Engaging Undergraduate Students in Cooperative Extension Programs

Presented at the National Urban Extension Conference in Atlanta, Georgia

Christopher C. Obropta, Ph.D., P.E.
Nicole Del Monaco
Jessica Brown, P.E.

May 5, 2015
Our Mission is to identify and address community water resources issues using sustainable and practical science-based solutions.

The Water Resources Program serves all of New Jersey, working closely with the County Extension Offices.
Program History

• Created in 2002
• Statewide focus
• $1,000,000 annual operating budget
• All grant funded
• Diverse staff
• Effective partnerships
• Measurable impact
Program Structure

Senior Management
(Mr. Bergstrom and Ms. Evrard)

Junior Management
(Ms. Brown)

Staff Employees: Advance Degree Candidates (Rosana, Kyle, and Karen)

Staff Employees: Non-Advance Degree Candidates (Sara, Chris, Michelle, Tyler)

Full-Time Graduate Students (Jason, Nicole, and Akanksha)

Undergraduate Interns (Amna, Dillon, Matt, Kaylin, Stephanie, Enrique, Marta, Tze, Eliot, Bob, Dominick, Cody, Kaylene, Liz, Bhavani, Kyhlil, Nimah, Adam, Hollie)
Student Opportunity

- Independent Study/Course Internship (unpaid but receive credit)
- Special Problems in Bioenvironmental Engineering (3-credit hour course)
- Research internship (scholarship)
- RCE Water Resources Program Intern (paid internship)
Progression of Intern Program

- Started with field work focus
- Water quality sampling
- Surveying
- Literature reviews
Progression of Intern Program

2012
3 Spring
6 Summer
5 Fall

6 Spring
8 Summer
5 Fall

2013
2014
7 Spring
10 Summer
15 Fall

2015
18 Spring
23 Summer

Are we at maximum capacity? What does this look like when our funding changes?
Diversity

- Bioenvironmental Engineering
- Civil Engineering
- Environmental Science
- Environmental Policy and Planning
- Landscape Architecture
- Landscape Industry
Program Objectives

Student leadership

Learn technical skills and increase experience

Produce project deliverables

source: alexanderbrookes.com
Summer Program

• Full-time (32-40 hours a week)
• Intern Team (integrated work)
• Mix of field and office work
• Sophomores, Juniors, Seniors, and High School Students
Past 3 Summers in Review

- Summer 2012 – 6 interns
- Summer 2013 – 8 interns
- Summer 2014 – 10 interns
- 14 weeks summer
- Total Investment - $87,986
- Total Time – 8,292 hours ~ $10.6/hr, equivalent to 8 people, part-time for a year

![Graph showing the number of summer interns from 2011 to 2015 (2011, 2012, 2013, 2014, 2015). The number of interns increased from 2011 to 2015.]

![Graph showing the total funding for each year (2012, 2013, 2014). The funding increased from 2012 to 2014.]

![Graph showing the hours worked for each year (2012, 2013, 2014). The hours increased from 2012 to 2014.]

![Graph showing the individual intern salary ranges for each year (2012, 2013, 2014). The salary ranges varied from year to year.]

[Image credit: Rutgers New Jersey Agricultural Experiment Station]
Summer 2012

- **2,226 hours, $24,316**
- 6 interns, hourly rate $10 - $13
- Team Avg. weekly – 159 hours, $1736.82
- Paid off of 10 grants, 1 department account
- Individual summer salary ranges from $3,126.50 - $5,791.50

**Salary by Intern**

- **Camden**, $29,435.50, 46%
- **Musquapsink**, $1,805.00, 3%
- **Pompeston**, $8,569.00, 13%
- **Tenakill**, $5,298.50, 8%
- **CCMUA**, $5,120.00, 8%
- **Lock.Wick**, $5,281.50, 14%
- **Troy Brook**, $1,226.50, 2%
- **Reg. H2O Qual.**, $504.00, 1%
- **Robinson's Branch**, $3,905.50, 6%
- **Hamilton**, $2,446.00, 4%
- **Departmental Closeout**, $642.50, 17%
- **Pompeston**, $8,569.00, 13%
- **Tenakill**, $5,298.50, 8%
- **CCMUA**, $5,120.00, 8%
- **Lock.Wick**, $5,281.50, 14%
- **Troy Brook**, $1,226.50, 2%
- **Reg. H2O Qual.**, $504.00, 1%
- **Robinson's Branch**, $3,905.50, 6%
Summer 2013

- **2,484 hours, $26,902**
- 8 interns, hourly rate $10 - $13
- Team Avg. weekly – 177 hours, $1,922
- Paid off of 12 grants, 2 department accounts
- Individual summer salary ranges from $2,130.00 - $5,590.00

**Salary by Intern**

- PVSC, $7,847.00, 19%
- Dept, $4,701.00, 11%
- Camden, $3,096.57, 8%
- Dept, $1,200.50, 3%
- Troy Brook, $4,276.50, 10%
- Sundry, $2,932.00, 7%
- Cohansey, $6,265.00, 15%
- Dept, $4,701.00, 11%
- Drinking Water, $70.00, 0%
- Drinking Water, $70.00, 0%
- GW Monitoring, $260.00, 1%
- Robinson's Branch, $2,700.00, 7%
- Newark, $723.00, 2%
- Pompeston, $567.50, 1%
- RG Rebate, $520.00, 1%
- Drinking Water, $70.00, 0%

21% 17% 14% 13% 14% 10% 6%
Summer 2014

- **3,582 hours, $37,068**
- 10 interns, hourly rate $10 - $13
- Team Avg. weekly – 256 hours, $2,648
- Paid off of 15 grants, 1 department account
- Individual summer salary ranges from $1,260.00 - $4,880.00
Why were you interested in working for the Water Resources Program? (n=25)

- Needed a Job/Money: 28%
- Experience: 47%
- Work Environment: 25%
Hiring Philosophy

Potential
“Capacity for Awesomeness”

Experience

[Diagram with stars on a graph showing potential vs. experience]
Student Training
Student Training

- Conducting site assessments
- Monitoring water quality and stream health
- Surveying
- Designing and building stormwater management practices
- Preparing engineering drawings in AutoCAD
- Conducting watershed analyses in ArcGIS
- Developing and delivering educational programming
Monitoring water quality and stream health
Surveying
Conducting Site Assessments
Designing stormwater management practices

Inflow Area=242,194 sf
Peak Elev=55.85'
Storage=40,550 cf
Building stormwater management practices
Working in AutoCAD and ArcGIS
Developing and delivering educational program
Researching new technologies
Some Interesting Survey Results

- 65% strongly agreed and 35% somewhat agreed that they received the proper training in order to perform their job effectively.
- On average the students increased their knowledge of ArcGIS by 29% and AutoCAD by 25%.
- 100% of the student interns believe their skills improve because of the work experience and tasks assigned by the Water Resources Program.
- 100% of the student interns, if given the opportunity, would return to work for the Water Resources Program.
Some Interesting Survey Results

• 100% of the student interns would recommend the Water Resources Program to their friends as a good place to work

• 100% of the student interns felt that they were treated like a valuable member of the Water Resources Program

• 100% of the student interns felt like their experience will help you with class/school or another job
Jobs, Jobs, Jobs!

- Consulting Companies (Staff Engineers)
- Corporate America (Compliance Engineers)
- Government – EPA and NJDEP
- Non-governmental organizations (NGOs)
- Academic – Cooperative Extension/Sea Grant
- Graduate School
Thank you Jess and Nicole!

Christopher C. Obropta, Ph.D., P.E.
obropta@envsci.rutgers.edu
www.water.rutgers.edu