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Going Viral with Statistics

Teaching Data Analysis Through TikTok

USCOTS 2025 Breakout Session
Making Statistics Immediately Relevant to Students' Lives
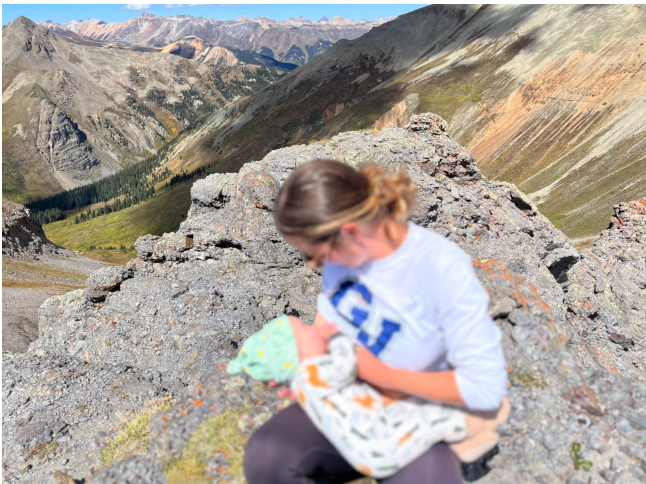
Meet Hannah Kurzweil

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Our Mission

- **Democratize data literacy** for all students

- **Break down barriers** to statistical education

- **Create inclusive** learning experiences

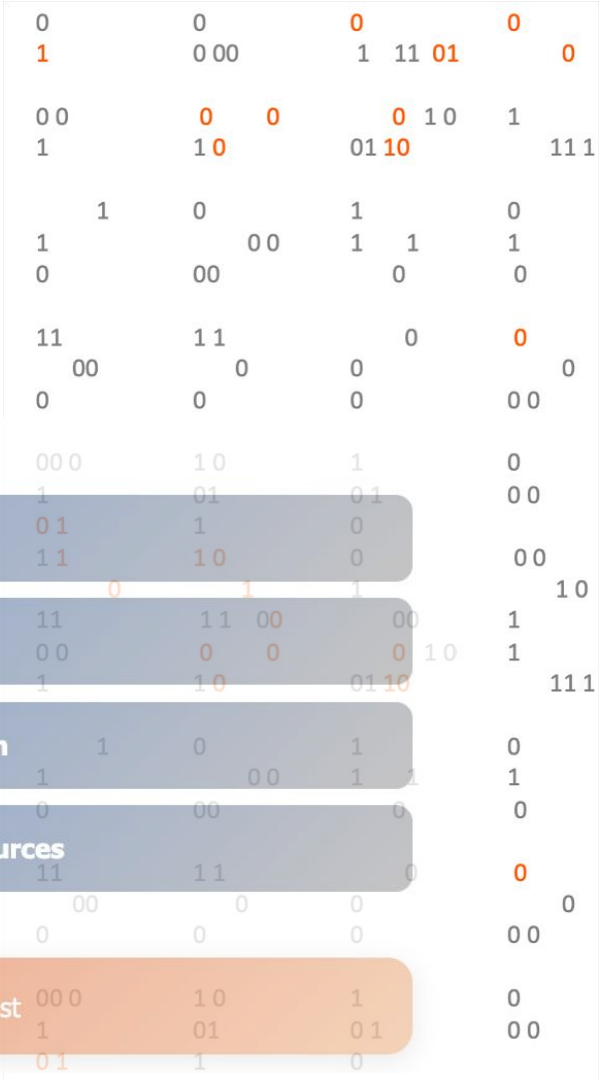- **Make data science accessible** regardless of background

How We Do It

📱 **Using familiar contexts**

🔨 **No-barrier technology**

🎯 **Student-centered design**

🤝 **Community-driven resources**

Core Belief: Every student deserves to see themselves as a data scientist

The Challenge We All Face

Students Often Think:

- "When will I ever use this?"

- "Statistics is boring"

- "This data isn't relevant to me"

- "I don't see the point"

What If We Could:

- Use data they care about?

- Teach through familiar platforms?

- Make stats immediately relevant?

- Build genuine excitement?

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Enter TikTok Data

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1 Billion+
Active TikTok users worldwide

Students Already Think About:
- What makes videos go viral?
- Optimal posting times
- Engagement strategies
- Content performance

Perfect for Teaching:
- Sampling distributions
- Correlation analysis
- Data visualization
- Statistical inference

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What Students Will Master

Statistical Concepts

📊 **Exploratory Data Analysis**

📈 **Data Visualization**

🎲 **Sampling Distributions**

📏 **Central Limit Theorem**

🔗 **Correlation & Regression**

21st Century Skills

💡 **Critical Thinking**

📱 **Digital Literacy**

🎯 **Pattern Recognition**

💬 **Data Communication**

🔍 **Real-World Application**

Our Journey Today

⏰ **Time Series Analysis (15 min)**
When should you post? Box plots reveal optimal timing patterns

📊 **Category Analysis (15 min)**
Which content types perform best? Visualizing engagement metrics

🔗 **Correlation & Regression (15 min)**
What predicts viral success? Building predictive models

Plus: Implementation workshop + Complete lesson materials to take home!

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Activity 1: When to Post?

The Stats Concepts They Learn:

The Question Students Ask:

📊 Distribution Analysis

📈 Box Plot Interpretation

🕐 Time Series Patterns

"When should I post my TikTok for maximum views?"

◎ Central Tendency

Instantly relevant to their lives!

```
ggplot(tiktok_data, aes(x = factor(hour), y =
Views)) + geom_boxplot(fill = "skyblue") +
labs(title = "Views by Posting Hour")
```

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Activity 2: Content Categories

Student Discovery:

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- **Dance videos:** High engagement rates

- **Comedy:** Consistent performance

- **Tutorials:** Lower but loyal engagement

- **Gaming:** Niche but dedicated audience

Statistical Learning:

📊 **Categorical Data Analysis**

📈 **Comparative Visualization**

🎯 **Summary Statistics**

🔍 **Pattern Recognition**

Key Insight: Most viewed ≠ highest engagement rate!

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Activity 3: The Viral Formula

Students Discover Surprising Correlations:

-0.70
Duration vs Views
Shorter videos perform better!

0.97
Views vs Likes
Almost perfect correlation

Statistical Concepts Mastered:
✓ Correlation matrices ● ✓ Scatter plots ● ✓ Linear relationships ● ✓ Predictive modeling

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Why This Approach Works

Cognitive Benefits

- **Intrinsic motivation:** Data they care about

- **Prior knowledge:** Builds on existing experience

- **Immediate relevance:** Applicable today

- **Active learning:** Hands-on discovery

Statistical Rigor

- **Real data:** Authentic variability

- **Multiple concepts:** Integrated learning

- **Visual emphasis:** Modern data science

- **Interpretation focus:** Beyond computation

WebR: Making It Accessible

No Installation Required!

Instant Gratification

Just a web browser:
- No R installation
- No RStudio setup
- No package management
- Works on any device

Students see results immediately:
- Copy, paste, run
- Beautiful visualizations
- Interactive exploration
- No technical barriers

Perfect for intro stats students with zero programming experience!

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Beyond the Lesson

Assessment Strategies

📝 Completion Portfolio

💭 Reflection Questions

💬 Discussion Participation

🎯 Concept Application

Exit Ticket: "How would you use this data to improve your TikTok strategy?"

Extension Opportunities

📊 A/B Testing Design

🔍 Advanced Modeling

📱 Personal Data Collection

🎓 Research Projects

Advanced Challenge: "Design an experiment to test optimal hashtag strategies"

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Take It Home Today

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Complete Lesson Package:
- Detailed lesson plan
- Student handouts
- Teacher answer key
- Assessment rubrics
- Extension activities

Ready-to-Use Resources:
- TikTok dataset (CSV)
- All R code snippets
- Troubleshooting guide
- Video tutorials
- Customization tips

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Ready to Go Viral?

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Let's dive into the activities!

You'll experience exactly what your students will:

✓ Analyze real TikTok data
✓ Create compelling visualizations
✓ Discover surprising patterns
✓ Build statistical intuition
✓ Have fun with statistics!

Get ready to see statistics through your students' eyes!

www.tinyurl.com/viralstats

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