

Developing Central New York's Green Infrastructure Green Train Landscaping and Urban Ecology (GLUE) Program Overview and Curriculum

Developed by SUNY-ESF Outreach and presented in collaboration with the Centerstate Corporation for Economic Opportunity and the Northside Urban Partnership

Duration: 10 weeks: 8-week educational training, 2-week internship

Location: Westside Learning Center, various field trip destinations, project sites, and internship sites throughout Central New York

Partner organizations:

Centerstate Corporation for Economic Opportunity
Northside Urban Partnership
Near Westside Initiative

Project website: www.esf.edu/outreach/gi

Contact Information: If you have any questions about green infrastructure and current training programs at SUNY-ESF, please contact the Green Infrastructure Project Manager, Virginia Williams at (315) 470-6818 or vwilliams@esf.edu.

Developing Central New York's Green Infrastructure

Project Overview and Purpose:

SUNY-ESF's Green Infrastructure Initiative is part of the college's larger efforts to meet Central New York and New York State's increasing need for sustainability training and education. In keeping with this initiative, SUNY-ESF Outreach has implemented the "Developing Central New York's Green Infrastructure" project, funded in part by a US Forest Service grant. The purpose of this project is to support the emergence of green infrastructure throughout Syracuse and Central New York by equipping various audiences with the knowledge and skills necessary for green infrastructure design, implementation, monitoring, and maintenance; and by educating them on local funding opportunities and current barriers to widespread acceptance of green infrastructure.

Overall Project goals:

- Create a successful local "green-collar" workforce development program
- Build a viable, replicable job training model for urban neighborhoods
- Address poverty and unemployment in an underserved low-income urban population
- Improve local neighborhood physical infrastructure
- Promote environmentally sustainable practices and development
- Support local green businesses and industry

Green Infrastructure Workforce Training Program

Program overview and purpose:

A major focus of the Developing Central New York's Green Infrastructure project is the creation of the Green Infrastructure Workforce Training Program. This program addresses several of the project's overall goals by taking a progressive approach to solving the water quality issues caused by stormwater runoff in the Onondaga Lake Watershed. In addition, it addresses two critical concerns of the city of Syracuse – poverty and sustainable development – by simultaneously

training a local workforce and enhancing the urban landscape with environmentally conscious renovation, construction and maintenance.

The purpose of the program is to directly prepare a cohort of Syracuse citizens with the knowledge, skills and attitudes necessary for employment in the emerging field of green infrastructure. Various topics covered throughout the program will be connected by the common themes of sustainability, community revitalization and investment, and social entrepreneurship.

Aspirational Goals for Participants:

Upon completion of the program, participants will:

- Appreciate the benefits and effectiveness of using green infrastructure in stormwater management
- Have the knowledge, skills, and abilities to implement various types of green infrastructure
- Understand larger sustainability and restoration initiatives in the city of Syracuse
- Be empowered to play a leadership role in the restoration of their community
- Obtain long-term, livable wage employment

Certifications:

Participants who complete this program will receive the following certifications:

- Occupational Safety and Health Administration 10-hour certification- www.osha.gov
- SUNY-ESF certification of program completion
- Northside Urban Partnership certification of program completion

They will receive *preparation* to pursue the following certifications:

- Permeable Concrete Installer certification- www.nrmca.org/
- Certified Arborist- www.isa-arbor.com/home.aspx
- Master Gardener- www.gardening.cornell.edu/education/mgprogram
- Rochester Civic Garden- various certifications- www.oldsite.rcgc.org
- New York State Certified Nursery and Landscape Professional- www.nysnla.org
- Rainwater Harvesting Certification- www.arcsa.org

Principal learning outcomes:

- Demonstrate and understand safe work procedures in landscaping and construction trades
- Demonstrate knowledge of appropriate workplace communication
- Describe common gray and green methods of managing stormwater in urban environments
- Describe the major impacts of unmanaged stormwater management on ecosystems
- Describe the benefits of low impact development and green infrastructure (GI)
- Recognize common types of GI and their general purposes
- Demonstrate understanding of basic gardening and urban forestry
- Demonstrate understanding of landscaping principles, their relationship to GI, and their application to softscapes and hardscapes:
 - o Planting, pruning, native and wildlife plants, wetland and wet-weather plants, etc.
- Identify basic blue print terms, components and symbols and relate to actual landscape
- Demonstrate on-site landscaping skills
- Demonstrate how to design, build, and install rain barrels, rain gardens, and porous pavers
- Identify types of green roofs and describe multiple functions and benefits of green roofs
- Demonstrate ability to install and maintain green roofs
- Demonstrate understanding of Syracuse's stormwater issues and opportunities for GI

Program schematic:

Green Train Landscaping and Urban Ecology

Workforce development Program

Developed by SUNY-ESF in collaboration with The Northside Urban Partnership (Northside UP) and the CenterState Corporation for Economic Opportunity

Spring 2011



Overall Program Schedule

Week	Topic / Information presented	Learning Activities	Assessment	Instructors & Site visit hosts
Week 1	<p>Introduction to program</p> <ul style="list-style-type: none"> • Orientation • Natural vs. built environment • Traditional gray infrastructure • Types of green infrastructure • Stormwater (SW) management <p>Field Trips- Wastewater Treatment Plant, Tully St. GI, SUNY-ESF, etc.</p> <p>Permeable Pavement workshop- Rosamond Gifford Zoo</p> <p>Employment Readiness</p> <ul style="list-style-type: none"> • <i>English as Second Language</i> • <i>Workplace communication</i> • <i>Job preparation skills</i> • <i>Additional transferrable skills</i> 	<ul style="list-style-type: none"> ▪ Classroom ▪ Field visits 	<ul style="list-style-type: none"> ▪ Pre-test on concepts to be covered ▪ Quiz on week 1 material 	<p>Instructor(s):</p> <p>Site visit host(s): WWTP, Tully St., SUNY-ESF, Rosamond Gifford Zoo, etc.</p>
Week 2	<p>Review SW mgmt, wastewater treatment, porous pavement.</p> <p>Math for landscaping and SW calc's</p> <p>Employment Readiness (con't)</p> <ul style="list-style-type: none"> • <i>Resume writing, interview skills</i> • <i>Financial literacy</i> • <i>OSHA 10 hour safety training</i> 	<ul style="list-style-type: none"> ▪ Classroom 	<ul style="list-style-type: none"> ▪ OSHA 10-hr certification 	<p>Instructor(s):</p>
Weeks 3 & 4	<p>Gardening and Landscaping Design</p> <ul style="list-style-type: none"> • Landscaping basics • Planting basics • Urban forestry introduction • Soils and nutrients basics • Hardscaping • Permeable pavement • Various site visits <p>Field Trips- Beaver Lake, Creekwalk, Inner Harbor, Franklin Square, Jowonio school, Petit Library, Greenscapes, Northern Nursery, etc.</p> <p>Employment Readiness (con't)</p>	<ul style="list-style-type: none"> ▪ Classroom ▪ Field visits ▪ Hands-on work experience 	<ul style="list-style-type: none"> ▪ Assess ability to implement a landscape plan ▪ Assess planting & hardscaping skills and knowledge of materials 	<p>Instructor(s):</p> <p>Site visit host(s): Beaver Lake, Creekwalk, Inner Harbor, Jowonio School, Petit Library, Greenscapes, Northern Nursery, Rare Earth Nursery, etc.</p>

Week	Topic / Information presented	Learning Activities	Assessment	Instructors & Site visit hosts
Week 5	Green Infrastructure:- Residential projects (part 1): <ul style="list-style-type: none"> • Water cycle & SW mgmt review • Introduction to rain gardens & rain barrels • Design of rain gardens, plant selection for rain gardens • Site assessment, testing, and preparation for rain gardens Employment Readiness (con't)	<ul style="list-style-type: none"> ▪ Classroom ▪ Field visits ▪ Site assessments in field 	<ul style="list-style-type: none"> ▪ Assess ability to design and install rain gardens and rain barrels 	Instructor(s): Site visit host(s): 515 Tully St., Marcellus St.
Week 6	Urban Forestry- Site selection, tree planting and maintenance Oswego St., Gifford St., McGroarty Park Introduction to green roofs <ul style="list-style-type: none"> • Types of green roofs, Green roof installation and maintenance Field trips- Center of Excellence, King & King Architects GI Case studies- student presentations Workplace conflict/communication scenarios Employment Readiness (con't)	<ul style="list-style-type: none"> ▪ Classroom ▪ Field visits ▪ Hands-on work experience 	<ul style="list-style-type: none"> ▪ Assess tree planting skills ▪ Assess knowledge of green roofs ▪ Quiz on all prior program material 	Instructor(s): Speaker(s): Site visit host(s): COE, King & King Architects
Week 7	Green Infrastructure- Residential projects (part 2): Installation and planting of rain gardens Employment Readiness (con't)	<ul style="list-style-type: none"> ▪ Classroom ▪ Hands-on design and build 	<ul style="list-style-type: none"> ▪ Assess ability to design and install rain gardens 	Instructor(s): Site visit host(s): TBD
Week 8a (2 days)	Review, Final exam and practicum Teambuilding and communication Employment Readiness (con't)	<ul style="list-style-type: none"> ▪ Classroom ▪ Field visits 	<ul style="list-style-type: none"> ▪ Final Exam & practicum on all program material 	Instructor(s): Site visit host(s): Ropes course
Weeks 8b, 9, & 10a	Internships (2 weeks, Wed. – Wed.) <ul style="list-style-type: none"> • Local landscaping contractors, nurseries, greenhouses, government and nonprofit organizations 	<ul style="list-style-type: none"> ▪ Hands-on work experience 	<ul style="list-style-type: none"> ▪ Internship host evaluations for each student 	Site visit host(s): Various internship hosts
Week 10b	Internship debrief, evaluation, program conclusion Graduation	<ul style="list-style-type: none"> ▪ Classroom 	<ul style="list-style-type: none"> ▪ Certification: SUNY-ESF, Northside Urban Partnership 	Instructor(s): All

Example curriculum:

**WEEK 5 – RESIDENTIAL GREEN INFRASTRUCTURE PART I
STUDENT LEARNING AND PERFORMANCE OUTCOMES**

- Demonstrate understanding of water cycle and watersheds
- Demonstrate understanding of basic soil principles- texture, compaction, pH, nutrients
- Demonstrate knowledge of common rain garden plant characteristics and planting techniques
- Select suitable plants for rain gardens and landscaping using blocking for continuous bloom

Day/Date/Time	Topic / Information presented	Instructor
Day 1: 8:30 AM - 12:30 PM	Review of water cycle Introduction to watersheds and GI Review combined vs. separated sewers	Lead:
1:00 PM – 3:00 PM	Various activities tailored to student needs (ESL, GED, related job skills, etc.)	Lead:
Day 2: 8:30 AM - 12:30 PM	Intro to rain gardens: What, how, factors to consider when designing & installing Field trip – existing rain gardens- Tully St., Marcellus St., McGroarty Park, etc.	Lead:
1:00 PM – 3:00 PM	Various activities tailored to student needs (ESL, GED, related job skills, etc.)	Lead:
Day 3: 8:30 AM - 12:30 PM	Soils for rain gardens <ul style="list-style-type: none"> • Soil texture and structure • Concerns with urban soils • Soil tests: Percolation, ribbon test, compaction, and pH • Nutrient and heavy metal analyses Site assessment, sizing the garden	Lead:
1:00 PM – 3:00 PM	Various activities tailored to student needs (ESL, GED, related job skills, etc.)	Lead:
Day 4: 8:30 AM - 12:30 PM	Rain garden design Field trip/work- Rain garden project site <ul style="list-style-type: none"> • Choose size, shape • Work w/ client to meet his/her needs Plants for rain gardens <ul style="list-style-type: none"> • Types of plants (native/non-native, perennial, evergreen, etc.) • Aesthetics (color, form, size, bloom time) • Plants for birds/insects 	Lead:
1:00 PM – 3:00 PM	Various activities tailored to student needs (ESL, GED, related job skills, etc.)	Lead:
Day 5: 8:30 AM - 12:30 PM	Rain garden design con't <ul style="list-style-type: none"> • Characteristics of plants for rain gardens • Shade- and flood-tolerance • Blocking for continuous/seasonal bloom Develop rain garden sketch for project site	Lead:
1:00 PM – 3:00 PM	Various activities tailored to student needs (ESL, GED, related job skills, etc.)	Lead: