Extending the teaching mission of a land grant university: Incorporating an interdisciplinary capstone experience with an Extension program

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Presenter:
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Overview

- Extension Project – Grain Safety
- Q2S (Quarters to Semesters)
  - First offering of ASM 4900 – Capstone
- Grain C.A.R.T.
  - Development through a ‘pilot capstone-type’ experience
  - Team dynamics
  - Lessons learned
Grain Comprehensive Agricultural Rescue Trailer (C.A.R.T.)
Extension Project – Grain Safety

- Agricultural Safety and Health (ASH) – Grain rescue and safety awareness project
- Program was limited to grain facilities and the Farm Science Review event
Q2S – ASM 4900 Capstone

- Four Agricultural Systems Management (ASM) students interested in completing a project
  - Previously, no capstone design course offered

- ASM capstone course, offered spring 2013, served as the conduit for discussion in 2012
Capstone Experience

- Students enrolled in ASM 4193 – Individual Studies

- Recruited a Civil Engineering (CE) student
  - Extensive computer design knowledge
  - Student working in the FABE department
Weekly team meetings with academic advisors

Industry stakeholders meeting (Feb 2012)
    ◦ Consensus building approach
Team Dynamics/Managing Conflict

- Conflict is inevitable

- Students knew each other on a personal level
  - Pro: Informal dialogue on a REGULAR basis
  - Con: Quick to anger

- Communication protocol
  - Weekly meetings, open communication, identification of leaders for specific tasks, and email communication
Industry Sponsor Input

- Face-to-face meeting with nine individuals, representing five different organizations.
- Contributed an industry balance to the academic input students had been receiving.
- Goal was to build consensus:
  - Industry partners, academic advisors, and students.
<table>
<thead>
<tr>
<th>Item Description</th>
<th>Median Score*</th>
<th>Comments (Quantity)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The current design of the trailer will work well</td>
<td>5</td>
<td>Initial design is a great start</td>
</tr>
<tr>
<td>2. The 7-foot bin should have a flat bottom (instead of 45°)</td>
<td>2</td>
<td>30° (2), 45° (2)</td>
</tr>
<tr>
<td>3. The auger used to transfer grain from the gravity wagon to the grain leg should be 4-inch (dia)</td>
<td>5</td>
<td>[Specific company] can donate if needed</td>
</tr>
<tr>
<td>5. Catwalk is only needed around TWO sides of the bin and wagon</td>
<td>3</td>
<td>Around all sides (2), This is yet to be determined</td>
</tr>
<tr>
<td>9. The trailer decking material should be expanded metal</td>
<td>4</td>
<td>Diamond plate on deck (2), Steel non-skid for safety (2)</td>
</tr>
</tbody>
</table>

*Median Score of 5=Strongly Agree, 4=Agree, 3=Neutral, 2=Disagree, 1=Strongly Disagree
## Student Feedback – 6 Month Follow Up

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Median Score*</th>
<th>Abbreviated Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. This project was a good application of skills I learned thru internships and personal experiences</td>
<td>4</td>
<td>N/A</td>
</tr>
<tr>
<td>6. Working with stakeholders was often frustrating</td>
<td>4</td>
<td>You need to take [stakeholders] ideas into consideration</td>
</tr>
<tr>
<td>7. Despite any frustrations…communicating with stakeholders allowed me to gain skills that I use in my current career</td>
<td>3</td>
<td>When it came to communication, I was always nervous, but now I do it on a daily basis</td>
</tr>
<tr>
<td>8. The ability to work as a team and manage conflict was a valuable learning experience</td>
<td>3</td>
<td>Learning to [work through conflict] in a professional manner was very valuable</td>
</tr>
</tbody>
</table>

*Median Score of 4=Strongly Agree, 3=Agree, 2=Disagree, 1=Strongly Disagree*
Conclusion

- Recommendations for ASM capstone projects:
  - Incorporate consensus building process/meeting with stakeholders, if feasible within scope of project

- Reviewing the literature and learning of other institutions capstone course provides insight
  - MUST get a grasp of realistic timeframe (project scope)

- Student buy in is key
  - Build something they will be proud of
Thank you
Follow up questions and comments can be sent to:

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