

# Creating Consultants in Introductory Statistics: Utilizing Facebook Data

Adam Childers



# Motivation for the Facebook Project

- New Requirement:  
**Community engagement**

## Community Service

At Roanoke College we're interested in serving others.

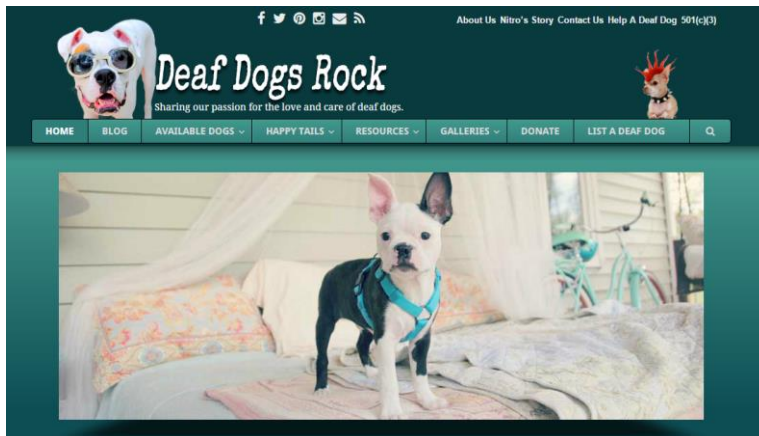
You can make a difference through a variety of agencies and projects throughout the Roanoke Valley and beyond. Through work with local partners who deal with education, housing and hunger, you can help others while enhancing your education.

[Read the blog.](#)

# Community Engagement

Dr. Chris Lee (Roanoke College) and his wife Christina founded Deaf Dogs Rock 2012 to help find homes for deaf dogs.

Their Facebook page has over 40,000 likes and is updated daily. They have helped find homes for over 500 deaf dogs.



Dr. Chris Lee and Nitro

# A Project is Born!

In the groups of 2-3 the students serve as **consultants** for Deaf Dogs Rock's Facebook page



# Meeting with Organization

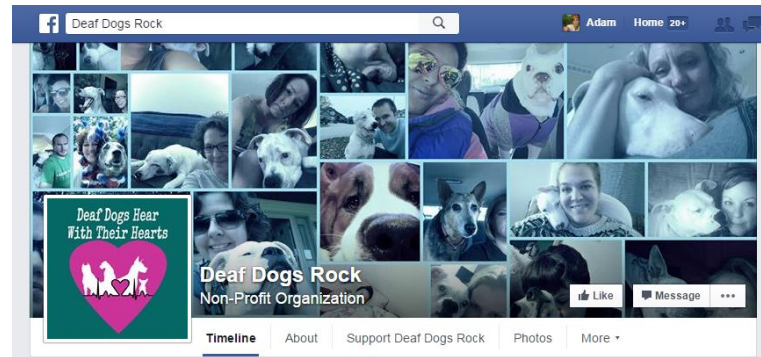
- Deaf Dog Rock came to my class and talked about their group, their message, Facebook, and Nitro.
- Dr. Lee offered to follow up with any group that had questions.



**DEAF DOGS ROCK**

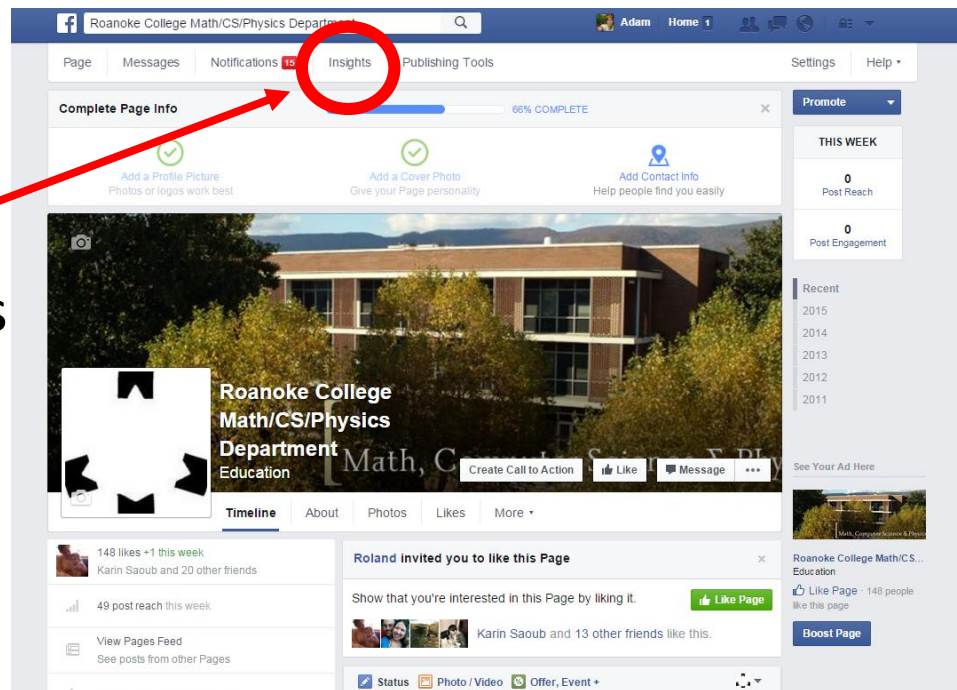
# Part 1: Getting to know the organization and understanding Facebook

1. An introduction to deaf dogs and Deaf Dogs Rock
2. A literature review of how businesses use Facebook to promote their brand



- These are done early in the semester to get the students motivated
- Inference is in the second half of the semester

# Getting Facebook Data



The screenshot shows the Facebook interface for the 'Roanoke College Math/CS/Physics Department' page. The 'Insights' tab is highlighted with a red circle, and a red arrow points to it from the text 'Click on Insights'. The page header includes navigation options like 'Page', 'Messages', 'Notifications', 'Insights', and 'Publishing Tools'. Below the header, there's a 'Complete Page Info' section with a progress bar at 66% completion. The main content area features a cover photo of a building and a profile picture. The right sidebar shows 'THIS WEEK' statistics for Post Reach and Post Engagement, both at 0, and a 'Recent' year filter. The bottom section displays a post from Karin Saoub and a 'Like Page' button.

Click on Insights

# Getting Facebook Data

The screenshot shows the Facebook Insights interface for the page 'Roanoke College Math/CS/Physics Department'. The 'Export' button in the top navigation bar is circled in red. A red arrow points from the text 'Click on Export' to this button. The main content area displays three charts: 'Page Likes' (148 Total Page Likes, 1 New Page Likes), 'Post Reach' (77 Total Reach, 49 Post Reach), and 'Engagement' (9 People Engaged, 1 Likes, 0 Comments, 1 Shares, 15 Post Clicks). Below the charts is a table titled 'Your 5 Most Recent Posts'.

Published	Post	Type	Targeting	Reach	Engagement	Promote
12/13/2015 9:44 pm	"Simulating stormwater outflow a nd playing soccer" has been post	🔗	🎯	37	2 1	Boost Post
12/10/2015 3:07 pm	"And Now, Introducing ..." has be en posted on the MCSP Biogl Ch	🔗	🎯	34	0 0	Boost Post
12/10/2015 2:54 pm	"The Stat Crew Wants You" has been posted on the MCSP Biogl	🔗	🎯	415	13 6	Boost Post
12/10/2015 12:33 pm	#rcmscp end of term breakfast! #r cmcscfamily	📷	🎯	104	9 6	Boost Post
12/10/2015 12:31 pm	#rcmscp breakfast to become en d of semester event!	📷	🎯	110	18 5	Boost Post

Click on Export



# Getting Facebook Data

Date Range and Format

Select  
Post Data

Export Insights Data

Select a data type, file format and date range. You can export up to 500 posts at a time.

**Data Type**

- Page data  
Key Page metrics for engagement, like sources and audience details.
- Post data**  
Key post metrics for reach, impressions and feedback.
- Video data  
Key video metrics including views, unique views, paid views and organic views.

**Date Range**

November 20, 2015 - December 18, 2015 ▾

**File Format**

Excel (.xls) ▾

Facebook Page Terms

Cancel Export Data

Published	Post	Type	Targeting	Reach	Engagement	Promote
12/13/2015 9:44 pm	"Simulating stormwater outflow and playing soccer" has been post			37	2 1	Boost Post
12/10/2015	"And Now, Introducing..." has be					

# The Raw Data

Facebook Insights Data Export (Post Level) - Roanoke College Math-CS-Physics Department - 2015-12-28 (1) - Excel

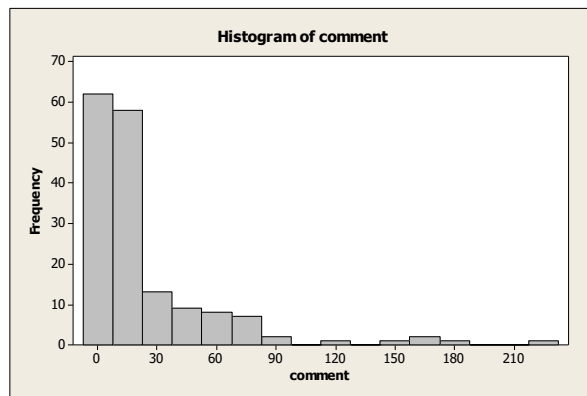
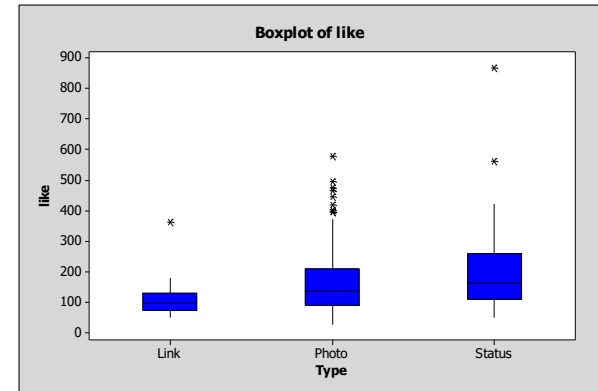
Post ID	Permalink	Post Message	Type	Countries	Languages	Posted	Lifetime Post
152641134802517_98845375	https://www.facebook.com/rcmcs	Holiday Greetings From MCSP	Link			12/23/15 11:07 AM	
152641134802517_987720254	https://www.facebook.com/rcmcs	Upcycled Theorems in New H	Link			12/22/15 1:07 PM	
152641134802517_983295631	https://www.facebook.com/rcmcs	Simulating stormwater outflo	Link			12/13/15 6:44 PM	
152641134802517_981723725	https://www.facebook.com/rcmcs	And Now, Introducing ... ha	Link			12/10/15 12:07 PM	
152641134802517_981720318	https://www.facebook.com/rcmcs	The Stat Crew Wants You!	Link			12/10/15 11:54 AM	
152641134802517_981649798	https://www.facebook.com/rcmcs	end of term breakfae	Photo			12/10/15 9:33 AM	
152641134802517_981649358	https://www.facebook.com/rcmcs	breakfast to become	Photo			12/10/15 9:31 AM	
152641134802517_972732998	https://www.facebook.com/rcmcs	Twas a brillig, and the slithy	Photo			11/19/15 10:38 AM	
152641134802517_971813148	https://www.facebook.com/rcmcs	One night only! An #rcmcs	Photo			11/17/15 10:15 AM	
152641134802517_970329318	https://www.facebook.com/rcmcs	Last night Professor Maggie R	Photo			11/13/15 5:34 PM	
152641134802517_969989578	https://www.facebook.com/rcmcs	"Odd Day" has been posted or	Link			11/12/15 10:37 PM	
152641134802517_969810488	https://www.facebook.com/rcmcs	Tea time! #rcmcs #rcmcs	Photo			11/12/15 11:35 AM	
152641134802517_969796478	https://www.facebook.com/rcmcs	Another #rcmcs opportunity	Photo			11/12/15 10:49 AM	
152641134802517_969715048	https://www.facebook.com/rcmcs	Physics club meeting at noon	Photo			11/12/15 6:03 AM	

## Data for the students

- Raw data
- Modified data (key variables, time transformation)
- Class in computer lab

# Key Variables

- Post type (photo, link, video)
- Post time
- Number of likes
- Number of shares
- Number of comments



Manipulating data:  
Turning time into  
morning, midday, and  
night

# Part 2: Analysis of Data

3. A formulation of research questions with motivation

4. Data analysis –graphical summaries and hypothesis tests



- Students meet with me to discuss their research questions and analysis techniques
- Students meet again with me to discuss their findings.

# Research Questions

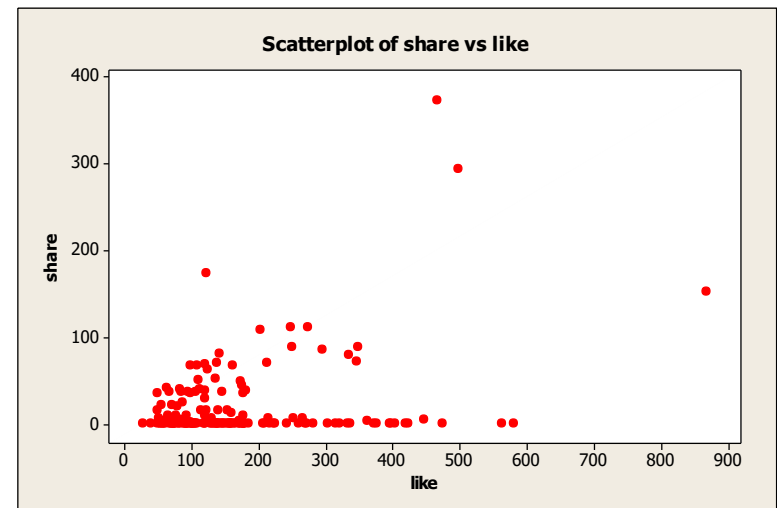
- Does the type of post affect the number of likes?
- Do photos get more shares than links?
- Is there a relationship between the time of day and number of shares?
- Are likes a good predictor of shares?

## Regression Analysis: share versus like

The regression equation is  
 $\text{share} = -1.52 + 0.126 \text{ like}$

Predictor	Coef	SE Coef	T	P
Constant	-1.519	5.834	-0.26	0.795
like	0.12646	0.02775	4.56	0.000

S = 43.9165    R-Sq = 11.3%    R-Sq(adj) = 10.8%



# Part 3: Conclusions and Recommendations

- Use clear, non-technical language
- Explain the scope of the inference
- Clearly describe the data – graphs and tables
- Discuss possible planned experiments
- It's OK if the test is not significant!
- Show work in appendix



I give Deaf Dogs Rock one group's report

# Improving the Project

- Different organizations for each group to consult
- Follow-up meeting with organization after report is complete
- Oral presentations in class



# Questions?

**Meet Daisy**



**Breed:** English Bull Terrier

**Description:** Small standard Bull Terrier, all white with a touch of brindle on the ear, very athletic

**Gender:** Female

**Weight:** 35 lbs.

**Age:** 2 years 6 months

**Spayed / Neutered:** Yes

**House Trained?** Yes! has not had any accidents while she has been in foster. She is very good on scheduled diet and walks

**Crate Trained?** Yes! Sleeps in kennel at night. Does well in kennel when other dogs are crated as well, can get barky if other dogs are out

**General Training?** Has gone to obedience training and passed! Knows basic hand signals for sit, down, and come. Can be stubborn sometimes with signals :)

**Good with Children?** No. Cannot be in a home with small kids. Teenagers are ok.

**Good with Other Dogs?** Very dog friendly with dogs her size or bigger. Smaller dogs can trigger the "terrier instinct" in her. She would be best with a larger dog or be an only pet.

**Good with Cats?** No cats!

**Location / Contact**

**Residence:** In home with foster or owner

**City:** Myrtle Beach

**State:** SC

**Contact Name:** Jenna Pakosta

**Phone:** (630) 461-7038

**Email:** [jpakosta@rcbtr.org](mailto:jpakosta@rcbtr.org)

**Web Listing:** [Click Here](#)

**Application Link:** [Click Here](#)

**childers@roanoke.edu**