

SticiGui, Onsophic, and Statistics W21

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JSM

Miami, FL

Statistics W21

- First online course taught at Berkeley, in any subject.
- Primary audience: intended Business & Economics majors.
- Enrollment 300–425, many timezones, including Asia.
- Hybrid 1997–2006; online 2007–present
- Mastery-based: ≤ 5 submissions, $\geq 80\%$ or no credit.
- In-person final (≈ 50 students take proctored off-campus).
- Typically 7 GSIs holding ≈ 140 office hours per week.
- “Learning preparedness assessment” by phone ≈ 1 month before class.

Milestones

- Most of text online in 1997, including applets for key concepts, glossary.
- Online, machine-graded assignments from 1998.
- Dynamic examples, exercises, individualized homework from 2000.
- Added topics continually. Now have reasoning, set theory, logic, ...
- “Functional grading” from 2003.
- Online office hours with whiteboard, 2-way audio/video, etc. from 2007
- Online lectures from 2009.
- Deep anchors and thorough analytics from 2011.

SticiGui

- 222 XHTML files, 140,384 lines
- 63 Java classes, 15,385 lines
- 28 JavaScript libraries, 15,418 lines
- 4 CSS files, 2,201 lines
- 37 data files, 10,733 records

Close to 8000 hours of work.

Onsophic


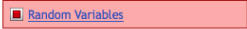
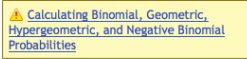

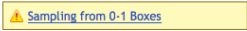




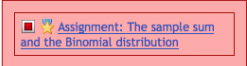





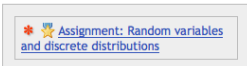


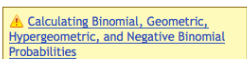


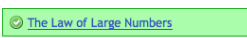
- Platform for discovery of course materials, course assembly, course delivery, analytics.
- Built on Sakai.
- Customization for W21: SMS for office hours, heat map granularity, etc.

Analytics

- Viewing sections of book, lecture, or podcast
- Viewport events
- Viewing footnotes
- Attempting practice problems
- Submitting homework

Number of activities, time on task, scores.

Screenshots: Daily Assignments

Statistics W21		
Thursday, July 14, 2011	Friday, July 15, 2011	Monday, July 18, 2011
 Using the Binomial Distribution	 Random Variables	 Calculating Binomial, Geometric, Hypergeometric, and Negative Binomial Probabilities
 Continuation of the Let's Make a Deal Problem	 Sampling from 0-1 Boxes	 Discrete Distributions
 CHAPTER 16 Summary: Probability Meets Data	 Geometric Distribution	 Case Study: Trade Secret Litigation
  Assignment: The sample sum and the Binomial distribution	 The Negative Binomial Distribution	 CHAPTER 17 Summary: Random Variables and Discrete Distributions
 CHAPTER 17 Introduction: Random Variables and Discrete Distributions	 The Hypergeometric Distribution	  Assignment: Random variables and discrete distributions
 Random Variables	 Calculating Binomial, Geometric, Hypergeometric, and Negative Binomial Probabilities	  CHAPTER 18 Introduction: The Long Run and the Expected Value
		 The Law of Large Numbers

Less

More

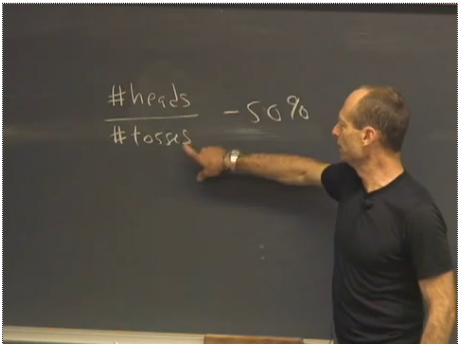
Screenshots: Module Overview

Previous	Statistics W21 > Sample Data Sets	Next
Sections	Open Date	Close Date
Intro thru Demo		
Read: Sample Data Sets @ SticiGui	= 1	
Read: Trade Secret Data @ SticiGui	= 1	
Watch: Trade Secret Data @ YouTube	= 1	
Listen: Trade Secret Data @ webcast.berkeley	= 1	
Practice		
Practice: Exercise 3.2 @ SticiGui	= 1	
Practice: Exercise 3-3 @ SticiGui	= 1	
Practice: Exercise 3-4 @ SticiGui	= 1	
Practice: Exercise 3-5 @ SticiGui	= 1	
Intro thru Demo		
Read: Gravity Data @ SticiGui	= 1	
Watch: Gravity data @ YouTube	= 1	
Listen: Gravity data @ webcast.berkeley	= 1	
Previous	Statistics W21 > Sample Data Sets	Next

Screenshots: Online Lecture

[Previous](#) [Statistics W21](#) > [The Law of Large Numbers](#) > Watch: The Law of Large Numbers @ YouTube [Next](#)

What do I need to know first? ShareScore: +1



0:12:04 / 1:24:52 CC 360p +

[Jump to Start \(00:10:13\)](#) [Jump to End \(00:27:55\)](#) ShareView This

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Screenshots: SticiGui reading

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What do I need to know first? ShareScore: +1

MENU **The Law of Large Numbers** **«LOG**

The Law of Large Numbers says that in repeated **INDEPENDENT** trials with probability p of success in each trial, the chance that the fraction of successes is close to p grows as the number of trials grows. More precisely, for any tolerance $\epsilon > 0$,

$$P(| \text{fraction of successes in } n \text{ trials} - p | < \epsilon)$$

approaches 100% as the number n of trials grows. This expresses a long-term regularity of repeated independent trials with a shared probability of success.

The Law of Large Numbers

The chance that the fraction of successes in n independent trials with probability p of success is close to p approaches 100% as n grows.

More precisely, as n increases, for every number $\epsilon > 0$,

$P(| \text{fraction of successes in } n \text{ trials} - p | < \epsilon)$ approaches 100%.

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Navigation icons: back, forward, search, etc.

Screenshots: SticiGui reading

- Course Materials - ThinkTank
- Assignments and Scores
- OfficeHours
- Discussion Board - Forums
- Chat Room
- FAQs
- Study Hall
- Search
- Announcements
- Schedule
- HeatMaps
- ShareViews
- Course Information
- User Guide: ThinkTank
- User Guide: OfficeHours
- Site Info
- Help
- Users present:
 - Jason Harawish
 - Jermiah Burns
 - Marisa K Bond
 - Andy Cheng
 - Justin Wayne Cheng
 - Samuel SungHyun

Course Materials - ThinkTank

Statistics W21 > CHAPTER 8 Introduction: Errors in Regression > Read: Errors in Regression Introduction @ SticiGui

What do I need to know first? ShareScore: +1

Figure 8-2: Residual Plot of Heteroscedastic Data.

Heteroscedastic Residual Plot

$r = 0.98$ Regression Line

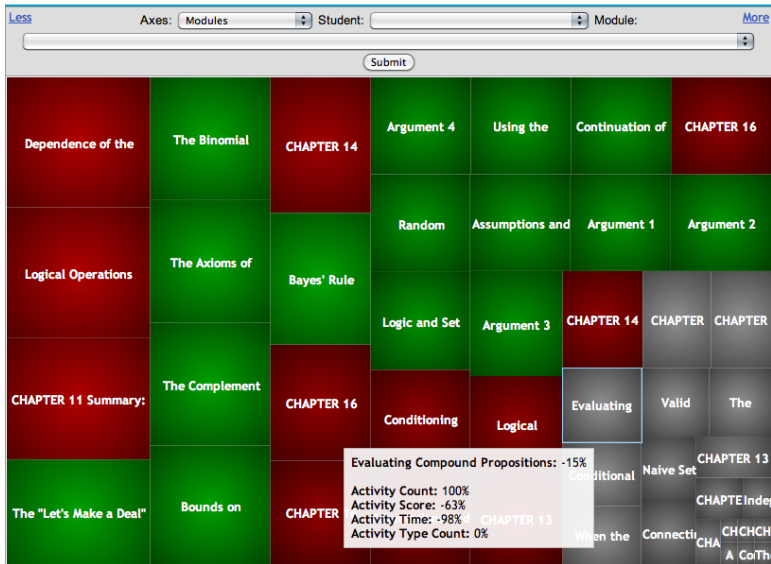
Plot Data

ShareView This

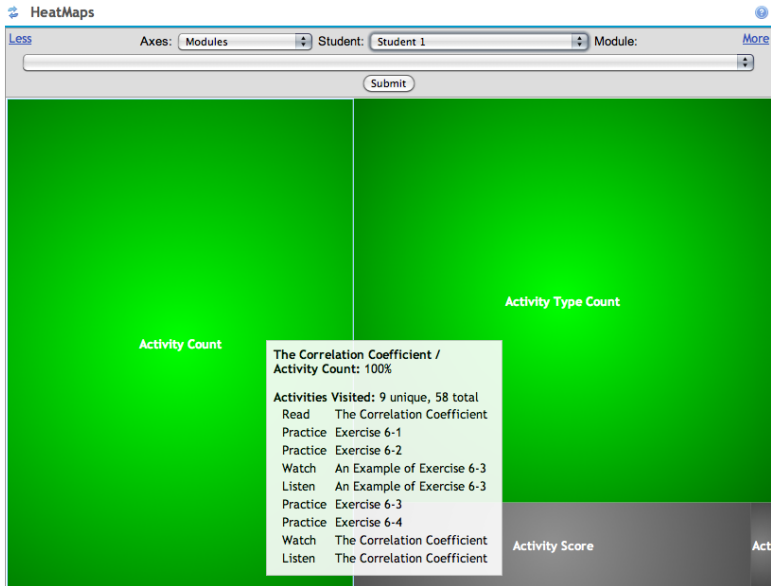
Statistics W21 > CHAPTER 8 Introduction: Errors in Regression > Read: Errors in Regression Introduction @ SticiGui

Screenshots: HeatMap of Modules

HeatMaps



Screenshots: HeatMap for Student Activities



Screenshots: HeatMap for Student 1

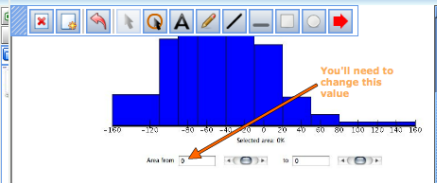


Screenshots: Office

Office Hours with: Instructor 1 (instructor1@exlibrix.com), Users: 1

Files Actions Share/record screen

Whiteboard Full-Fit 60 Video



You'll need to change this value

Area from to

Figure 3-2 is the first APPLET in this book—there are many more to come. This applet is a program with content that can be manipulated. For example, by moving the scroll bars near the bottom of the plot, or typing other numbers into the scroll bars and then pressing the Enter or Return key. If you set the Area from text box lower than the to text box, the histogram will change color from blue to yellow, and the area of the yellow part will be displayed under the "Selected area."

Properties

All, this in Firefox 3.5 still. Try upgrading

Re: Help! Histogram tool isn't working

Instructor 1 (instructor1) (Jun 16, 2011 7:57 AM) - Read by: 11 [Reply](#)

[Email](#)

Are you using Firefox 4? There are various issues with the Java applets in other browsers and older versions

Help! Histogram tool isn't working

Student 1 (student1) (Jun 16, 2011 7:54 AM) - Read by: 10 [Reply](#) | [HeatMap](#) | [ThinkTank](#)

[Email](#)

I can't seem to get the Histogram tool to respond.

Are there any known issues with that tool?

Research Questions Analytics Can Answer

- Do students who read footnotes do better than those who don't?
- Do students who do more self-test exercises do better than those who do fewer?
- Do students who spend the majority of their time watching online lectures do better than those who spend the majority of their time reading the book?
- What features of students' use of the materials predict mastery of the material?
- Do interventions to promote such use increase mastery?

Example: Time Versus Assessment Score, Spearman test

- Histograms and data taxonomy: $p \approx 0.8$
- Counting (combinatorics): $p \approx 0.03$