



Flipping the Classroom in Introduction to Economics

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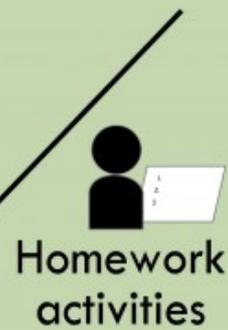
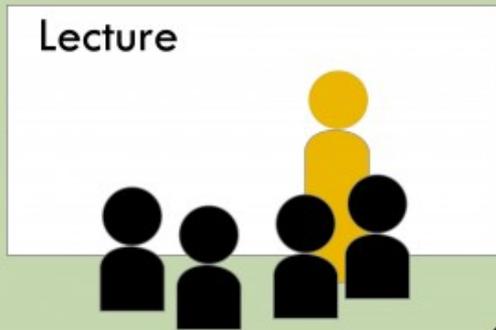


The Flipped Classroom

Introduction



TRADITIONAL



FLIPPED



<http://www.washington.edu/teaching/teaching-resources/engaging-students-in-learning/flipping-the-classroom/>

Example

The screenshot shows a web interface for a university course management system. At the top left is the Illinois Wesleyan University logo, featuring a circular seal with the text "ILLINOIS WESLEYAN UNIVERSITY" and "SCIENTIA ET SAPIENTIA" inside, with "1850" at the bottom. To the right of the logo is the word "Courses" in a large, dark font. Below the logo and "Courses" is a navigation bar with "Home" and "My home" links, and a "Customise this page" button. On the right side of the navigation bar, it says "You are logged in as Diego Mendez-Carbajo (Log out)" and a language dropdown menu set to "English (en)".

The main content area is titled "Course overview" in a green header bar. Below this, there are three course entries, each with a blue folder icon and a message: "You have assignments that need attention".

- Time Series Analysis - Spring 2015**
- Applied Financial Economics - Spring 2015**
- Introduction to Economics - 100.3 - Fall 2014**

At the bottom of the course overview section, it says "You have 20 hidden courses (Show all courses)".

On the right side of the interface, there is a "My private files" section with a list of folders: Applied_Finance, Intern_Macro, Introduction, Senior_Project, and Time_Series. Below the list is a "Manage my private files" button. Below that is an "Online users" section, which is currently empty.



Course and Activity

Data

Descriptive Data: Course



- Students in the course: 28-25
 - (6 women and 22 men)
- Weeks in the semester: 15
- Weekly minutes of in-class contact time: 200

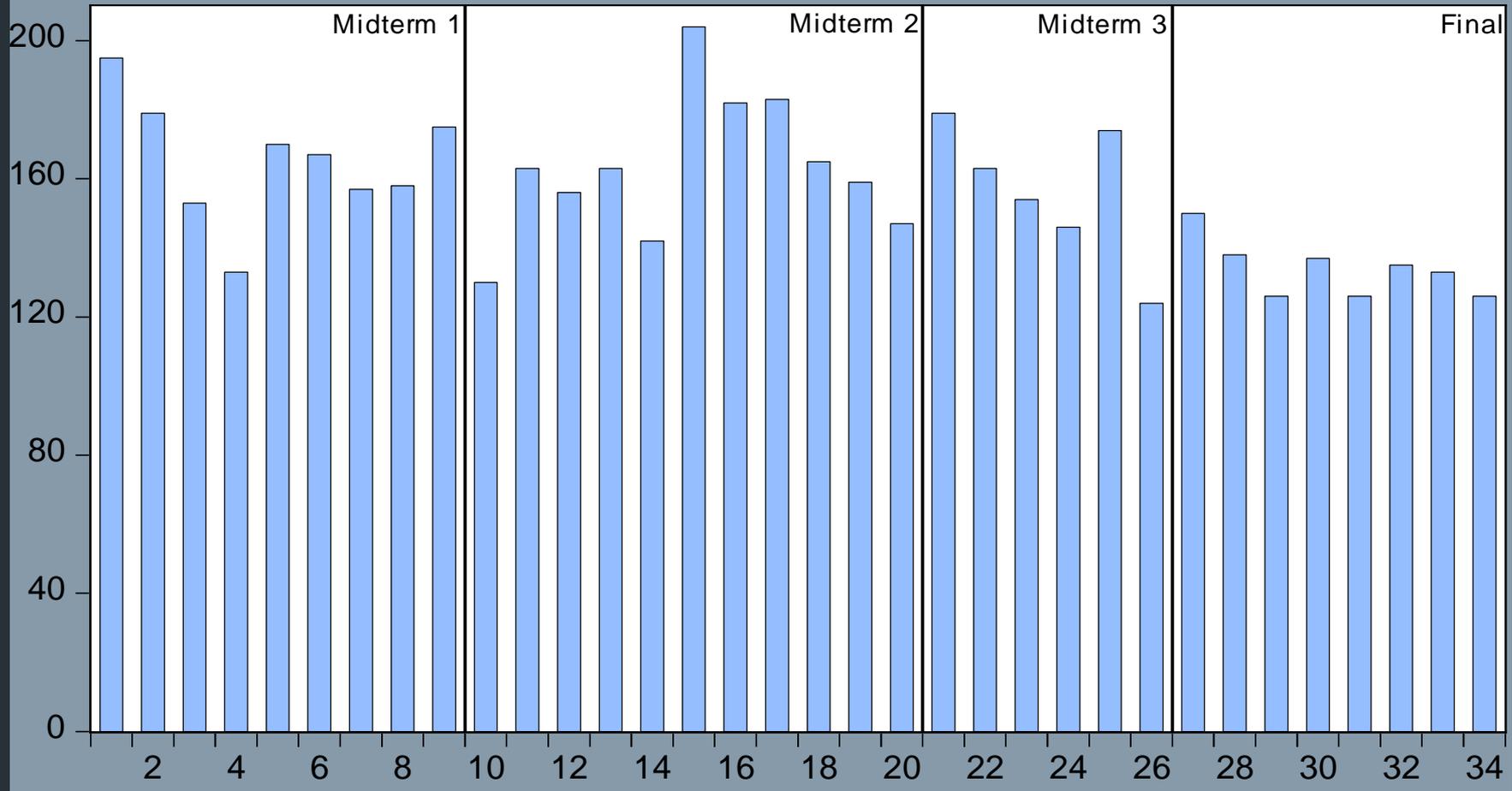
Descriptive Data: Activity

- Number of *Video+Questions*: 34
 - Narrated by a male voice: 14
 - Narrated by a female voice: 20
 - Consisting exclusively of diagrams: 6
 - With illustrations and animations: 25
 - Including a person on screen: 9
- Average length of video clips: 5 minutes and 40 seconds

Time on Task



Number of Times Each Video+Question was Viewed



Time on Task

- Average time spent on these activities per student per week: 1 hour and 30 minutes.
- Reading 300 words a minute, 90 minutes each week of the semester, a student would have read 498 pages of text.
- The textbook is 592 pages.

Tracked Variables

- Design features
- Length of videos
- Number of views and attempts
- Time started & completed
- Score (1 to 10)
- Rating (1 to 5)

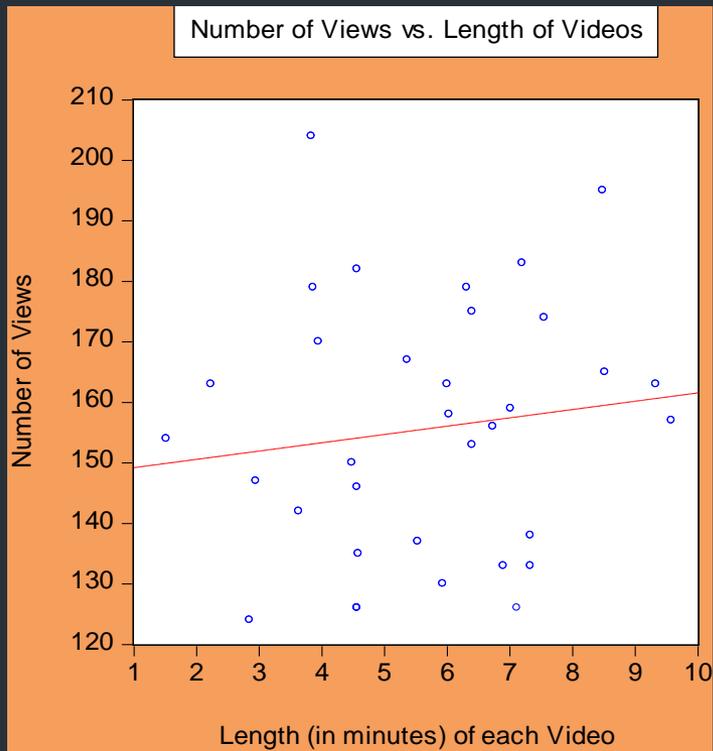


Usage and Design

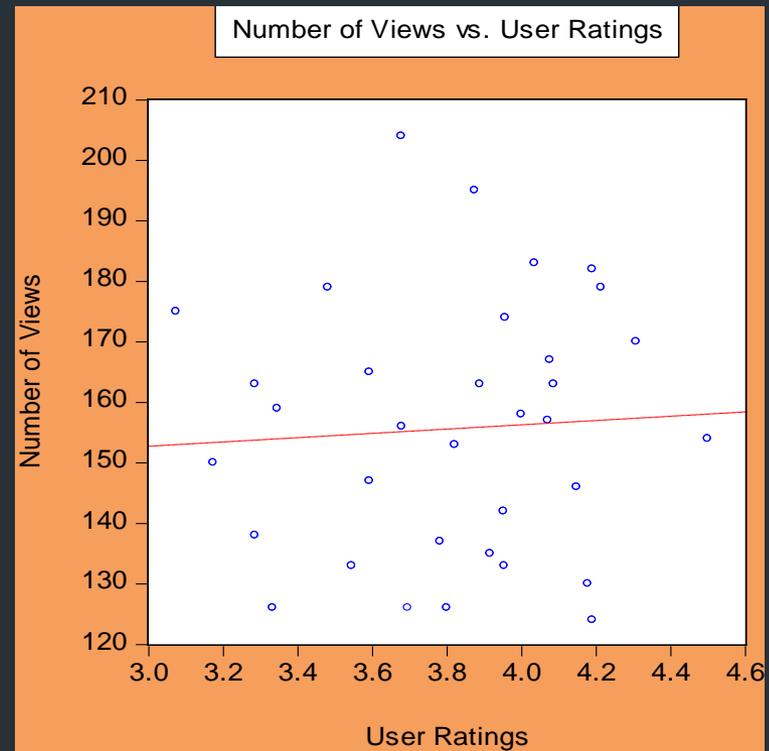
Findings

No Findings

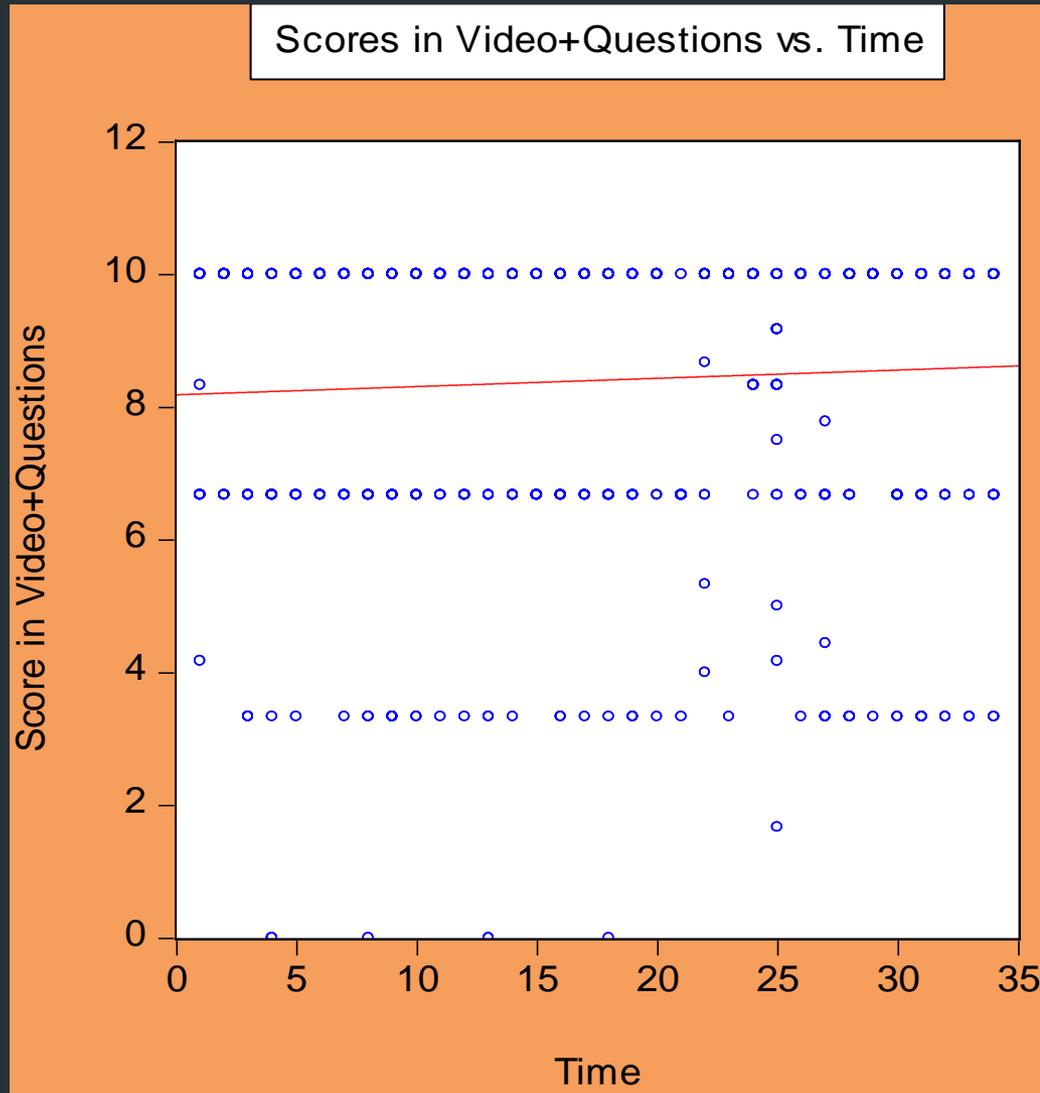
Views and Length



Views and Ratings



Scores vs. Time



Regression Results: Ratings vs. Design

Dependent Variable: *User Ratings of Video+Questions*

N = 799

Constant	3.9063*** (19.494)
Length	-0.0562* (-1.8425)
Animated	0.2108* (1.7366)
Human Presence	0.2848*** (2.7158)

R-Squared	0.3833
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Student Course Evaluations: Average Scores



Question	Year/Section	
	2012/3	2014/3
The instructor's expectations were clear	4.58	4.50
The instructor was prepared for class	4.71	4.82
As a student I was generally prepared for class	3.88	4.27*
The instructor seemed genuinely concerned about student progress	3.96	4.09
The instructor was available for help outside of class	4.33	4.27
The degree of difficulty of this course was appropriate	4.08	4.00
The instructor provided meaningful criticism and comments on my work	4.17	4.23
The instructor treated students fairly	4.42	4.55
The instructor fostered an atmosphere of mutual respect	4.25	4.64*
The course has increased my interest in the subject matter	4.17	4.05
The instructor challenged me intellectually	4.42	4.36
Overall, I would recommend this course to another student	4.33	4.41
Overall, I would recommend this instructor to another student	4.17	4.50



Implications and Extensions

Conclusions

Student Reception

- Student time-on-task is high.
- User ratings were very positive.
- More views translate into more attempts.
- Students' scores improve over time.
- The number of views decreases over time.

Activity Design



- Videos should not be too long.
- There is value in including animation or a human presence in a video.

Looking Forward

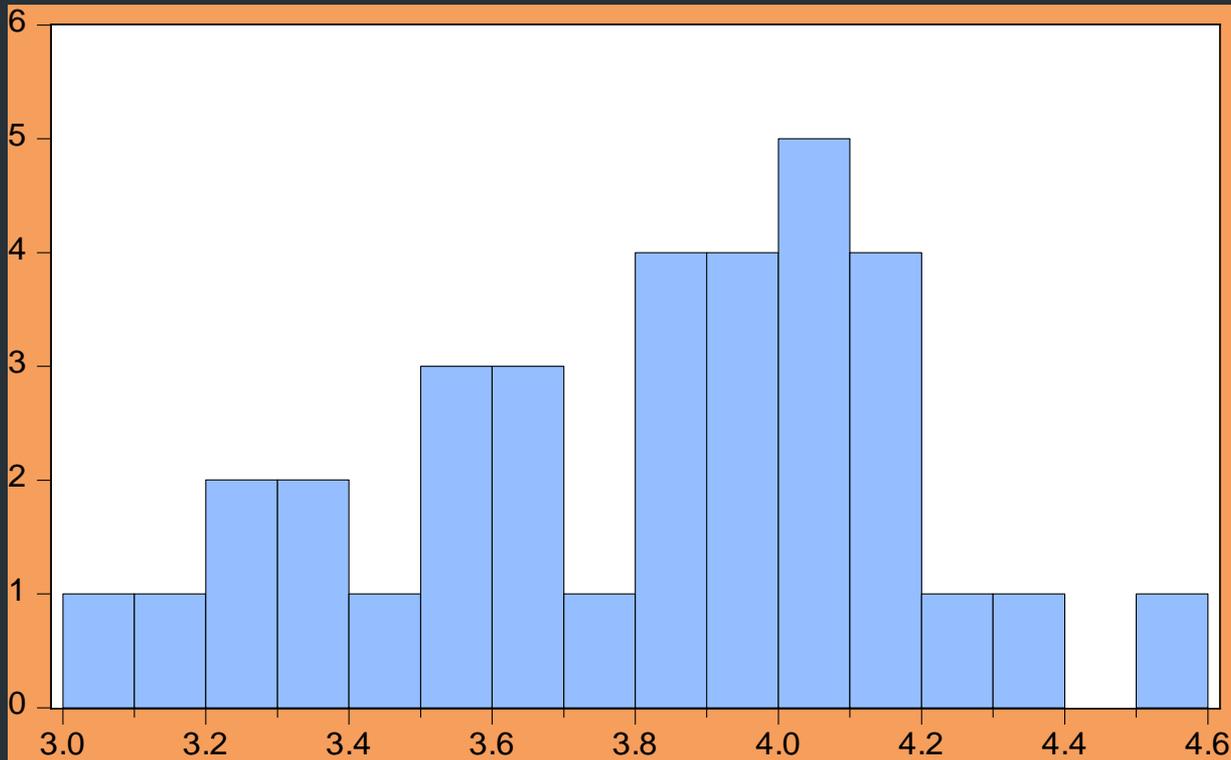


- Replication in other courses.
- Statistical analysis of pedagogical effectiveness.

Thank You.
Questions?



User Ratings (1 to 5 Stars)



Series: RATINGS

Sample 1 34

Observations 34

Mean 3.815117

Median 3.881944

Maximum 4.500000

Minimum 3.074074

Std. Dev. 0.351312

Skewness -0.348323

Kurtosis 2.349801

Jarque-Bera 1.286440

Probability 0.525597