

NC STATE UNIVERSITY

INNOVATIVE TOOLS

FOR LEARNING



CATHI PHILLIPS

Lead Instructional Designer

AMANDA ROBERTSON

Assistant Director, Educational Media Development



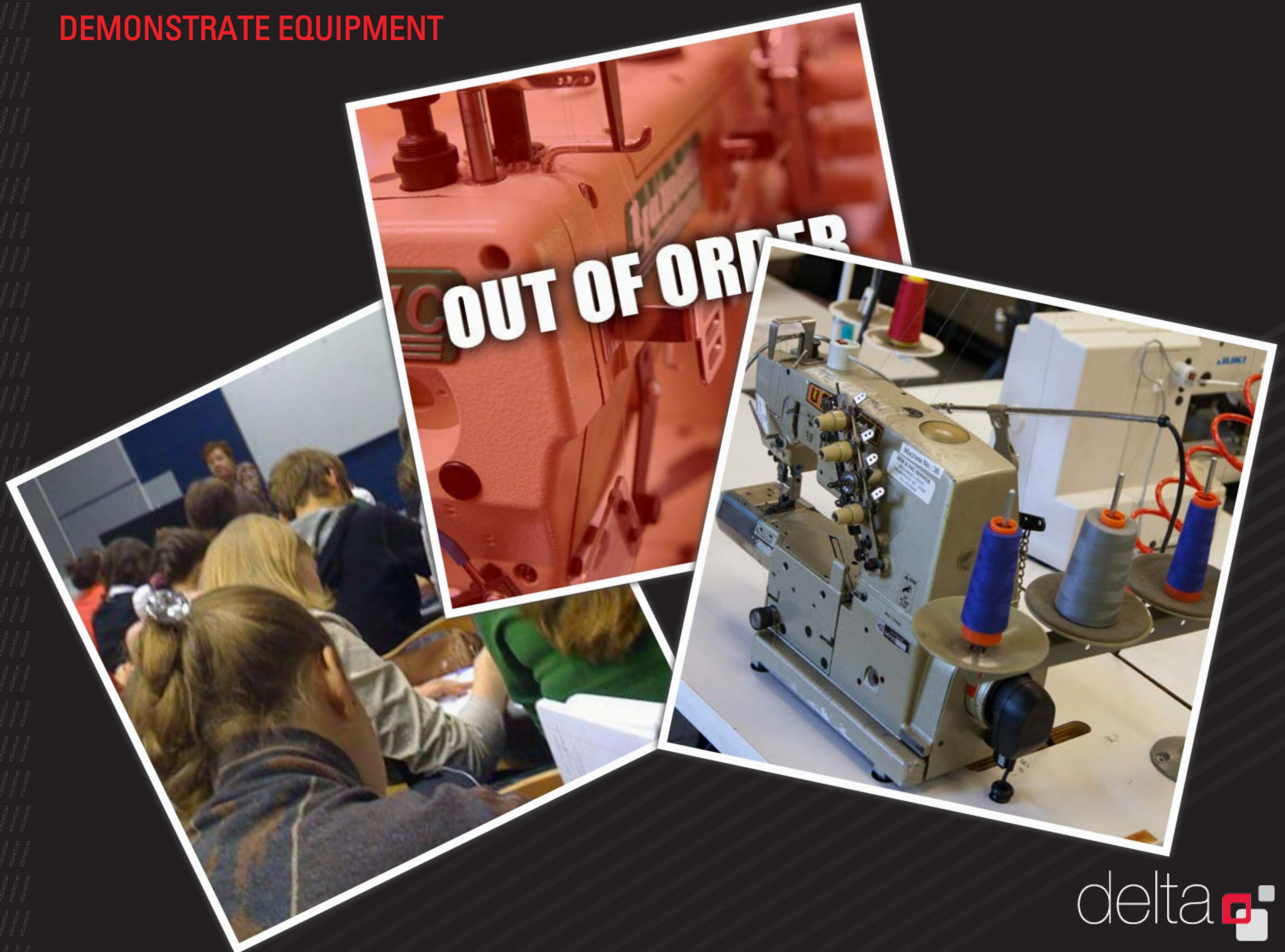
INNOVATIVE TOOLS FOR LEARNING

At NC State University, creative teams of faculty, instructional designers, multimedia specialists and students work together to explore and create innovative tools that solve learning challenges.

- Mobile Video Framework
- LifeCycle Tool
- MicroExplorer
- Virtual Viewer
- Flashcard Study Tool

THE CHALLENGE

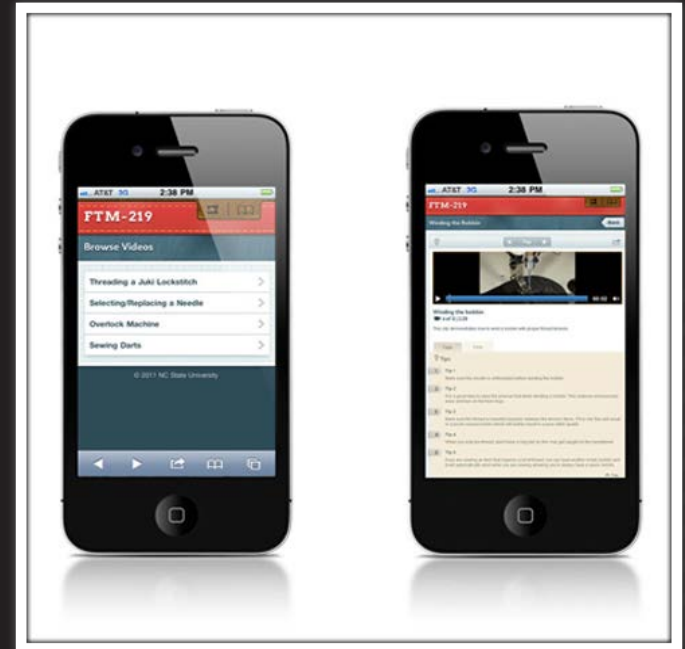
DEMONSTRATE EQUIPMENT



MOBILE VIDEO FRAMEWORK

Just-in-time instruction available anywhere, anytime

- Responsive website design adapts to any device
- Demonstration videos always available for reference
- Every student gets a front-row seat
- Additional tips and FAQs as well as glossary terms provided
- Email access to instructor from any point in the instruction

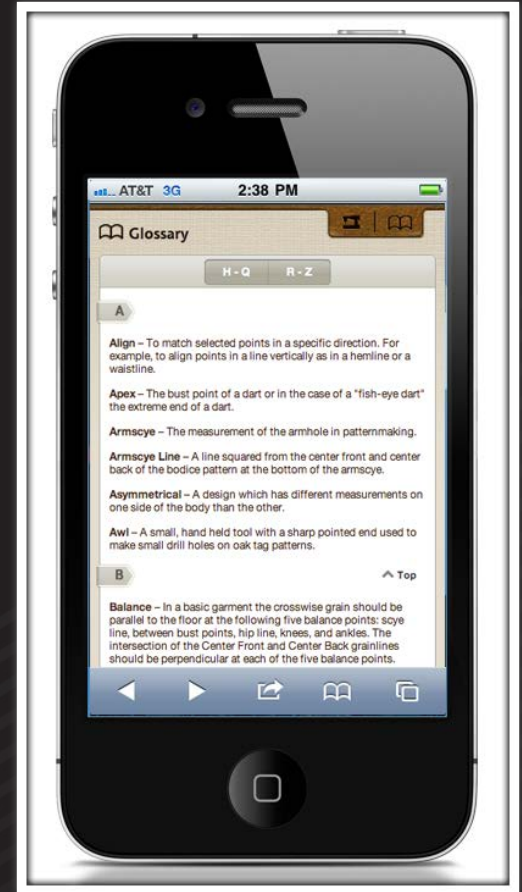
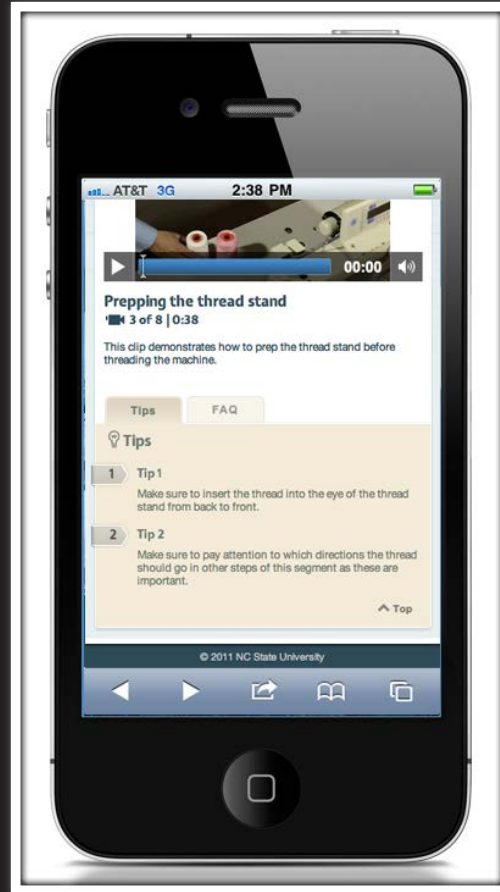


Mobile Video Framework

Available on mobile devices and on the web at <http://go.distance.ncsu.edu/ftm219/>

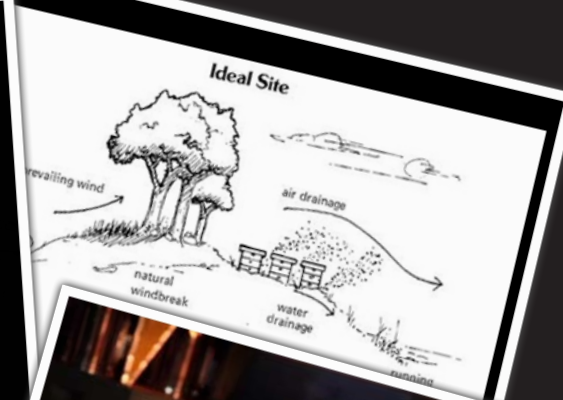
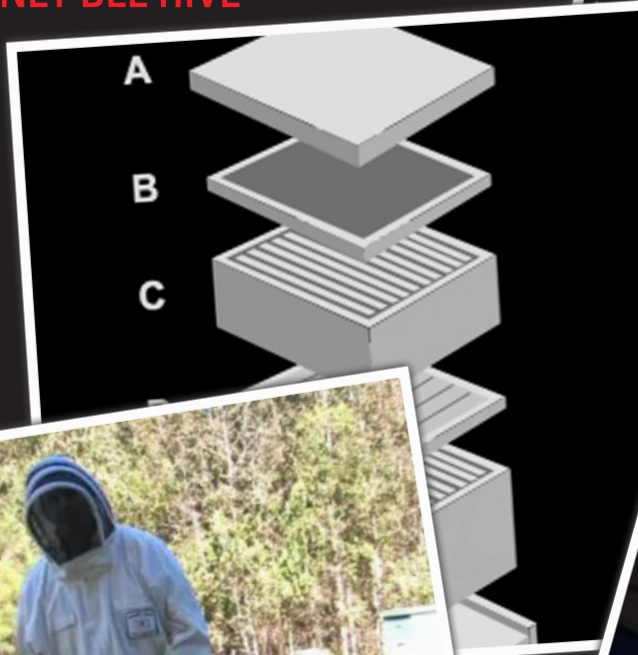
THE DEMO

MOBILE VIDEO FRAMEWORK



MANAGE A HONEY BEE HIVE

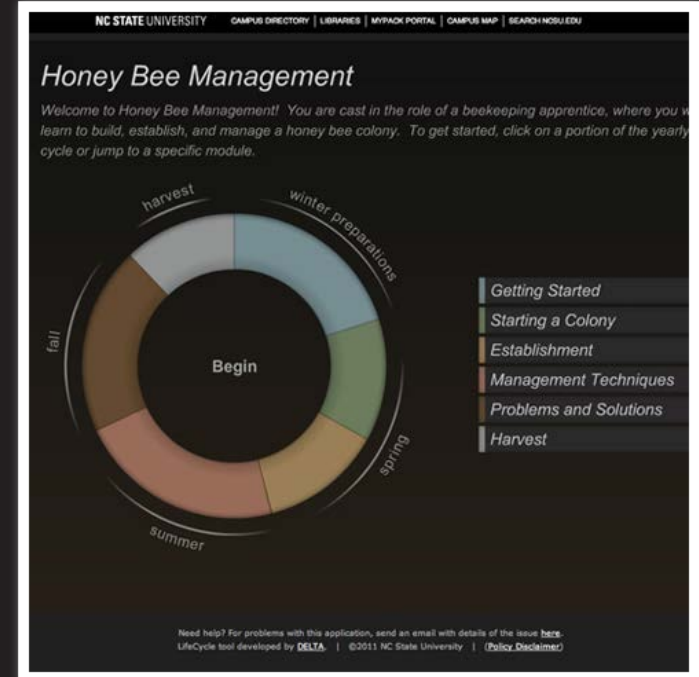
THE CHALLENGE



LIFECYCLE TOOL

Linking together the modular pieces within a single environment created cohesion

- Students can get the same content reinforced with text, media, video, and questions
- Progress is saved across multiple computers
- Great flexibility in ways to display content
- Ability to link directly to a slide



LifeCycle Tool

See an example deployment online at:

<http://delta.ncsu.edu/projects/lifecycle/demo/honeybees/>

LIFECYCLE TOOL


Hiving a Package

save 0/440 home

Steps to "hive a package"

1. Spray with syrup
2. Remove can and queen
3. Prepare the hive
4. Install the queen cage
5. Shake the bee package
6. Feed the bees (Syrup, protein, water - drip board)

* Be aware of apiary placement



Starting a Colony > Hiving a Package - 11 / 15

The Smoker

save 56/440 home

When lighting a smoker...

- Fill with the appropriate fuel type
- Ignite the contents carefully
- Use a few puffs before attempting hive manipulation

Why use a smoker?

- Pacifies the bees
- Use is inexpensive



(image source: NCSU Bee Lab)


Getting Started > The Smoker - 15 / 23

Langstroth Bee Hive (1)

save 56/440 home

Identify the following and their function:

- Brood box
- Super



Getting Started > Langstroth Bee Hive (1) - 9 / 23

Activity: Vocabulary (2)

save 65/440 home

True / False

A nuc consists of which of the following?

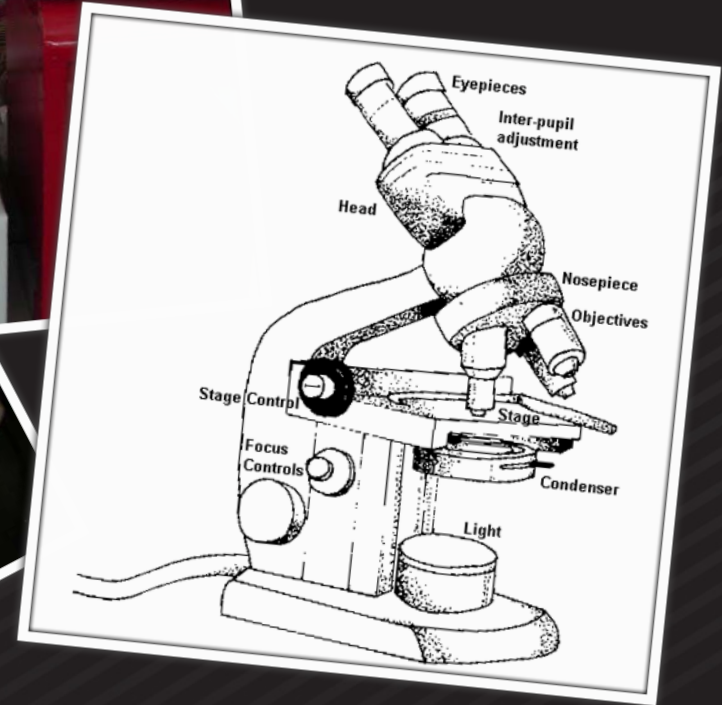
- True 5 frames with approximately 10,000 bees
- True Wax comb
- False Brood
- True Laying queen

Starting a Colony > Activity: Vocabulary (2) - 8 / 15



THE CHALLENGE

LEARN TO USE A COMPOUND MICROSCOPE



MICROEXPLORER 3D

Training, exploration, and reference all rolled into one

- Web version for home, mobile version for use on-site
- Generalized microscope model so that students can recognize parts and their function without being limited by brand
- Provides a common vocabulary and reference for all students
- Encourages self-guided learning through exploration

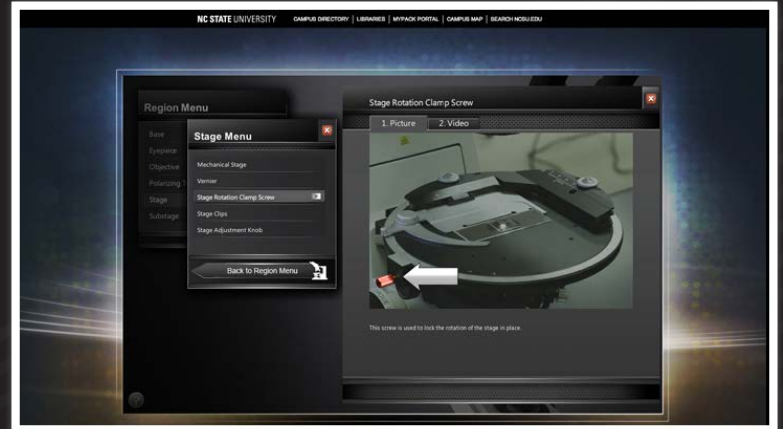


MicroExplorer 3D

Now available on iOS devices through iTunes, soon to be on Android as well. Check out the web version at

<http://go.distance.ncsu.edu/microexplorer/>

MICROEXPLORER 3D



THE CHALLENGE

VIEW SLIDES



VIRTUAL VIEWER

Focusing on what was most important solved several challenges

- No need to ship potentially harmful substances or fragile equipment
- Free for students to use
- Instructor has tight control over what content and structures are available for students to study
- Facilitates group work as all students have access to same samples
- Able to compare samples side-by-side, or even compare different views of the same sample

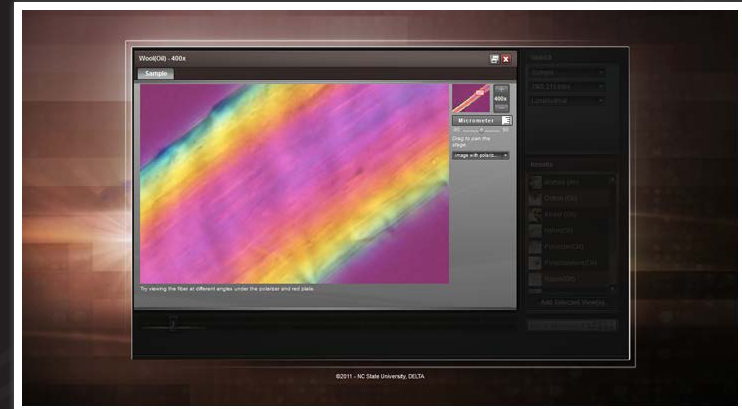
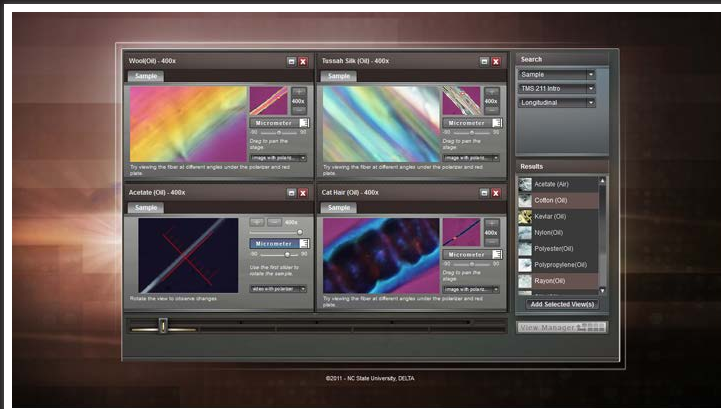
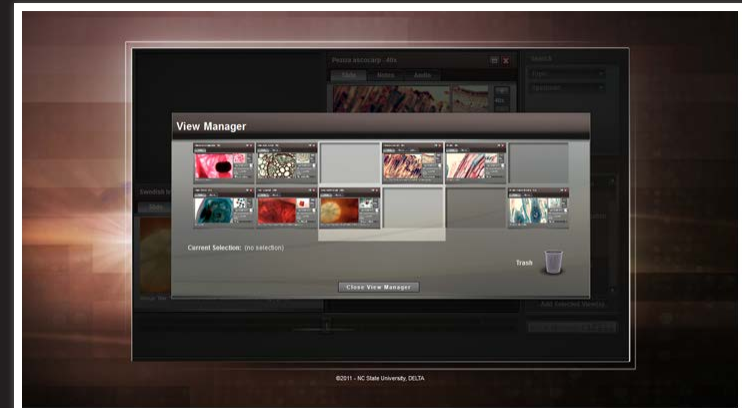


Virtual Viewer

See an example deployment online at:

<http://projects.delta.ncsu.edu/virtualviewer/>

VIRTUAL VIEWER



THE CHALLENGE

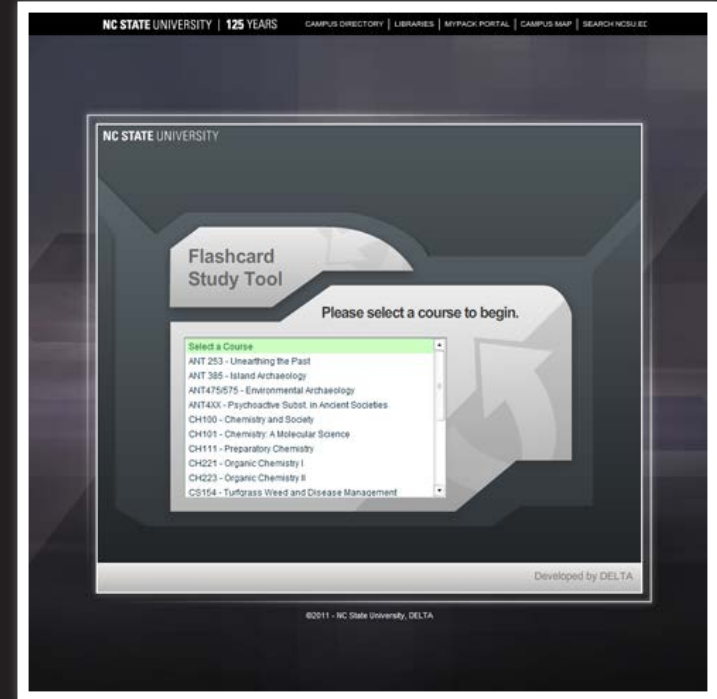
STUDY VOCABULARY



FLASHCARD STUDY TOOL

Finding ways to make cards out of generic templates helped craft a reusable solution

- Free to use around the world
- Create cards once, reuse any number of times
- Use text, images, sound, and video on cards
- Chain cards together
- Link directly to a set of cards
- Students can view cards anywhere




Flashcard Study Tool

The Flashcard Study Tool is available online at:
<http://delta.ncsu.edu/projects/flashcards/>

FLASHCARD STUDY TOOL

NC STATE UNIVERSITY ENT425 - General Entomology




Order: Hemiptera Family: Cicadellidae
Common Name: Leafhoppers

Discard Keep

Change course ▶ Return to sorting screen ▶ Cards Kept from Set: 13 Cards Left: 68 / 81

NC STATE UNIVERSITY AVTC101 - A Video Test Course




laminar flow hood

Change course ▶ Return to sorting screen ▶ Cards Kept from Set: 0 Cards Left: 1 / 1

NC STATE UNIVERSITY ANT 253 - Unearthing the Past


Raymond Dart
noun
Anthropologist who pioneered the idea that *Australopithecines* were predators.



Discard Keep

Change course ▶ Return to sorting screen ▶ Cards Kept from Set: 6 Cards Left: 74 / 80

NC STATE UNIVERSITY PP055 - Diseases of Ornamentals and Turfgrasses



What disease caused these lesions on the leaf sheaths of St. Augustinegrass?

Change course ▶ Return to sorting screen ▶ Cards Kept from Set: 0 Cards Left: 6 / 6



NC STATE UNIVERSITY

QUESTIONS? ANSWERS

(FOR LEARNING!)



CATHI PHILLIPS

cathi_phillips@ncsu.edu

AMANDA ROBERTSON

amanda_robertson@ncsu.edu

