

Developing and Teaching an Exploring STEM in Agriculture Course

Dr. Rick Parker



New GNED 101 Courses

- Introduces the purpose of the General Education Program at CSI
- Students will understand how general education supports the mission of the College; enhances degree programs; enriches understanding of the self, society, and the natural world; provides a basis for inquiry, expression, and problem-solving; and contributes to lifelong learning and wellness.
- Students will be introduced to strategies fundamental to college success.



Student Learning Outcomes for General Education

- **Think** - use multiple approaches and terminologies to discuss, analyze, solve, interpret and create in disciplines.
- **Communicate** - transfer information using strategies appropriate to context and audience.
- **Connect** - explain how the different ways of knowing are interconnected; judge the appropriateness of using one or more ways of knowing
- **Solve** - a problem or explore an issue; reflect on one's progress as a generally-educated learner.
- **Appreciate** - apply discipline-appropriate criteria to evaluate how an idea, text, or creation reflects and relates to the human condition.

Student Learning Outcomes for the Course

- **Articulate** the value of general education
- **Explain** how a Way of Knowing can broaden and deepen our comprehension of a topic or idea
- **Demonstrate** a knowledge of academic integrity policies and expectations at CSI
- **Use** the skills, strategies and campus resources necessary for engaged learning



Rationale for Course



- Even in our rural community most just live “around” agriculture
- STEM focused courses but agriculture gets ignored
- STEM everywhere in agriculture but not recognized
- Many opportunities in our community: large dairies, sugar beet factory, equipment sales and manufacture, potato processing, cheese, powdered milk, large farms, etc.
- One of the largest concentrations of food processors in the U.S.

My GNED 101: Experiencing STEM of Modern Agriculture (3 credit hours)

- A **project-based** course
- **The project:** Identifying STEM in Modern Agriculture
- **The process:** Visit local agribusiness and discover how STEM relates
- **Components/characteristics** of comprehensive project-based learning include: (a class discussion)
- **Assessments:** Reflections; creation of STEM in Agriculture Infographic; creation of STEM in Agriculture Lesson/Presentation; and submissions to a class website



Weekly Schedule



Week	Assignment/Discussion Topic	Lab/Activity Suggestions
1	Review syllabus and project-based learning; create teams and Learn about STEM	Handouts and video clips
2	Learn more about STEM, general education and ways of knowing; how to write reflections	Handouts and video clips
3	The evolution of modern agriculture	Handouts and video clips
4	STEM in agricultural equipment	Visit Agri-Service Equipment
5	STEM in agricultural equipment	TBA by students
6	STEM in livestock	Visit Whitesides' Dairy
7	Student infographic presentations	Classroom presentation
8	STEM in livestock	TBA by students
9	STEM in crops and soil	Potato harvest
10	STEM in crops and soil	TBA by students
11	STEM in food processing	Visit Southern Field Welding
12	STEM in food processing	Visit McCain Foods
13	Developing a STEM in agriculture lesson	Handouts
14	Presenting STEM in agriculture lesson	Classroom presentation
15	Presenting STEM in agriculture lesson	Classroom presentation

The Class



First Field Trip to Local Ag Museum



Field Trips



Field Trips



Field Trips

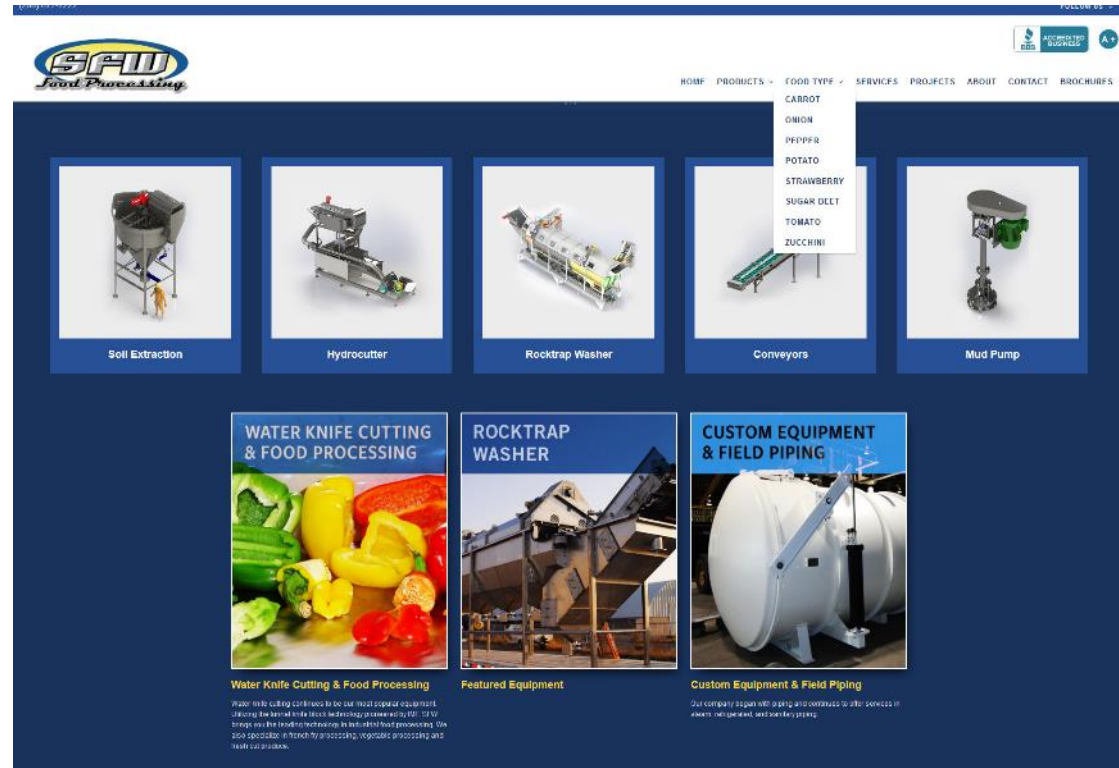


Field Trips



Field Trips

- Southern Field Welding



- The Sprinkler Shop



Website

- Google Sites used: <https://sites.google.com/view/ag-is-stem/home>



STEM in Agriculture

Agriculture is the quintessential STEM project. Science, Technology, Engineering, and Mathematics are woven into every component of agriculture - making agriculture a tremendous source for STEM contextual learning. STEM linkage to agriculture is largely ignored by many outside of agriculture. The context of agriculture, food and natural resources (AFNR) provides an innovative way to connect students to STEM. Additionally, agriculture needs STEM technicians for the changing and new careers in AFNR.

This website is a work in progress and created in part by a College of Southern Idaho GNED 101 class, "Exploring STEM in Modern Agriculture."

Also, follow us on our Facebook page: <https://www.facebook.com/AgIsSTEM/> and check out a companion Facebook page Ag101:

<https://www.facebook.com/Agri101/>.

[Background](#)

Infographics



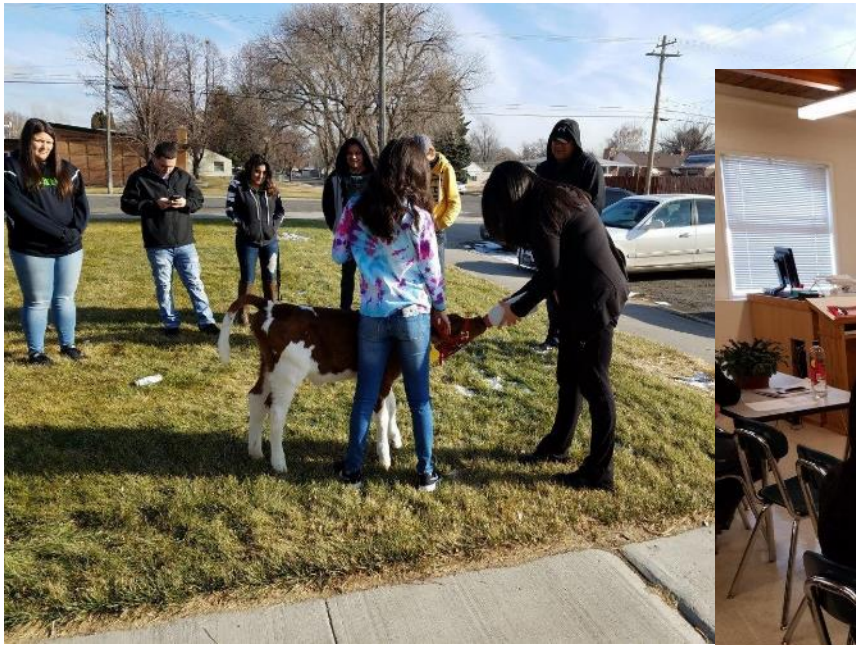
Infographics Created by Fall 2017 GNED 101 Class

Joesie



Lessons/Presentations

- Uploaded to the website: <https://sites.google.com/view/ag-is-stem/stem-lessons>



Summary

- Student technical skills are not what they seem to be.
- Some students struggle with a project-based class.
- End-of-class reflections show that students recognized the STEM in agriculture.
- Students recognized the value in all the field trips.
- Students were more aware of the importance and scale of agriculture.



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