







United States Department of Agriculture

National Institute of Food and Agriculture

USDA NIFA Sustainable Land Reclamation 2019 Annual Meeting



June 10-11, 2019 Morgantown, WV



The Project

- The purpose of this project is to educate a new generation of workforce prepared to lead sustainable land reclamation management efforts in central Appalachia:
 - 1) enlarging the arable land area;
 - 2) advancing land planning and potential commercial/recreational uses, such as, energy/economic crops and recreation opportunities;
 - 3) mitigating significant agricultural and environmental problems, such as, soil and water quality, reforestation, wildlife and ecosystem;
 - 4) developing regional sustainable rural economy and increasing employment opportunities.
- The project includes three goals and five objectives.

The Team

PI – Dr. Robert C. Burns, WVU

Co-Pl's

Dr. Jingxin Wang, WVU

Dr. Kyle Hartman, WVU

Dr. Jamie Schuler, WVU

Dr. Jeffrey Skousen, WVU

Dr. Louis McDonald, WVU

Prof. James Downs, Hocking College (OH)

Prof. John Jastrzembski, Allegany College (MD)

Graduate Research Assistants/Postdocs

WVU Potomac State College, WV State University



Advisory Board

- Dr. Todd Petty, Chair, WVU Davis College
- Dr. Paul Ziemkiewicz, WVU Water Research Institute
- Dr. Mary-Beth Adams, USDA Forest Service
- Dr. Sarah Kreitzer, USDI Office of Surface Mining
- Mr. Jerry Wood, WVU Veteran Affairs

Accomplishments in Year One

First year of the project (5/1/2018 – 4/30/2019):

- The "Intent to Plan" proposal has been approved for the certificate in Sustainable Land Reclamation Management, full certificate application is under review at WVU;
- 2. The recruiting and promotion activities and materials have been conducted following the project's time schedule;



Accomplishments in Year One

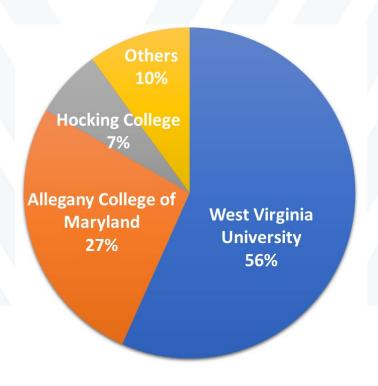
- 3. Three of the five proposed new courses have been developed;
- 4. The new 2+2 agreements are under preparation;
- 5. The major members of the Advisory Board have been determined and the first Advisory Board Meeting has been held at WVU.





2019 Annual Meeting

- 4 Undergraduate Students
- 5 Graduate Students
- 2 Postdoctoral Researchers
- 13 Faculties (9 Professors,1 Associate Professor, 3 Assistant Professors)
- 11 Other Research Scientists and Professionals



Project Update



- Project Goals
- Subtask Update
 - Accomplishments
 - Y2 Work Plans
 - Issues

Project Goals

- Advance a 2+2 program certificate to integrate students' learning in a multidisciplinary issue that is land reclamation, by combining environmental sciences, social sciences, recreation, as well as sustainable forest resources management;
- 2) Enhance undergraduates' learning skills through online courses, hands-on research and field trip activities;
- 3) Develop partnerships with two-year colleges, industries, government agencies and non-government organizations (NGOs).

Objective/Task 1 (Hartman and Skousen)

- Develop a certificate
 - Built on top of existing courses in the DFNR and DPSS
 - Students seeking the certificate/minor will need to complete 14 credit hours:
 - 5 credit hours required based on three new courses
 - 9 hours from elective courses

Accomplishments – Objective 1

- The "Intent to Plan" proposal has been approved for the certificate in Sustainable Land Reclamation Management, full certificate application is under review at WVU.
- The certificate will need to complete:
 - 5 hours required courses
 - minimum 9 hours elective courses in Plant Science, Planning/Management/Business, and Soil & Water Science areas.

Certificate in Sustainable Land Reclamation Management





Certificate Overview

After decades of agricultural and forestry practices as well as energy production in central Appalachia, approximately 950,000 acres of landscape in West Virginia. Pennsylvania and Ohio have been highly impacted. With acreage of that magnitude and an increasing demand for highly trained professionals in the area of land reclamation, West Virginia University partnering with Hocking College and Allegany College of Maryland has developed a certification program in sustainable land reclamation management.

The certificate complements a variety of natural resources majors and requires 14 credit hours to complete. You'll take courses in plant science, soil and water sciences, planning, management and business.

After completing the certificate program, you'll be able to:

- Demonstrate knowledge of sustainable land reclamation practices.
- · Understand management strategies for re-establishment of both herbaceous and woody vegetation on reclaimed lands.
- Demonstrate competence in an area of professional development that complements their sustainable land reclamation management education
- Understand the contemporary issues of sustainable land reclamation management.









Accomplishments – Objective 1

After completing the certificate in Sustainable Land Reclamation Management, students will:

- Demonstrate knowledge of sustainable land reclamation practices.
- ✓ Show understanding of the contemporary issues of sustainable land reclamation management.
- Demonstrate competence in an area of professional development that complements their sustainable land reclamation management education program.

Course Requirements

| Five Hours Required Courses | | | | |
|-----------------------------|--|-----------------------------|-----------------------------|--|
| WVU: FOR 293D | Introduction to Sustainable Land Reciamation Management – Interdisciplinary Seminar | 1 | Online | |
| WVU: FOR XXX | Careers and Professional Development in Land Reclamation Management | 1 | Online | |
| WVU: FOR XXX | Projects and Labs on Sustainable Land Reclamation management | 3 | Summer camp | |
| ACM: BIO/PHY 299 | Special Problems in Land Reclamation | to W | Transfer as 2 hrs to WVU | |
| HC: FOR 1140 | Survey of Sustainable Land Management | Transfer as 2 hrs to WVU | | |

You must select at least one oourse from each of the topic areas listed below. A minimum of nine hours in elective courses. Additionally, courses listed below that are required for your major cannot be applied to the certificate.

| AGRN 451 | Principles of Weed Science | 3 | Fall |
|----------|----------------------------|---|-------|
| FMAN 212 | Forest Ecology | 4 | Fall |
| FOR 205 | Dendrology | 3 | Fall |
| FOR 310 | Elements of Silviculture | 4 | Fall |
| WMAN 200 | Restoration Ecology | 3 | Onlin |
| FOR 206 | Winter Dendrology | 1 | Sprin |
| FOR 293a | Forest Botany | 4 | Sprin |
| HORT 330 | Plant Propagation | 3 | Sprin |

| Planning/Management/Business Area | | | |
|-----------------------------------|-------------------------------------|---|--------|
| ENLM 200 | Principles- ELM | 3 | Fall |
| RESM/FOR 440 | Foundations of Applied GIS | 3 | Fall |
| ENLM 250 | Managing Non-technical Risks | 3 | Spring |
| ENVP 460 | EIA | 3 | Fall |
| ENVP 355 | Environmental Sampling and Analysis | 3 | Fall |
| RPTR 365 | Planning/Design -Recreation | 3 | Fall |
| | | | |

| Soil & Water Science Area | | | |
|---------------------------|--------------------------------|---|--------|
| AGRN 415 | Soll Survey & Land Use | 3 | Fall |
| AGRN 455* | Reclamation of Disturbed Solis | 3 | Spring |
| ENVP 325 | Principles of Water Res. | 3 | Fall |
| FHYD 444 | Watershed Management | 3 | Fall |
| FHYD 493a | Climate and Watersheds | 3 | Spring |
| AGRN 410 | Soil Fertility | 3 | Fall |

*AGRN455 must be taken unless already part of major requirement.

Other courses may be acceptable if approved by certificate program coordinator.

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- Get the certificate approved officially
- Promote and recruit students
- Offer related courses



Issues – Objective 1

- Speed up the approval process
- Work with the college recruiters

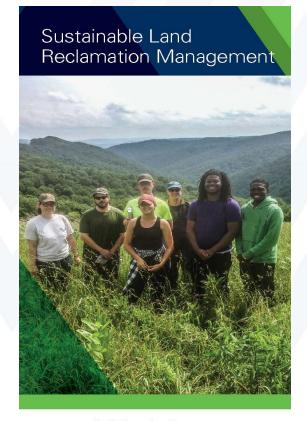


Objective/Task 2 (Hartman, McDonald, Burns, Downs and Jastrzemski)

- Recruit and promote the 2+2 program
 - Revisit the Articulation Agreements between Hocking
 College (OH) and Allegany College (MD): 2+2 Program
 - Facilitate transfer of students from the college partners to WVU for a B.S. degree with this certificate

Objective 2

- The products from this task include:
 - A 2+2 program with ACM and HC.
 - First two years at Allegany College of Maryland or Hocking College in Ohio.
 - Last two years WVU to earn a Bachelor's Science Degree with a Certificate in Sustainable Land Reclamation Management.
 - Signed Agreements need to be renewed.



2+2Transfer Program

Accomplishments – Objective 2

- WVU: Working on the Articulation Agreements with Allegany College of MD and Hocking College.
- ACM: Promotion, recruitment, and marketing materials have been created. Hired recruiter, recruited at local HS and college fairs, recruited ant Natural Resource Career Camp.
- HC: Promotion and recruiting materials have be created and disseminated during the spring semester of 2019.

WVU:

- Will set up equivalents within the system and drafted plan of study engaging with Plant and Soil Sciences professors and Taylor Richmond
- Finalize and review the Articulation Agreements
- Sign the Agreements

Regional Education Program in Sustainable Land Reclamation Management in Central Appalachia







Program Overview

A unique team of researchers and educators lead a new educational certificatebearing initiative focusing on sustainable land reclamation management in Appalachia. While WVU's Davis College will lead the effort, several partner academic institutions will participate. The goal is to educate a new generation of workers so they are prepared to lead sustainable land reclamation management efforts in central Appalachia. The team aims to impact the Appalachian region by enhancing the number and diversity of undergraduate students pursuing a university degree, and by increasing employment opportunities for students through industry partnerships.

Goals:

This project aims to increase undergraduate students' skills in sustainable land reclamation management, which is critical for those who intend to enter the agriculture and natural resources workforce. We focus on the following three goals:

- Advance a 2+2 program certificate to integrate students' learning in a multidisciplinary issue that is land reclamation, by combining environmental sciences, social sciences, recreation, as well as sustainable forest resources management;
- Enhance undergraduates' learning skills through online courses, handson research and field trip activities;
- Develop partnerships with two-year colleges, industries, government agencies and non-government organizations (NGOs).









HC:

- Following the completion of promotion and recruiting materials, the enrollment manager at HC will be visiting local high schools.
- Promoted at the HC's Forestry Field Day (04/26/2019).
 - 65 high school students
- New Program Manager for Forest Management Program.

Objectives:

In order to accomplish these goals, the following specific objectives have been implemented:

Objective 1: Develop a certificate in sustainable land reclamation management:

Objective 2: Recruit and promote the 2+2 program in sustainable land reclamation management education;

Objective 3: Develop new courses and create an online course library for sharing teaching materials;

Objective 4: Interact with and educate faculty at partner colleges for specific needs in sustainable land reclamation management:

Objective 5: Engage with regional government agencies and industry stakeholders.

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ACM:

- Recruit at key events
- Revise website to reflect new 2+2 agreement and WVU approved certificate program
- Develop new marketing materials



Issues – Objective 2

- WVU: Due to recent changes in WVU's policies regarding transfer work all
 of WVU's MOUs for our articulation agreements, and their plans of study,
 became immediately out of date.
- ACM:
- Target audience is not defined.
- 2+2 completion agreement is critical for effective marketing.
- Elimination of Academic Common Market will have negative consequences on transfer students.
- HC: Personnel Solved with hire of Program Manager.

Objective/Task 3

(Schuler, Skousen, Hartman, McDonald, Wang, Downs, and Jastrzemski)

- Develop new courses and create an online course library
- 5 new courses need to be developed
 - WVU 3
 - Hocking 1, Allegany 1
- An online course library
 - An online data repository
 - Webinars, teaching materials
 - Online sharing

Accomplishments – Objective 3

• 3 new courses

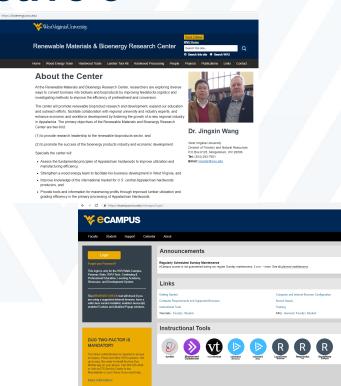
| Course Title | Hours | Туре | Status |
|--|--------------------------|----------------|------------------------------------|
| WVU: FOR 293D- Introduction to sustainable land reclamation management - Interdisciplinary Seminar | 1 | Online | Will be offered this fall |
| ACM: Biology 299 / Physics 299- Field Studies in Land Sustainability | Transfer as 2 hrs to WVU | On field | Summer & Fall 2018; Summer 2019 |
| HC: FOR 1140- Survey of Sustainable Land Management | Transfer as 2 hrs to WVU | Summer camp | Will be offered |

WVU:

2 new courses

| Course Title | Hours | Туре | Status |
|--|-------|-------------|---------|
| FOR XXX- Careers and professional development in land reclamation management | 1 | Online | Ongoing |
| FOR XXX- Projects and Labs on sustainable land reclamation management | 3 | Summer camp | Ongoing |

- Two new courses will be developed and offered in 2020 (Schuler)
- Program website (Wang)
 - Online course library
 - Annual report(s)
 - Certificate and program flyers
- Share files with Google Docs (Wang)
 - Recruiting and promotion activities and materials
 - Reports
 - Documents from the meetings



HC: FOR 1140- Survey of Sustainable

Land Management

Will be offered again in Spring
 Semester

ACM: Offer Sustainable Land

Reclamation course



Issues – Objective 3

HC: Not in Curriculum. Needs to be advertised to students, and encouraged through advising.

ACM: Limited interest in the course with current students.

Financial aid restrictions for students

Objective/Task 4 (Schuler, Skousen, McDonald, Downs, and Jastrzemski)

- Interact with Faculty at partner colleges for specific needs
 - Improve faculty competencies
 - Increase instructor success
 - Improve student job placement

Accomplishments – Objective 4

Meetings and Interactions:

- Communications
- Annual meeting
- Updated the project progress circumstances
- discussed problems and made changes



- More interactions for students, faculty and industry partners.
- Visit ACM and HC campuses
- Annual meeting
- Monthly calls and communications



Issues – Objective 4

- Potential faculty leaders
- Location and timing for 2nd **Annual Meeting**



Objective/Task 5 (Skousen, McDonald, Wang and Burns)

- Engage with Regional Agency and Industry Stakeholders

- Engage with stakeholders
- Acquire knowledge
- Define education needs
- Seek internship/employment opportunities

Accomplishments – Objective 5

- Formed the Advisory Board
- Successfully completed the first Advisory Board Meeting on March 19, 2019
- First annual meeting
- Field tour



- Continue interactions with the Advisory Board Members for recommendations and suggestions
- Further advertise and market the program, taking the recruiting materials to appropriate regional and national meetings
- Outreach to regional stakeholders to extend the network of potential partners



Issues – Objective 5

- Timely engagements
- Feedbacks from stakeholders for the project improvement

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Thank You!

