Title of Learning Community: Developing ALDR/FDNS 2200 Introduction to World Hunger (Changed to World Hunger: Science and Solutions)

Contact Name(s) and Email Address(es): Maria Navarro – mnavarro@uga.edu

Membership: (Add rows as necessary)

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<thead>
<tr>
<th>Name</th>
<th>Department</th>
<th>Institution</th>
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<tr>
<td>Maria Navarro</td>
<td>Agricultural Lead., Education, &amp; Communication</td>
<td>UGA</td>
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<tr>
<td>Mary Ann Johnson</td>
<td>Foods and Nutrition</td>
<td>UGA</td>
</tr>
<tr>
<td>Monica Pereira</td>
<td>Science Library</td>
<td>UGA</td>
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<tr>
<td>Kelly Byers</td>
<td>ALEC</td>
<td>UGA</td>
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<tr>
<td>Jenna Brown</td>
<td>ALEC</td>
<td>UGA</td>
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<tr>
<td>Janet Sylvia</td>
<td>Office of Information Technology (CAES) (Consultant to LC – Media and RLOs)</td>
<td>UGA</td>
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Description of Learning Community Progress

1. Describe the process by which the members of your learning community work together

The Learning Community has not had formal face-to-face whole group meetings due to very different schedules, time availability, and travels. Mostly, work has been done individually and in small groups. Discussions have been done through the e-mail, and materials and advances have also been shared on-line. There have been several work face-to-face meetings between Maria Navarro and Mary Ann Johnson to discuss content, format, and process for the course, with Monica Pereira sometimes also involved. Monica Pereira and Maria Navarro have also met individually. There have been also many meetings between Maria Navarro, Kelly Byers, and Jenna Brown, two graduate students who have both have been helping with literature reviews for the course, analysis of teaching materials, and curriculum development. Finally, Janet Sylvia, the Office of Information Technology consultant to the Learning Community, has also met face-to-face with Maria Navarro, first to discuss and show different possibilities for instructional technology for the new class, and then to discuss ideas and options for the Reusable Learning Units. Janet Sylvia will continue to work with the team after the end of the funding period, to help create and evaluate the first Reusable Learning Units. Mary Ann Johnson has also had a team of graduate students working on several units (lessons) of the course as part of a Summer internship. Once several units are developed by Mary Ann Johnson and Maria Navarro’s teams, we will have another LC meeting to share and discuss the units, and start giving a final format to the course. With the educational units in hand, we will continue working together on the development of an instrument to assess whether or not the new course affects students’ perceptions about STEM, and if there are changes on their intention (or lack thereof) of pursuing careers in STEM
2. Briefly describe the learning community’s work, including the topics(s) addressed and/or activities implemented. Include products produced, if applicable.

The long-term goal is to increase student recruitment and retention into STEM disciplines by increasing student understanding of the key role that STEM disciplines have in solving the problems of the world. Medium term objectives are to teach a course on hunger issues and evaluate its impact in increasing student learning and understanding about the role of STEM in solving the problems of the world. Short term objectives of the LC (grant timeline) are to develop a new course that will use hunger issues as a contextual tool to teach STEM disciplines, and present how STEM disciplines can be a career path for socially-conscious people.

The LC has been concentrating on course development. We first reviewed literature addressing how the study of STEM can improve understanding of causes, consequences, and solutions related to hunger at the local, national, and global levels. We also reviewed objectives and content of other hunger-related courses.

We have now agreed upon the objectives and outline for the course. We have also agreed that the course will be based in case studies. For each case study, students will have to analyze and evaluate the situation from a multidisciplinary perspective, but in each case they will also have to study in-depth a science-based topic (the 11 topics are: calories, protein, vitamins and minerals, breastfeeding, health, data collection and analysis, climate change, soil, water, technology, plant breeding/genetics). We expect to be able to teach the course Spring 2010. See attachment A for a topical outline.

To support our case studies, we decided we would use Reusable Learning Objects (short content-oriented materials such as a video of an expert speaking, or a powerpoint presentation with audio, or a podcast, etc). We have been working with several people to analyze possibilities, and a digital media expert is working with us.

3. Explain how your work is impacting STEM teaching and learning.

We expect that students taking the course will improve their attitude toward STEM disciplines, their ability to discuss the role of STEM in solving the problems of the world, and their intention to pursue STEM-related careers (as compared to students of the same background and taking other STEM courses). We have analyzed available literature to find appropriate evaluation instruments (some evaluation tools can be found at http://pokey.myweb.uga.edu/HungerCourse/). We decided that what is available does not fit our needs, and we have decided to develop our own instrument, to assess whether or not students taking the course improved in the dimensions discussed above. Apart from course design and curriculum development, creating and testing the evaluation instrument is the next big task of the LC.

4. What do you think is the most valuable aspect of participating in a STEM learning community?

The difference in background, expertise, experiences, interests, and perspectives among the members of the learning community has been very valuable to the group. Creativity and originality was always high, and the brainstorming sessions were always very educational and
interesting for all involved. On the personal level, I gained a lot from my participation in this LC. Also, I am convinced that our product was enhanced both by the dynamics of team work, but also, by the individual contributions of every member of the team. Finally, teaching a course based on case studies is very valuable for the students, but very difficult to prepare by any individual faculty member. I do not think I would have been able to tackle it without the collaborations, impetus, and work of the LC.

5. Does your learning community plan to continue to work together?

Yes, we will finish preparing the course, develop the evaluation instrument, and we plan to start teaching the course as a team in Spring 2010.

Attachment A: Course topical outline

Introduction
- Cross-country comparisons: scientific basis of dietary guidelines
- Cross-country comparisons: plant and animal production
- Cross-country comparisons of climate and food production
- Cross-country comparisons of malnutrition

Case studies
- Economics. Economic answers to producing enough food, and the case when there is food, but no money.
- Modeling and simulations: Climate change and environmental degradation
- Plant breeding and genetic modification: Technologies to improve crop resistance to heat, drought, and other stresses
- Country/region xx: Solutions to increase and improve production of protein-rich foods
- India: Iron deficiency: soil chemistry, bioavailability from foods and supplements
- Country/region xx: Iodine deficiency: geological risk factors and technical solutions
- Country/region xx: Vitamin A deficiency: agricultural and food fortification solutions
- Country/region xx: When plants aren’t enough – zinc and vitamin B12 from animal foods
- Technology and engineering: Solutions for improved food storage, preservation, and transportation
- Country/region xx: Genetic and nutritional factors optimize maternal health and birth outcomes
- Country/region xx: Immunologic basis for the health benefits of breastfeeding
- Country/region xx: Technical solutions to problems of complementary feeding for toddlers
- Country/region xx: Atmospheric, climatic, and genetic risk factors for vitamin D deficiency
- Country/region xx: Genetic factors related to obesity in nutrition transition countries
- Thirsty anyway: From no water on sight to water everywhere, but without any available safe drinking water.