Accessibility Without the LMS

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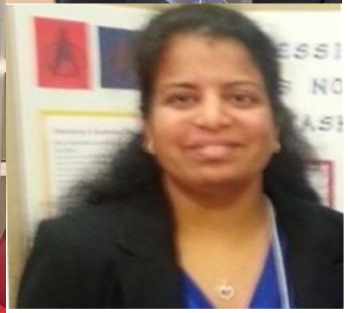
Gies eLearning Team



The Document We've Been Working On

"Extended transcript" to provide equal access to our video, whether used in the MOOC or locally

The Extended Transcript: Usability

Replaces the less than adequate transcript, and lecture support files with a single document

…**easily converted** to other formats

…not a **different "accessible" page**

…**modifiable** by student to fit their **personal preferences**

The Extended Transcript: Goals

Single document (module by module)

Downloadable

Combines all module content to meet accessibility and, more importantly, **usability** needs

The Extended Transcript: Usability

May not meet some accessibility hard rules

…reduces **redundancy**

Plays on any device

…consumable on the **student's device of choosing**

The Extended Transcript: Supports

Standard accommodations for auditory disabilities

- Transcripts are core of document
- Captions in embedded video

The Extended Transcript: Supports

Non-standard accommodations

SmartPlayer allows for *”cross-accommodation”* media consumption

“Screen reader users may also prefer the transcript over listening to the audio of the web multimedia. Most proficient screen reader users set their assistive technology to read at a rate much faster than most humans speak. This allows the screen reader user to access the transcript of the video and get the same content in less time than listening to the actual audio content.”

https://webaim.org/techniques/captions/

Specifics of Our Transcript

- One doc/module with multiple lessons
- TOC
- Smart Player
- Slide from the power point
- Text description of slide
- Transcript for that slide
- HTML bullets
- MathML if needed
- Tables
- Link for excel sheet
- Citations

Rinse, Lather, Repeat…

Table of Contents

Module 4 Exploring and Producing Data for Business Decision Making

Skip the table of Content

Contents

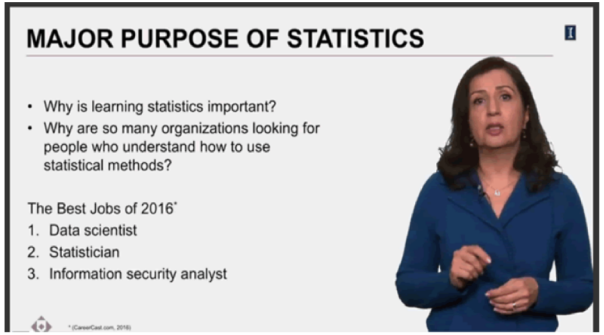
Example – General Layout of a Lesson

Lesson 4-1 Confidence Interval Basics

Lesson 4-1.1 Confidence Interval Basics

Fully Accessible Media Player

Major Purpose of Statistics (1 of 2) - Slide 1



- Why is learning statistics important?
- Why are so many organizations looking for people who understand how to use statistical methods?

The Best Jobs of 2016*

1. Data scientist
2. Statistician
3. Information security analyst

*(http://www.careercast.com/, 2016)

Transcript

I'm sure that some of you are still wondering but why you need to learn statistics or why do so many organizations are looking for people who understand how to use statistical methods. Just recently, CareerCast, a web-based employment service listed the best jobs of 2016 and once again, we see statistics on the top of the list. Speaking to the enormous need for scientists who will be slicing and dicing the data companies have so that they can improve their decision making. So, for you as someone who's interested in leadership roles, this is also important. If you don't ask the right questions, then the analysis done by the most talented statisticians will be of very little use. You need to be able to understand statistical analysis, ask the right questions, and shape the future of the inquiries. In this module, we are now ready to begin the process of making inferences. So, let's get started.

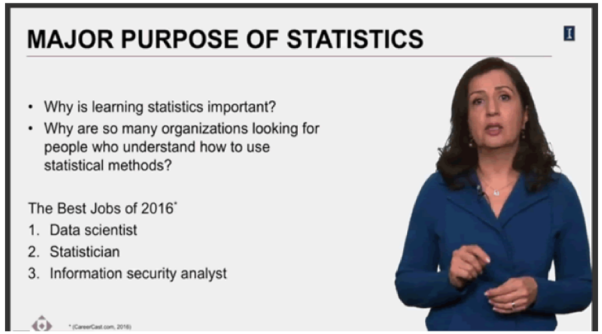
Lists: Bullets and Numbers

Lesson 4-1 Confidence Interval Basics

Lesson 4-1.1 Confidence Interval Basics

Fully Accessible Media Player

Major Purpose of Statistics (1 of 2) - Slide 1



- Why is learning statistics important?
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Use bullets and numbers when there is an:

- Ordered or,
- Unordered list
- Not a phrase of sentence

Extended Text Description

Article: "Gallup Daily: U.S. Economic Confidence Index." In this article there is a graph with a line plot of trend of U.S. Economic Confidence Index from Feb 2008 to Feb 2016. The overall trend increases, but it goes down from Feb 2008 to Feb 2009. From this date on it increases until May 2009. From May 2009 to May 2011, the index remains steady. Then, it drops until Aug 2011. The trend from Aug 2011 gradually increases. However, it also drops at Nov 2013 and goes back afterwards.

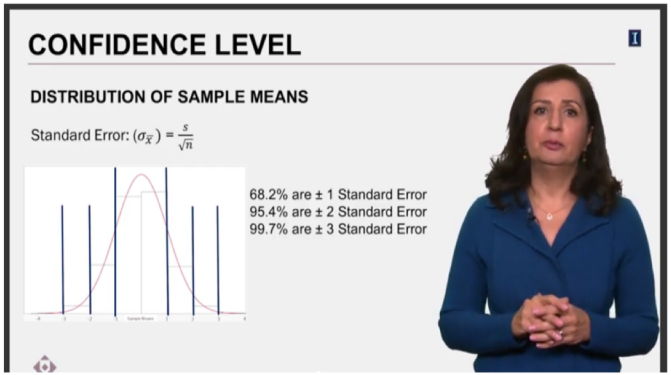
ALT TEXT is not used

- Redundant
- Confusing

Set design and stick to it

Bell Curve Example

Confidence Level - Slide 10



Distribution of Sample Means
Standard Error: $\sigma_{\bar{x}} = \frac{s}{\sqrt{n}}$

- 68.2% are ± 1 Standard Error
- 95.4% are ± 2 Standard Error
- 99.7% are ± 3 Standard Error

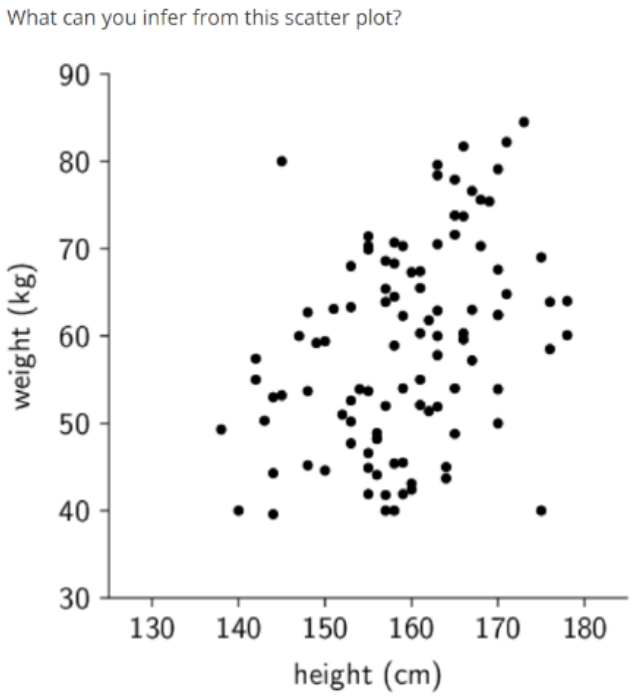
The slide shows how to understand the margin of error in a normal distribution histogram. In the graph, there is a red line, which is the bell-shaped curve of a normal distribution with mean 0 and standard deviation 1. There are two blue vertical lines at one standard error away from the mean. It stands the confidence interval of 68.2%. Then, the vertical blue lines are changed to 2 standard errors away from the mean. This range is the confidence interval of 95.4%. Finally, the vertical blue lines are changed to 3 standard error away from the mean. This represents the confidence interval of 99.7%.

Description balances describing every detail and the general idea. It's difficult!

Depend on other inputs:

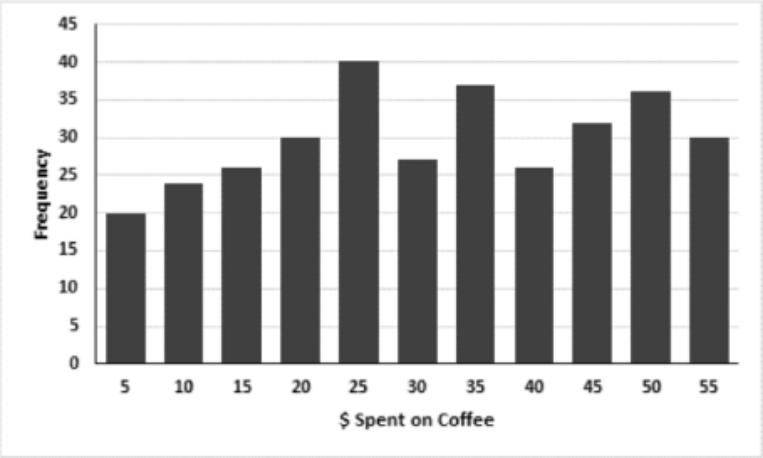
- Related data tables
- Tactile devices
- Most importantly, the instructor's voice

Scattered Plot Example



The graph is a scatter plot with no title listed. The horizontal x-axis shows height in centimeters ranging from 130 to 180 in increments of ten. The vertical y-axis shows weight in kilograms ranging from 30 to 90 in increments of ten. The graph contains approximately 100 points that seem to be evenly spread along a linear trend that goes from the lower left corner, where weight and height are small, to the upper right corner, where both quantities are large.

Histogram

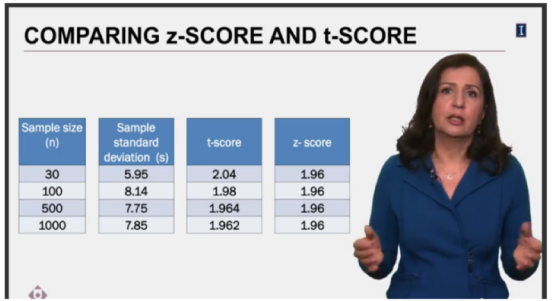


The graph is a histogram that shows the average dollars spent on coffee per month. The horizontal x-axis shows dollars spent on coffee with bins ranging from 5 to 55 in increments of 5. The vertical y-axis shows the height of each bin, which represents frequency and ranges from 0 to 45 in increments of 5.

Table

New Employee Orientation Schedule

Date	Schedule Start	Schedule End	Location	Topics
Monday, June 1	9:00 a.m.	10:30 a.m.	RH 001	Introduction to Company: Vision and Mission
	10:30 a.m.	12:00 p.m.	RH 001	HR Policies Review
	Lunch from 12:00 p.m. to 1:00 p.m.			
	1:00 p.m.	2:30 p.m.	RH 001	Overview of Benefits
	3:00 p.m.	4:30 p.m.	RH 005	Health and Safety Procedures



Comparing z-score and t-score

Sample size (n)	Sample standard deviation (s)	t-score	z-score
30	5.95	2.04	1.96
100	8.14	1.98	1.96
500	7.75	1.964	1.96
1000	7.85	1.962	1.96

```
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      <th scope="col" id="topics1">Topics</th>
    </tr>
    ▼<tr>
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      <td headers="schedule start monday">9:00 a.m.</td>
      <td headers="schedule end monday">10:30 a.m.</td>
      <td headers="location monday">RH 001</td>
      <td headers="topics1 monday">
            Introduction to Company: Vision and Mission</td>
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    ▶<tr>…</tr>
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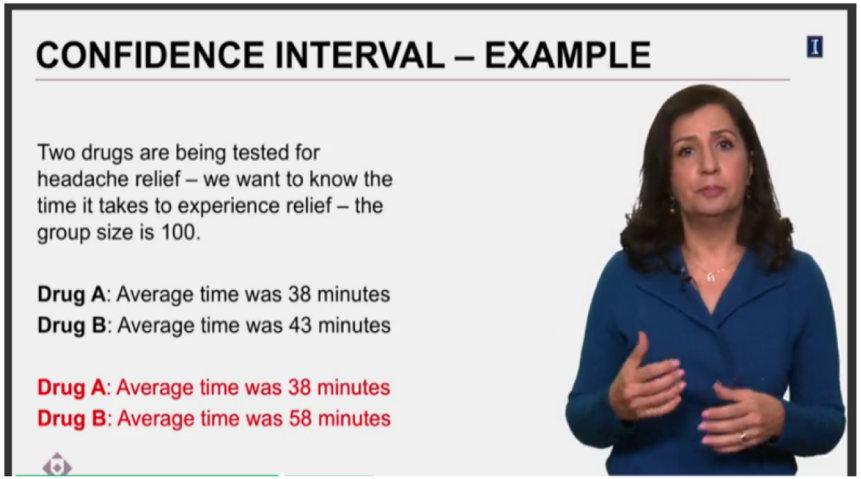
Making Meaning of Color

Confidence Interval - Example - Slide 5



Two drugs are being tested for headache relief – we want to know the time it takes to experience relief – the group size is 100.

- **Drug A:** Average time was 38 minutes
- **Drug B:** Average time was 43 minutes

- ***Drug A: Average time was 38 minutes***
- ***Drug B: Average time was 58 minutes***

Use of Color: Understanding SC 1.4.1

"The intent of this Success Criterion is to ensure that all users can access information that is conveyed by color differences, that is, by the use of color where each color has a meaning assigned to it."

https://www.w3.org/TR/UNDERSTANDING-WCAG20/visual-audio-contrast-without-color.html

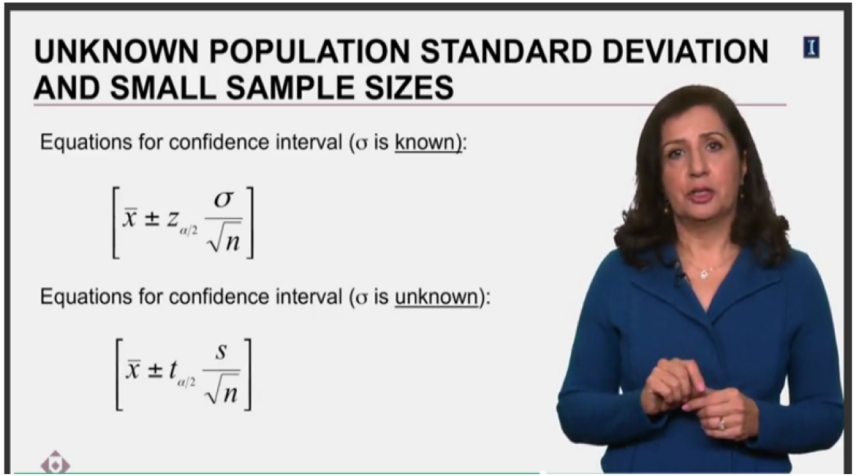
Accessible Excel sheet

Advertising	Sales
4582.88	3669.88
5539.78	3473.95
2950.38	2295.10
2243.07	4675.56
7747.08	6125.96
402.44	2134.94
3140.62	5031.66
2086.16	3367.45
8846.25	6519.45
5673.11	4876.37
2761.76	2468.27
1991.85	2533.31
1971.52	2408.11
1737.38	2337.38
10694.20	4586.95
8618.61	2729.24
7747.89	3289.40
4565.81	2800.78
6022.70	3264.20
3721.10	3453.62
860.97	1741.45
3571.51	2035.75
2845.50	1578.00
5060.11	4167.44
3552.00	2799.97

Advertising and Sales Table | Scatter_Plot

MathML Example

Unknown Population Standard Deviation and Small Sample Sizes - Slide 13



Equations for confidence interval (σ is *known*):

$$\left[\bar{x} \pm Z_{\frac{\alpha}{2}} \frac{\sigma}{\sqrt{n}}\right]$$

Equations for confidence interval (σ is *unknown*):

$$\left[\bar{x} \pm t_{\frac{\alpha}{2}} \frac{s}{\sqrt{n}}\right]$$

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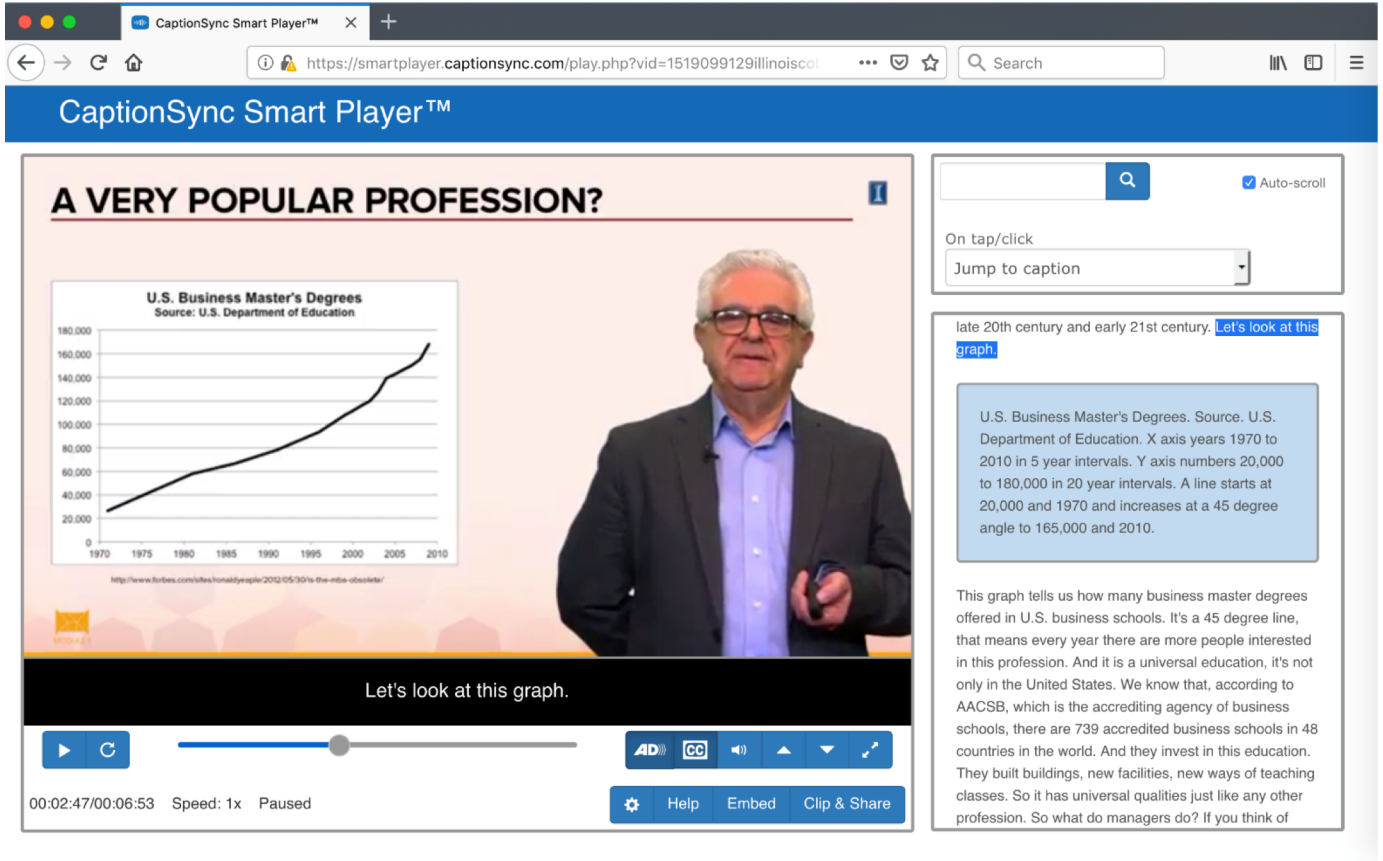
Example – Accessible Media Player

Without audio description:

With extended audio description:

Example – Accessible Media Player



Publishing Questions

How best to provide offline access – EPUB?

Video files can be large; should we provide multiple bitrate versions?

Content licensing questions

Making This Process More Efficient

Integrated Descriptive Video – Accessible Media Inc.

Faster creation – move the accessibility strategy move early in the course creation process.

http://nbviewer.jupyter.org/github/a11yofficer/dvbp/blob/master/Integrated-Described-Video-Best-Practices.pdf

Wrap

We are required to do this, there are realities of MOOCs too

There are accessibility standards but “usable” wins

You should focus on the most flexible format to allow adaptability of your materials