The four charter schools that are working together to develop the program are:
- Michigan State University
- Purdue University
- Ohio State University
- Central State University (Ohio)

Project management team consists of:
- Dr. Jane Frankenberger, Purdue University
- Dr. Wendy Powers, Michigan State University
- Dr. Luke Reese, Michigan State University
- Dr. Subramania Sritharan, Central State University
- Dr. Steven Safferman, Michigan State University
- Dr. Lingying Zhao, Ohio State University

Four offered classes:
- Agricultural air emissions and air/water interface science
- Animal manure management and technology
- Design and management of decentralized wastewater systems
- Suburban/rural watershed interface modeling

Agricultural air emissions and air/water interface science
This course will be developed and supervised by Dr. Linying Zhao. The primary objective for the course is to teach the fundamentals of air quality and emissions associated with livestock environments. Students will also learn about impacts of livestock farm emissions on local communities and methods of reducing pollution. Some objectives include calculating airflow exchange and emission rates from agricultural facilities and assessing indoor air quality, ambient air quality, and air emissions from typical agricultural sources.

Contact Dr. Zhao at Zhao.119@osu.edu

Animal manure management and technology
Jon Rausch is the developer of this course. The goal of the course is to provide students and professionals within agricultural, allied industries, and the public sector professional a self-guided educational opportunity focused on high priority manure management issues. Students will develop and design a manure handling and storage system for a modern food animal operation followed with a follow-up visit of an existing operations manure handling system. Some objectives include understanding the nutrient loss and retention characteristics of different types of manure storage and understanding the basic structural considerations for constructed manure storage.

Contact Dr. Rausch at rausch.7@osu.edu

Design and Management of Decentralized Wastewater Systems
The developers of this course are Ted Loudon and Larry Stephens. This course provides an overview of decentralized (also called dispersed) wastewater treatment concepts. The student will learn how the role of decentralized wastewater treatment systems relates to the sustainable wastewater management infrastructure of the future. Students will learn the concepts and methods of site evaluation, matching sites with various technologies, and be introduced to design tools and methods for various types of on-lot and cluster systems.

Professors can be reached at (517) 339-8692

Suburban/rural watershed interface modeling
The instructors for this course are Mr. Steve Miller and Dr. Bill Northcott. Students will use watershed scale water quantity and quality models at the suburban/rural interface to evaluate the impacts of changes in land use management practices and design the best management practices (BMPs) to address stream water quality and quantity problems. Students will also demonstrate an understanding of watershed simulation methods and the limitations and the strength of various models and under the direction of a mentor develop design alternative for a watershed to address current management issues.

Contact Mr. Miller at mill1229@msu.edu
Contact Dr. Northcott at northco2@msu.edu
The multi-institutional, multi-state team will use project funds to develop unique moderated self-study web-based and experiential multi-disciplinary design courses on sustainable approaches to high priority agricultural and watershed management needs notably at rural/suburban interfaces. These issues have been largely ignored by traditional university programs due to limited faculty expertise and resources at any one institution. Core content for the classes will be developed in a workshop with participants from academia, Extension, industry, consultants, and stakeholders. To administer the unique experiential components, a professional mentoring network will be created and piloted in Michigan that will offer customized hands-on content for each student. ECOSEAM course content and delivery will increase the number of graduates in the food and agricultural sciences with critical disciplinary content, analytical, leadership, problem-solving, computational and decision making skills and abilities. All classes will be designed at a dual level and therefore available as a technical course for qualified senior baccalaureate degree and a technical elective for graduate students.

If you want to build upon your knowledge of biosystems science consider ECOSEAM, where we study the farms of tomorrow.

For more information:


Steven Safferman, Project PI
safferma@msu.edu
(517)-432-0812