLE
PROVIDED
CLEAN WATER





AguaClara Timeline



In 10 years, AguaClara has innovated with:

529 Student innovators from **12** majors in **4** colleges

1 independent corporation established by alumni

11 water treatment plants completed in **2** continents

40,000 people with clean water with AguaClara technology



AguaClara Awards + Accolades

EPA P3 (People, Prosperity, and the Planet) Competition

2007, 2010, 2013, 2014, & 2015

This is a unique college competition for designing solutions for a sustainable future. P3 offers students quality hands-on experience that brings their classroom learning to life.



Katerva Award

2012

The pinnacle of global sustainability recognition. Through them, the best ideas on the planet are identified, refined, and accelerated toward impact at a global level.



Intel Environment Tech Award

2011

This award is given for addressing the challenges of balancing population growth with available resources, protecting animal and plant life, as well as addressing the escalating demands for safe and efficient energy.



Projects Recognized

AguaClara Program

Chemical Dose Controller

Foam Filtration

Stacked Rapid Sand Filter

Arsenic Removal



AguaClara Research Areas



Sample research areas ...

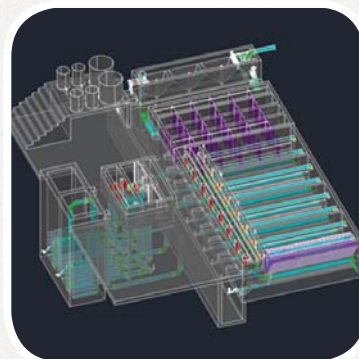
Chemical Dosing

Students work to create a semi-automated chemical dosing system that can add both coagulant and chlorine based on varying influent water flow rates and conditions.



Foam Filtration

Exists to provide clean water to very rural communities ranging from 100-500 people. This type of small village community is historically not economically feasible for drinking water treatment solutions.



Stacked Rapid Sand Filtration

A sand filter can exist both on it's own, and as the last step in an AguaClara drinking water treatment plant. It exists to remove the smallest of particles and provide water that regularly meets United States drinking water treatment standards.

Open Sourced Design Tool

Allows our technology to be publically available, and readily scalable based on any plant flow rate to fit the size of any community.