Integrating Quantitative Genetics and Genomics in Online Graduate Education

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Outline

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- Expansion
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Virginia Tech
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

- 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 across-institutional enrollment
  - Transparent mechanism for student participation

- 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

Sustainability
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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