

# Curriculum Development Using *Project Drawdown* Resources for Courses in the Undergraduate Agriculture and Food Systems Program at Rutgers University

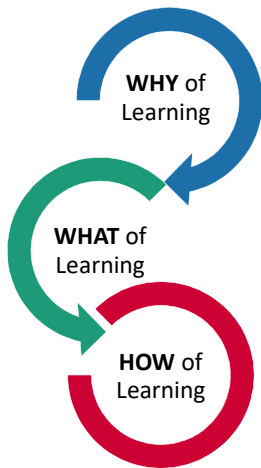
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**Abstract:**

The 2017 book *Project Drawdown: The Most Comprehensive Plan Ever Proposed to Reverse Global Warming*, edited by Paul Hawken, and its companion website (<https://www.drawdown.org/>) provide new resources for undergraduate instructors to integrate climate change mitigation into the agriculture and food systems curriculum. I piloted a climate-change lesson using *Project Drawdown* materials in our *Applied Applications in Agriculture and Food Systems* course, a 200-level required course for the majors, in the spring 2019 semester. Students were hopeful about the future at the end of the lesson and had a greater grasp of the magnitude of the changes needed to ensure significant mitigation of greenhouse gas emissions associated with agriculture and food systems. Food, agriculture and land-use related solutions from *Project Drawdown* will also be used in new lessons to be piloted in the fall 2019 semester in two other courses: *Sustainability: Tackling Food Waste Class*, a 300-level seminar, and the *Introduction to Agriculture and Food Systems*, a 200-level hybrid class. This poster outlines the approaches used to develop learning goals, and in-class and online lessons associated with selected *Project Drawdown* solutions. Student assessment and the use of the universal design for learning (UDL) framework will be included along with the challenges, opportunities, gaps, and lessons learned from these curriculum development activities.

**Universal Design for Learning**  
Adapted from:  
<http://www.cast.org/>



Class	Engagement "Why of Learning"	Representation "What of Learning"	Action & Expression "How of Learning"	Assessment
Intro Ag and Food Systems (200-level)	<ul style="list-style-type: none"> <li>Climate change/sustainability embedded in course</li> <li>Student-driven topic for research paper</li> <li>Online resources</li> </ul>	<ul style="list-style-type: none"> <li>Build skills for comprehension of demand and supply side solutions from Drawdown</li> <li>Build research skills and comprehension of solutions with group work</li> </ul>	<ul style="list-style-type: none"> <li>Student presentation</li> <li>Written work</li> </ul>	<ul style="list-style-type: none"> <li>Faculty and peer feedback</li> </ul>
Applied Applications In Ag & Food Systems (200-level)*	<ul style="list-style-type: none"> <li>Climate change lesson</li> <li>Online resources</li> </ul>	<ul style="list-style-type: none"> <li>Faculty Power Point presentation and in class activity</li> <li>Focus on magnitude of different Drawdown solutions</li> </ul>	<ul style="list-style-type: none"> <li>Student application of Drawdown solutions using in class group work</li> </ul>	<ul style="list-style-type: none"> <li>Exam question(s) to assess strategies to reduce greenhouse emissions</li> </ul>
Sustainability: Tackling Food Waste (300-level)	<ul style="list-style-type: none"> <li>Compost group work leading to student-driven sector case studies</li> <li>Online resources</li> </ul>	<ul style="list-style-type: none"> <li>Provide concrete example of learning: compost project</li> <li>group work</li> <li>Individual work on sector/case study</li> </ul>	<ul style="list-style-type: none"> <li>Compost group work</li> <li>Student presentation</li> </ul>	<ul style="list-style-type: none"> <li>Compost project report.</li> <li>Faculty and peer feedback on individual topics</li> </ul>
Food Systems Seminar "Feeding America's Cities" (400-level)	<ul style="list-style-type: none"> <li>Student-selected "In the News" reports</li> <li>Online resources</li> </ul>	<ul style="list-style-type: none"> <li>Build student awareness of climate change and Drawdown solutions</li> </ul>	<ul style="list-style-type: none"> <li>Student presentation</li> </ul>	<ul style="list-style-type: none"> <li>Faculty and peer feedback</li> </ul>
New! Developing Ideas in Ag Education (400-level)	<ul style="list-style-type: none"> <li>Modeling student lesson; student exploration of the drawdown website and resources</li> <li>Student-driven topic for class lessons</li> <li>Online resources</li> </ul>	<ul style="list-style-type: none"> <li>Build student awareness of Drawdown solutions</li> <li>Build student research skills and confidence in tackling climate change issues</li> </ul>	<ul style="list-style-type: none"> <li>Student presentation</li> <li>Written work</li> </ul>	<ul style="list-style-type: none"> <li>Faculty and peer feedback</li> </ul>



<https://www.drawdown.org/solutions/food/reduced-food-waste>

\* Lesson piloted Spring 2019; the rest will be piloted Fall 2019

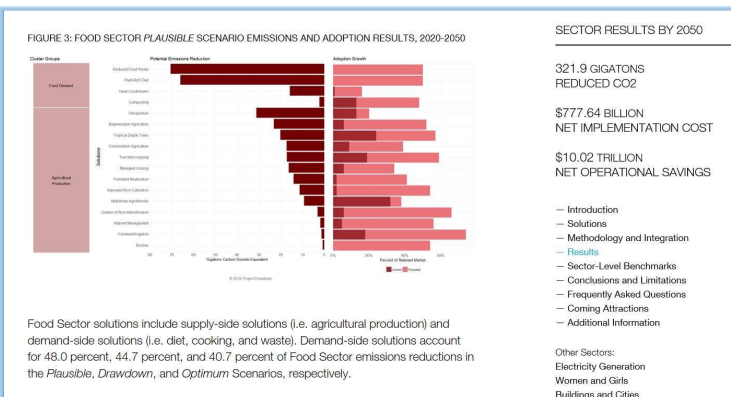


Figure 3 Source: <https://www.drawdown.org/solutions/food>

Challenges	Opportunities	Gaps
<ul style="list-style-type: none"> <li>Few lessons exist for Drawdown materials</li> </ul>	<ul style="list-style-type: none"> <li>Build new lessons</li> <li>Share lessons</li> </ul>	<ul style="list-style-type: none"> <li>Technical knowledge</li> </ul>
<ul style="list-style-type: none"> <li>Complexity and global scope</li> <li>Drawdown resources not at local level; hard to apply</li> </ul>	<ul style="list-style-type: none"> <li>Student interest</li> <li>Student curiosity</li> </ul>	<ul style="list-style-type: none"> <li>Student awareness of magnitude of issues</li> <li>How big is a Gigaton or billions of dollars?</li> </ul>
<ul style="list-style-type: none"> <li>Students lack confidence in working numerically and across sectors</li> </ul>	<ul style="list-style-type: none"> <li>Metaphors</li> <li>Case study examples</li> </ul>	<ul style="list-style-type: none"> <li>Student understanding of large units such as Gigatons (GT)</li> </ul>
<ul style="list-style-type: none"> <li>Knowing when and where to add Drawdown lessons in curriculum</li> </ul>	<ul style="list-style-type: none"> <li>Piloting new lessons</li> <li>Sharing these among instructors</li> </ul>	<ul style="list-style-type: none"> <li>Assessment tools</li> </ul>

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