

Integrating Quantitative Genetics and Genomics in Online Graduate Education

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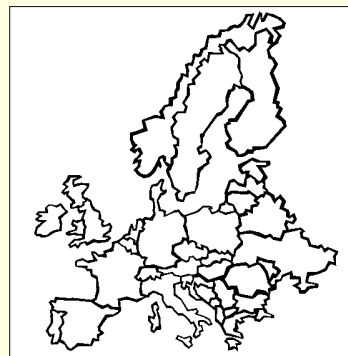
Outline

- Premise
- Expansion
 - Participants
- Curriculum
 - Philosophy
 - Structure
- Challenges
 - Sustainability
 - Collaboration
 - Distance
- Courses
 - Online instruction
 - Experiential learning
 - Feedback

Premise

- National need for graduate-level training in animal breeding and genetics
- Challenges
 - Increasingly multidisciplinary
 - Limits in faculty numbers and time
 - Limits in graduate student numbers
- **A solution**
 - Combine efforts across universities to develop and offer a distance-delivery curriculum

Curriculum: philosophy

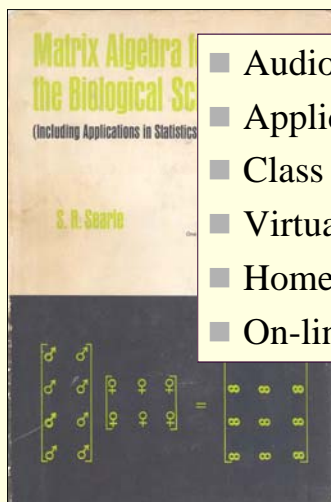


Structure: beginning

- Began fall 2007
- Funding through USDA-CSREES Higher Education Challenge program
- Asynchronous online courses
 - 8 modules (2 per term)
 - 5 week length (typically)
 - 1-credit equivalents



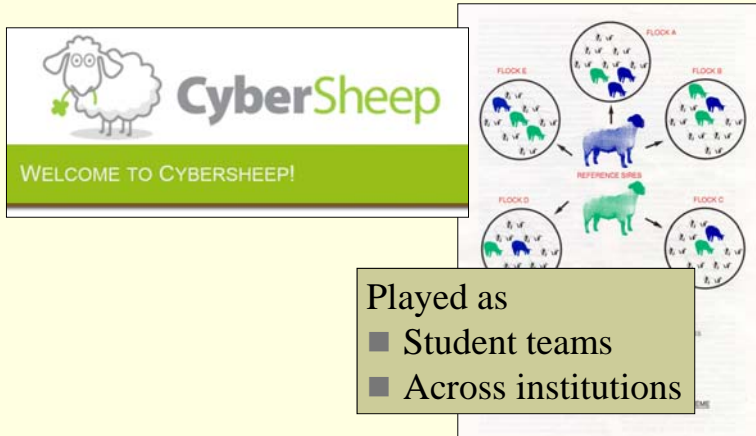
Courses: online instruction



- Audio-presentations (interactive)
- Application exercises
- Class forum (interactive)
- Virtual office hours (interactive)
- Homework assignment
- On-line assessments

- Linear equations
- Generalized inverses
- Week five
 - Latent roots and vectors

Courses: experiential learning



The image shows the CyberSheep logo on the left, which includes a cartoon sheep and the text "CyberSheep" and "WELCOME TO CYBERSHEEP!". To the right is a diagram of a flock structure. It features a central "REFERENCE SHEEP" (a blue sheep) with arrows pointing to four surrounding "FLOCK" circles (labeled FLOCK A, FLOCK B, FLOCK C, and FLOCK D). Each flock circle contains several smaller sheep icons. Below the diagram is a text box with the following content:

Played as

- Student teams
- Across institutions

Courses: feedback

- “As a distance learner, I got practice on not only lecture contents, but also communication skills.”
- “My overall experience was very positive. The curriculum helped me quickly learn concepts and skills that would have been difficult to learn on my own.”
- “I think the instructors did a good job and the courses were a success ... An expansion of offerings and spreading more course material and assignments out over a longer period of time would be beneficial, in my opinion.”

Expansion

- Expanded consortium (fall 2011)
- Additional funding through USDA-NIFA Higher Education Challenge program
- Courses integrating quantitative genetics and genomics in animal breeding
 - 7 new online and 3 summer short courses



Participants (fall 2007 through spring 2013)

- Universities/colleges
 - 32 institutions
 - 1 to 6 students per institution
- Courses (completions)
 - 6 to 31 students per course
 - 179 students
 - 634 course credit hours

Challenges

- Sustainability
 - Limited enrollment at individual institutions
 - Viability necessitates cross-institutional enrollment
 - Transparent mechanism for student participation

Sustainability

- AG*IDEA
 - National consortium of land grant universities
 - Currently 19 member institutions
- Infrastructure support
 - Student admissions through home institution
 - Institutional review of courses
 - Common tuition

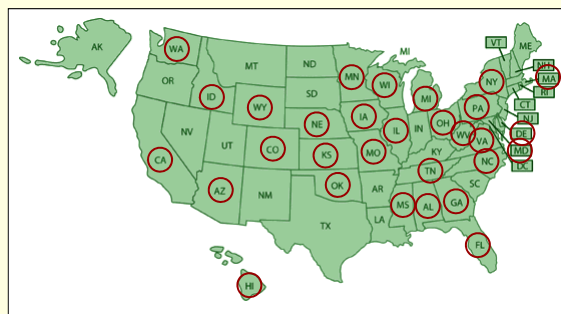
Collaboration

- Collaborative framework
 - Draw on expertise nationally
 - Wider and more flexible student access
- Challenges
 - Course development
 - Demands on faculty time
 - Consistency in course design and implementation
 - Expanding partnerships

Distance

Challenge

- “Psychological distance” separating students and faculty



Thank you

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