2-6-2014

Slowly Rolling Over a Genetics Classroom

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University of Nebraska-Lincoln, dlee1@unl.edu

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Abstract for DBER Group Discussion on 2014-02-06

Presenter(s), Department(s):
Donald Lee
Professor
Department of Agronomy and Horticulture
University of Nebraska-Lincoln

Title:
Slowly Rolling Over a Genetics Classroom

Abstract:
A slow roll over of a classroom is an alternative for a teacher too clumsy too flip. This session will share how we are gradually trying to implement tools in Blackboard to leverage two desired learning environment changes. 1.) We want more students to enter the lecture ready to workout a new memory pathway in their brain and 2.) we want our students to 'hang out' after lecture, discuss what they have just learned with classmates, apply the learning to real life and thus pave that pathway. The session will report on progress and look for insights from the community.
Slow Roll Over of a Genetics Course

Don Lee
Agronomy & Horticulture
Slow Roll in Genetics Teaching

Introduction

Hypothesis

Materials and Methods

Results

Discussion/Conclusion

Backstory / Teaching Mission

“Blessed are the Cheese Makers”

Brain Rules and Blackboard
- On-line ‘only’ Day
- Know and Go
- Stay and Play

A little bit of Survey Monkey

Flipping and Hybridizing
“what’s next”
The Backstory

Genetics as a service course primarily for students in agriculture, natural resources and veterinary sciences

“They are not the perfect class of genetics students...
....but you will like them.”
Weekly lab/recitation problem solving intensive

Grace Troupe
McKinzie Peterson
Nathaniel Niosco
Brad B.
Sam M'Conaugh
Allison Siekman
Activity #1: Complete this consensus survey for your group

1: What is the most important thing a History major should learn in a natural science course such as genetics?

___ the facts that geneticists have discovered
___ the historical sequence of science discoveries
___ how to think like a scientist

2: Rank these measurable items based on their importance

___ How many topics does a science teacher cover during the semester?
___ How often does the teacher relate science concepts to real world examples and applications?
___ How many research publications or research grants has the teacher had in the area they teach?
___ How often does the teacher create and assign graded work that requires students to apply, predict, compare, visualize or summarize
___ Students have access to the teacher to ask questions, get help in the learning process
Genes are made from DNA. Genes encode proteins... (somehow) Genes exist and explain predictable inheritance. DNA replication can be controlled in a test tube. DNA has a double helix structure. DNA replication 'fits' the double helix model.
Select the best Cull the Rest
Compared economic background

“highly structured vs. traditional”
- Regular problem solving
- Data analysis
- Higher cognitive skills

Narrowed achievement gap
Backstory / Teaching Mission

“Blessed are the Cheese Makers”

Brain Rules and Blackboard
- On-line ‘only’ Day
- Know and Go
- Stay and Play

A little bit of Survey Monkey

Flipping and Hybridizing in PS
President Bartlet says….
"I think it was “Blessed are the Cheesemakers”"
The learning environment
The learning environment can be improved for students with Blackboard tools.
Slow Roll in Genetics Teaching

Backstory / Teaching Mission

“Blessed are the Cheese Makers”

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A little bit of Survey Monkey

Flipping and Hybridizing in PS
Nerve cell pathways
Carol Speth
Evaluation Specialist

..optimized learning environment in lecture..

..learn best when they Interact with classmates..

Learning Quizzes in 2012 Genetics Section 150

The Learning Quizzes used in this Genetics course are fairly new and we would like to know whether students think they are helpful. We begin by asking a few questions about you. Later there will be some statements asking how much you agree or disagree.

1. When you define the term LEARNING, what does it mean to you? Try to pick your favorite, or write your own definition in the comment space.

- Building up knowledge by acquiring facts and information.
- Being able to apply the information you learn.
- Understanding new material for yourself.
- Seeing relationships or the "Big Picture."
- Making sure you remember facts well.
4 years ago
optimize learn by
work with classmates..

- Write a quiz pool
- Quiz from the pool
- Two chances
- In our computer lab

(PS. ALSO check our the Gene Regulation Questions help lecture that is up in Lesson 8 lectures)

Then take the GATEWAY Learning quiz and once you get a perfect score, you will have three more quizzes you can take

THE PASSWORD FOR ALL THREE QUIZZES IS    monady

We will answer your questions and you can work with your classmates on these during our Monday class time.
F,f locus

B B b b

18
Select Lean Cattle
B_ black   bb red
F_ fatty    ff lean

F1  BbFf   X  red lean (bbff)

I want calves that will be lean
Therefore I will select..

___black
___ red
___ does not matter
Select Lean Cattle
B_ black   bb red
F_ fatty    ff lean

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F1 BbFf X red lean (bbff)

I want calves that will be lean
Therefore I will select..

___black
___ red
___ does not matter
Biology in Bloom: Implementing Bloom's Taxonomy to Enhance Student Learning in Biology

Alison Crowe†, Clarissa Dirks ‡‡, and Mary Pat Wenderoth*†

Affiliations

Marshall Sundberg, Monitoring Editor
Submitted May 15, 2008.
Revised August 1, 2008.
Accepted August 8, 2008.

Abstract
Tests, Surveys, and Pools

» Tests

Tests are sets of questions that are graded to measure student performance. Once a test is created here, it must be deployed within a content folder before students can take the test. Test results are reviewed in the Grade Center. Note that some question types are not automatically graded.

» Surveys

Surveys are not graded. They are useful for gathering data from students that is not used to evaluate student performance. Surveys must be deployed in a content folder for students to respond to the survey.

» Pools

Pools are sets of questions that can be added to any Test or Survey. Pools are useful for storing questions and reusing them in more than one Test or Survey.
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..4 years ago
optimize learn by
work with classmates..
- Write a quiz pool
- Quiz from the pool
- Two chances

In the lecture hall

Before Monday watch these lectures
Lesson 8 lectures folder
Knockouts
Northernns
Protein Detection Techniques
Lateral Flow Experiment
Western and Northernns
Total time is about 30 Min.
(PS. ALSO check our the Ger

Then take the GATEWAY Learning quiz and once you get a perfect score, you will have three more quizzes you can take

THE PASSWORD FOR ALL THREE QUIZZES IS monday

We will answer your questions and you can work with your classmates on these during our Monday class time.
..did you get this Question?
..4 years ago
optimize learn by
work with classmates..

- Write a quiz pool
- Quiz from the pool
- Two chances

At ‘home’ or at the lecture hall

Adaptive release
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Slow Roll in Genetics Teaching

Backstory / Teaching Mission

“Blessed are the Cheese Makers”

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A little bit of Survey Monkey

Flipping and Hybridizing in PS
President Bartlet says….
The amount of time I spent on the online lectures, reading and quizzes that was a part of the Monday or Friday learning was...

https://www.surveymonkey.com/s/W9SWYWF
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Flipping and Hybridizing in PS
President Bartlet says….
Gene Expression Part 1: Reading Genes to Make Proteins

Overview of Gene Expression Part 1

Don Lee
Department of Agronomy and Horticulture at University of Nebraska-Lincoln, USA

Patricia Hain
Department of Agronomy and Horticulture at University of Nebraska-Lincoln, USA
Meiosis: Metaphase II

In metaphase II the *chromosomes* are aligned at the center of the cell (Fig. 12). This time there are not homologous chromosomes to be paired with. This metaphase looks similar to metaphase of mitosis but there is a key difference. What is the difference? (Compare Figs. 4 and 12).

Fig. 4 and 12. Metaphase of mitosis and metaphase II of *meiosis*. 
Chromatid
Slow Roll in Genetics Teaching

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Flipping and Hybridizing in PS
....whats next........
Plant Science
Crosslisted as AGRO 131

Biology of plants grown for food, fiber, fun, or fuel. Plant life cycles in managed ecosystems and their role in global carbon and water cycles. Mechanisms plants use to drive and control their growth, propagate, and change to compete with other organisms in their environment.
‘Large’ lecture section

On-line section

Hybrid section