

Flipped or Inverted Classroom:

An inverted (or flipped) classroom is a specific type of blended learning design that uses technology to move lectures outside the classroom and uses learning activities to move practice with concepts inside the classroom.

~~~Jeremy F. Strayer

Learning Environments Research

July 2012, Volume 15, Issue 2, pp 171-193

<http://link.springer.com/article/10.1007/s10984-012-9108-4>

## Key Elements for success in a flipped classroom

1. Provide an opportunity for students to gain first exposure prior to class.
2. Provide an incentive for students to prepare for class.
3. Provide a mechanism to assess student understanding.  
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4. Provide in-class activities that...promote deeper learning.

Source: <http://cft.vanderbilt.edu/guides-sub-pages/flipping-the-classroom/> Accessed 5/6/2013

## Challenges for an instructor

- ▶ Preparing first exposure activities
- ▶ Designing incentives for the preparatory work
- ▶ Creating assessments to gauge a student's understanding
- ▶ Developing the active in-class environment activities
- ▶ TIME to do it all .....

## [www.WHFreeman.com/Stattools](http://www.WHFreeman.com/Stattools) for success in a flipped classroom

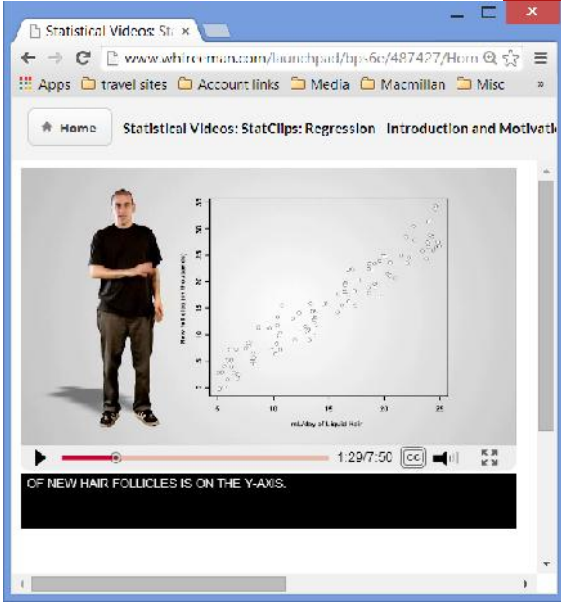
- ▶ StatsClips and SnapShots
  - ▶ Lecture videos by Alan Dabney, Texas A&M,
  - ▶ Questions centered on videos are included in question bank, if quizzing is desired
- ▶ StatTutors
  - ▶ Interactive lecture activity with embedded quizzing
- ▶ Applets with built-in formative quizzing activity
- ▶ Stepped-out Tutorials
- ▶ LearningCurve – a formative, adaptable, concept-oriented activity in a game-like format

StatClips

Videos by  
Alan Dabney of  
Texas A&M

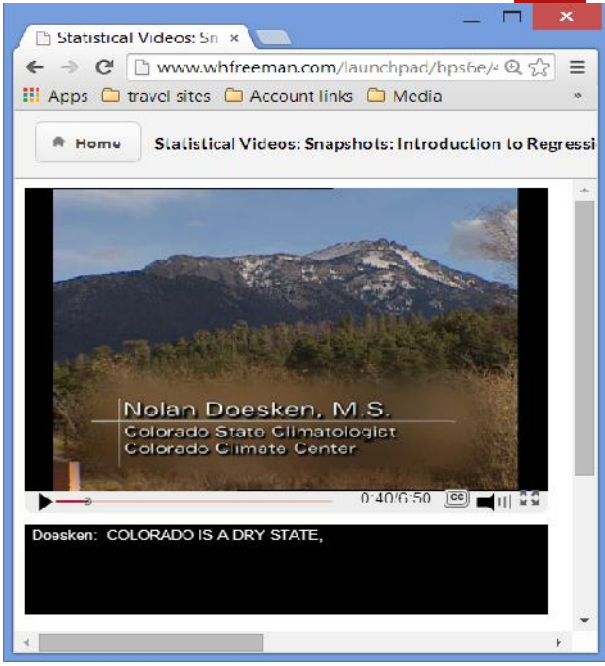
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Closed captioned
Questions about
videos are available
in the question bank



Snapshots

Application
oriented
videos



StatTutor
with
embedded
quizzing

The screenshot shows the StatTutor interface for a lesson on Residuals. At the top, it says "StatTutor Lesson - Residuals" and "You have completed 2 question sequences out of 6." Below this is a "Kickoff Question" section with a text-based problem: "Fuel consumption strongly depends on the outside temperature. Officials at the American Manufacturing Company want to know how much coal they should order each week to heat its nine-building complex. Can they use outside temperature to make predictions?" It defines X as average hourly temperature (°F) and Y as tons of coal burned. A scatter plot titled "Fuel Consumption vs. Temperature" shows a negative linear trend with a "Least-Squares Regression Line" drawn through the data points. Below the graph is "Question 1" which asks: "Do all of the data points lie on the regression line or are there errors?" with two radio button options: "A. All of the data points lie on the regression line." and "B. There are errors." A "Submit" button is at the bottom of the question area.

Applets
With embedded
quizzing that
leads the
student to use
the applet to
illustrate the
concept.

The screenshot shows a "Statistical Applets: One-Way ANOVA" interface. It includes a "See More About One-way ANOVA" section with explanatory text. Below this is a "REPLY APPLET" button and a graph showing data points for three groups. The graph displays the mean for each group and the overall mean. Below the graph, statistical results are shown: $F = 4.5$, $p = 0.020$, and $p = 0.000$. At the bottom, there is a question: "If the applet displays a bar chart with the standard deviation next to each of the groups, how would you convert the value of F to the value of t ?" with input fields for the answer.

Stepped Tutorials

Students are led through the steps of a problem to understand the concepts and process.

Chapter 1. Tutorial 1.3: Creating and interpreting stemplots and histograms

Problem Statement

The data set below shows the height in inches of each of the players on the Chicago Bulls roster for the 2012-2013 season.

Heights of Chicago Bulls players, in inches																
75	77	81	79	81	77	96	81	79	76	79	82	83	82	69	75	74

Table : Source: <http://www.nba.com/bulls/roster/2012>

Use stemplots and histograms to examine the distribution of the players' heights.

Step 1

First we will create a stemplot for the heights. This will require the following four values for the stems:

Submit

Learning Curve

An adaptive quizzing and personalized conceptual learning program – in a game-like format.

LEARNINGCurve chapter_08

Policies Frequently Asked Questions Change Target Score Preview Activity as Student

- Students' task in this activity is to score points by answering questions.
- Once students reach the target Activity Score of 300, they receive full credit (a grade of 100%) for completing the activity, but they can continue answering questions to review the material.
- Questions get harder as students progress through the activity, and they get more points for answering harder questions.

Class Topic Performance Report (5 students)

	89% Inference for a Single Proportion
	65% Computing Two Proportions

Topic Scores above reflect student performance on each topic, averaged across the 5 students who have started (and/or completed) the activity so far.

[Show More Results](#)

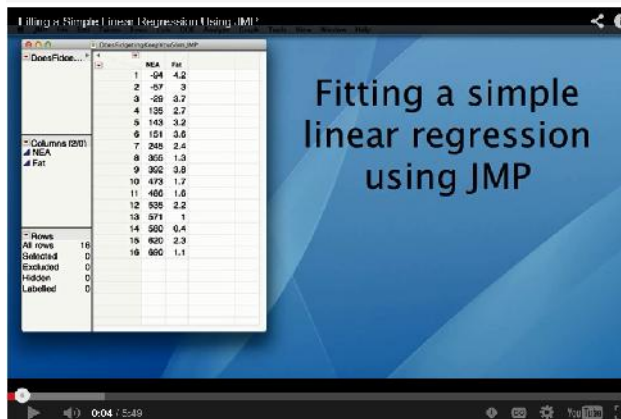
Note: Student data is not being stored in this when activities are being used in their course.

Welcome to LearningCurve! Click "Preview Activity as Student" to see the functions by and pedagogical features LearningCurve offers. You'll be prompted to click elements and answer questions as you go.

[LearnMoreAboutLearningCurve](#)

Video Tech Manuals

Brief, instructional videos for using statistical software. Available for Excel, SPSS, TI-83/84 calculators, JMP, and Minitab



CrunchIT!

A web-based statistical program for statistical operations and graphing



StatTools: a strategy for success in your flipped classroom

- Meeting the needs of students in their first exposure to statistical concepts
- Providing incentives for students to prepare for class.
- Providing a mechanism for you to assess student understanding

How do I use these StatTools Resources?

- ▶ Available with all W.H. Freeman introductory statistics textbooks
- ▶ Assignable with or without associated grades from W.H. Freeman course platforms which include an integrated eBook – media resources – homework .
- ▶ Talk to us about which platforms are available for the text of your choice



To obtain more information about
W.H.Freeman media offerings:

Contact any one of the following:

Ruth Whitmore, Educational Technology Advisor

ruth.whitmore@macmillan.com

920-723-5128

Karen Fusco, Digital Solutions Specialist

karen.fusco@macmillan.com

212-561-8248

Your local W.H. Freeman Representative