

How to Teach Marketing Analytics Using a Simulation

Brennan Davis
Professor of Marketing
Cal Poly



About me

- Associate Professor at the Orfalea College of Business at California Polytechnic State University.
 - Specialize in connecting large datasets to answer questions in transformative consumer research.
- Eight years of experience in business management in the automotive and technology industries.
- Author: *Marketing Analytics* at 80+ universities including Notre Dame, USC, Texas, Villanova, Babson, Penn State
- Author: *Business Analytics: Data Analysis and Storytelling for Business* was just launched last month
- Co-designer: *Mimic Analytics*



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Mimic Analytics Simulation

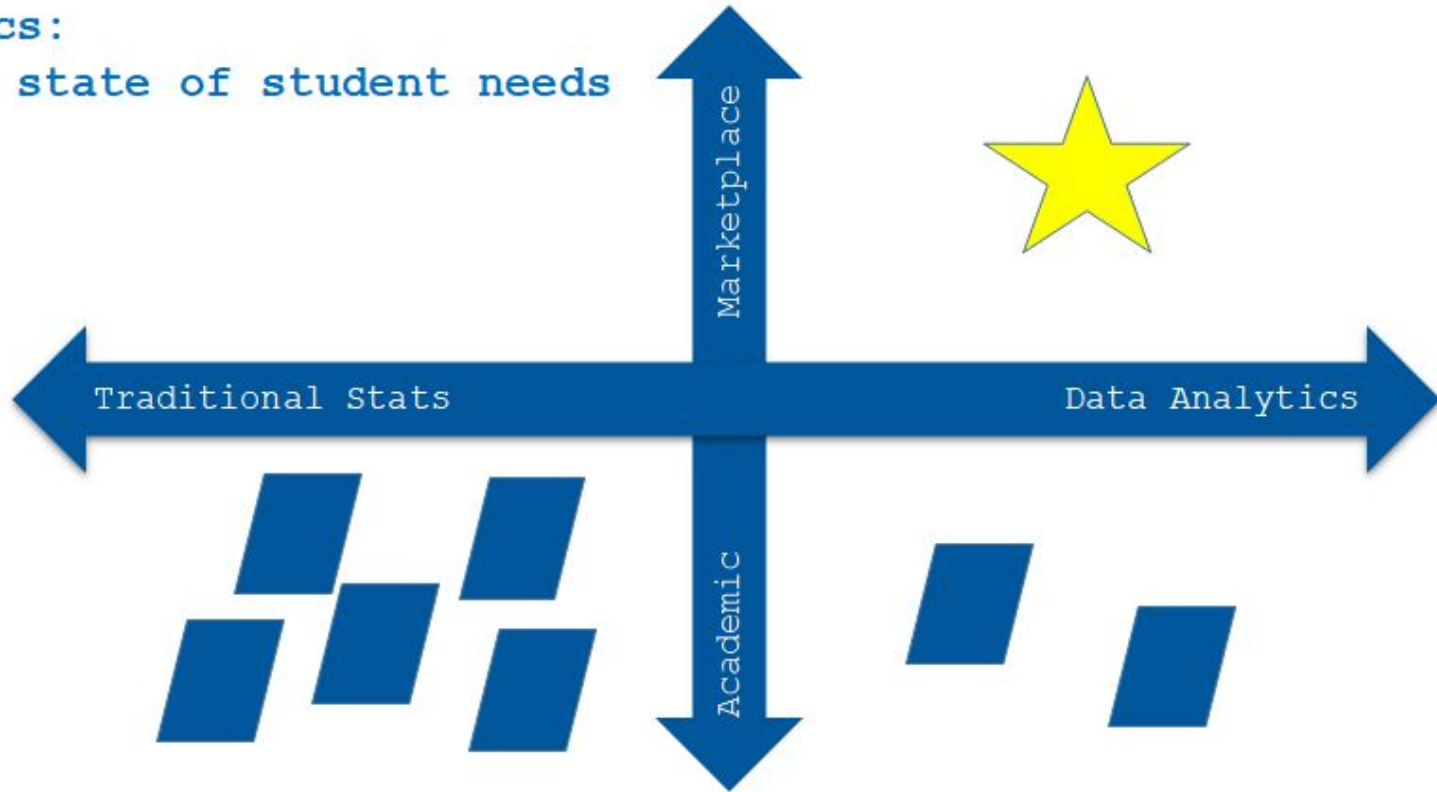


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Analytics:
Current state of student needs



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Bundle Options



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Industry Professional Testimonials

"Technology's rate of change in business over the last decade has outpaced the curriculum of most university business programs when it comes to business analytics and the tools and knowledge needed to effectively drive data-driven decisions.

Dr. Brennan Davis's close connections with analytics leaders at today's top companies ensure his content is up to date with the needs of industry and his book and courseware provide a modern platform to teach the foundational topics of business analytics."

-Nate Veldkamp, Senior Manager, Analytics at Tesla



"This textbook breaks down many fundamentals of business analytics and provides students with a pragmatic approach to solving real-world business problems."

-David Cornella, Analytical Lead at Google



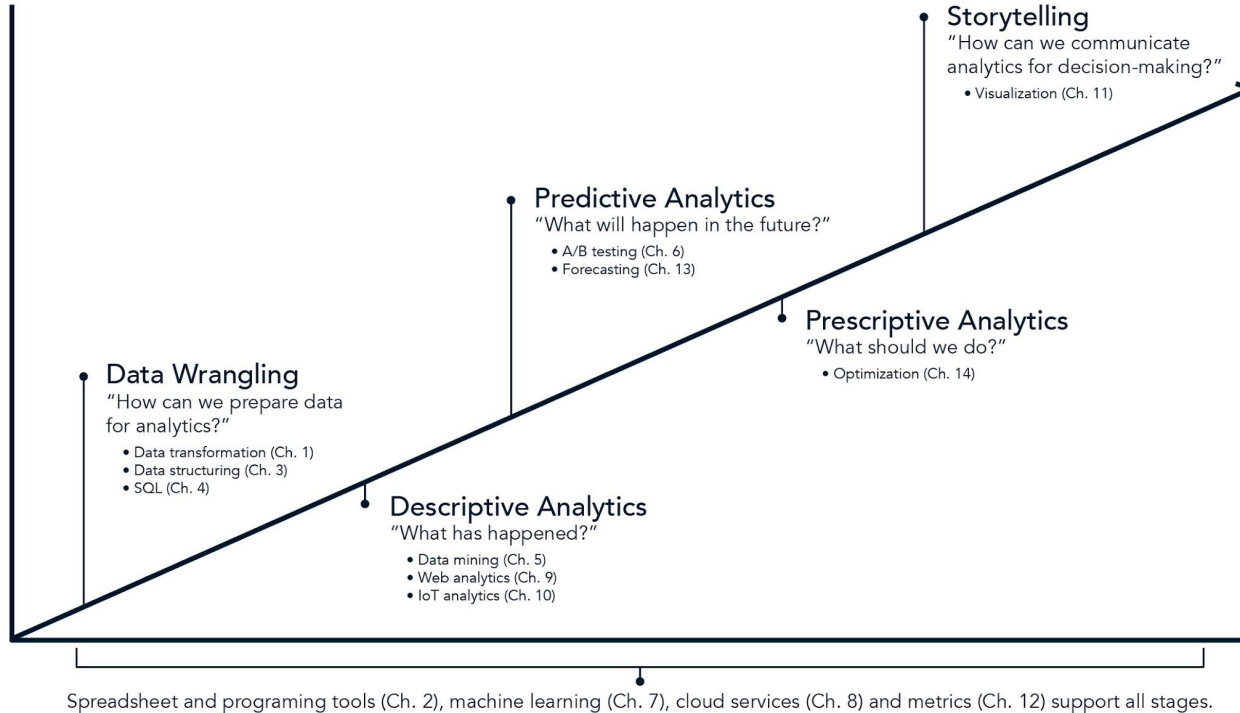
"This book proactively prepares individuals for the digital transformation that is coming to the global economy. With foundational and applicable knowledge of predictive analytics and cloud computing, learners are prepared to be a part of the biggest technological advancement since the internet."

-Noah Wang, Cloud Applications Consultant at Oracle



FIVE STAGES OF BUSINESS ANALYTICS

MATURITY TOWARD BUSINESS VALUE



STAGES

Mimic Analytics

Data Wrangling

Data Mining

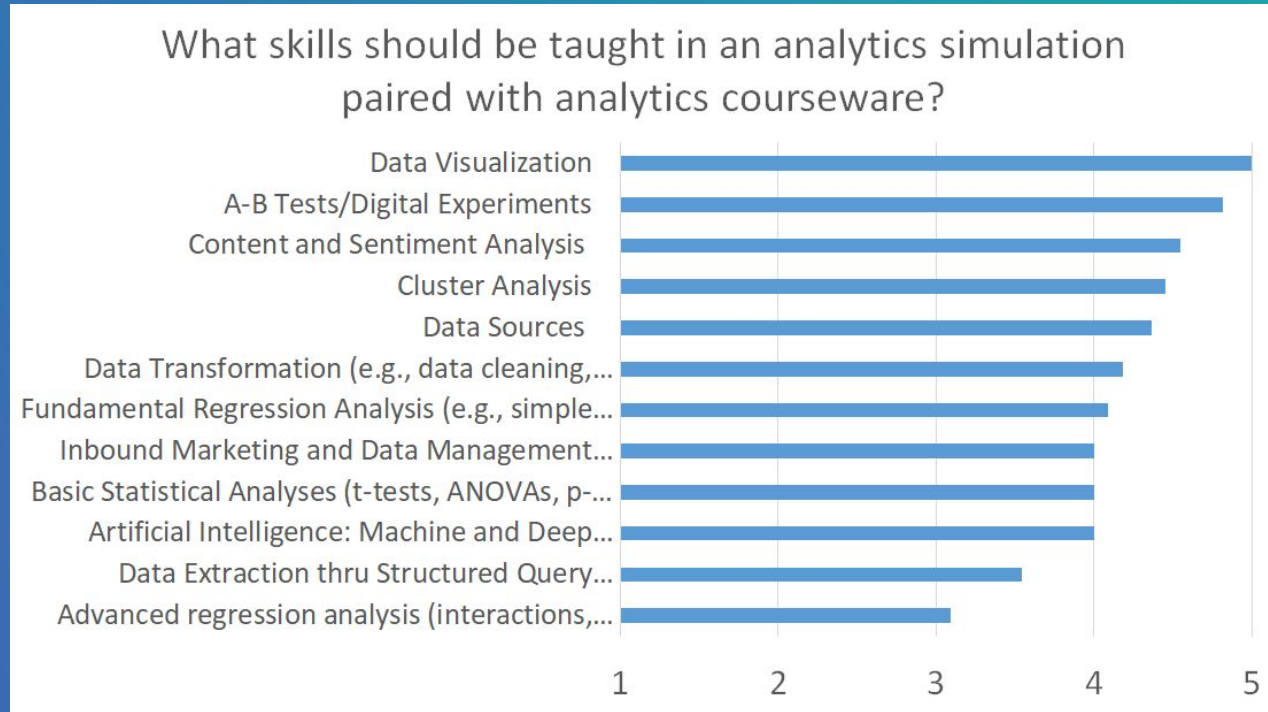
AB Testing

Summary of Rounds

1. Basic Data Transformation
2. Advanced Data Transformation
3. Basic Data Integration
4. Advanced Data Integration
5. Cluster Analysis
- 6-9. A/B Testing x 4



We asked what instructors wanted



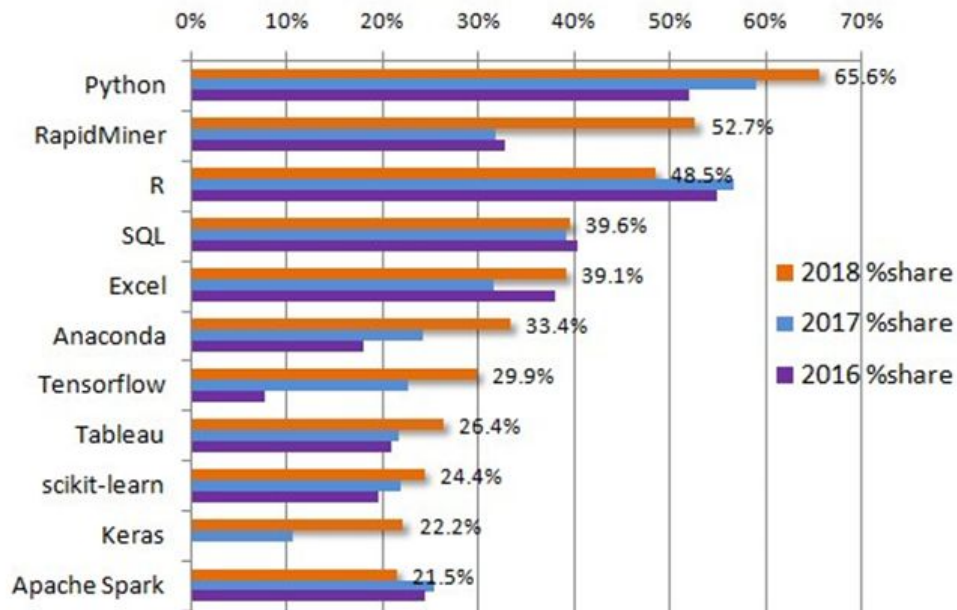
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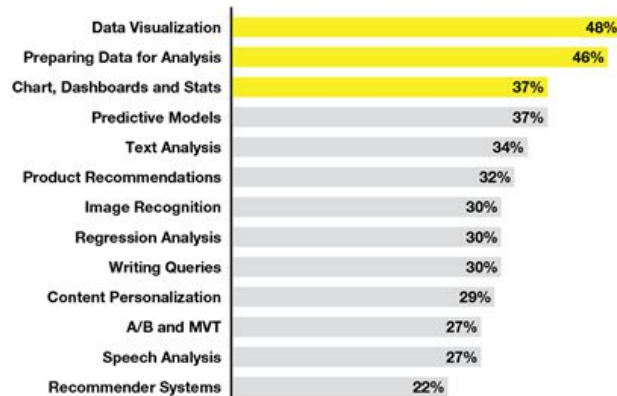
We sought industry advice

KDnuggets Analytics, Data Science, Machine Learning Software Poll, 2016-2018



Expensive, talented resources are **misaligned.**

Which of the following activities does your company's data scientist (or advanced analytics resource) perform for your marketing analytics team?



Percentage of respondents. Multiple responses allowed.
Base: All respondents, n=503

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Gartner.

Why instructors will love this simulation

- Prepares students for the real world
- Provides **tens of thousands of dollars** in a simulated budget
- Utilizes unique, **randomized datasets** (so no cheating)
- Practices **A/B testing** with a fictitious company's website
- **Auto-grades** assignments



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Why instructors will love this simulation

- Features student rankings to make it **competitive and fun**
- Runs **cluster analysis** for customer segmentation
- Uses either **Excel, R, or Python** to complete assignments
- Includes **weekly briefings** from a fictitious boss.
- Gives students **access to big-data**



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What my students are saying

“I really love the way Mimic Analytics let’s me make decisions as if I were an intern” - Kate

“...and the best thing is being able try things like AB Testing and make mistakes now before I do it in real life with real money.” - Juan

“I never knew how important cleaning the data was until I saw how it is connected to decisions businesses have to make.” - Pratish

“It was exciting to compete to be #1.” -Branson

What does the simulation look like?

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Real World Scenarios

The screenshot displays the MIMIC Analytics web application. On the left, a sidebar menu lists navigation options: Introduction, Scenario (highlighted), Objectives, Landing Page, Sales, Search Ad Campaign, Analytics Report, and Budget Allocation. Above the menu, a table shows 'BUDGET \$10,000' and 'BALANCE \$10,000'. The main content area is titled 'Scenario' and features a video player with a play button overlay. Below the video, a 'Quick Recap' section contains text boxes with instructions: 'Your first job is to download and clean the web, sales, and search ad campaign data. To clean the data properly, you must find and remove: 1. Outliers'. At the bottom of the interface, there are 'Back' and 'Continue' buttons.

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Clear Objectives

The screenshot shows the STUKENT MIMIC Analytics web application. On the left is a sidebar with a navigation menu. The main content area is titled 'Objectives' and contains instructions for accessing data files and a task description. At the bottom are 'Back' and 'Continue' buttons.

STUKENT Help

MIMIC Analytics

Results Progress

Round 1 — Basic Data Transformation

BUDGET \$10,000	BALANCE \$10,000
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Topics / Modules

- ☐ Introduction
- ☐ Scenario
- ☒ Objectives
- ☐ Landing Page
- ☐ Sales

Run Simulation

Objectives

You've been given access to three Buhi files, containing multiple sets of data:

- Web data
- Sales data
- Search ad campaign data

You can access these datasets and explore their contents by downloading the attached zip file containing the corresponding CSV files. Open the CSV files in Microsoft Excel or Google Sheets.

*Your first task is to **clean** the data by finding and removing outliers, impossible values, and incorrect values.*

*If you need help using formulas, watch the Excel tutorial videos in the Guides.

Let's Review the Process

Back Continue

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Engaging Activities

STUKENT

MIMIC Analytics

Results Progress

Round 6 – A/B Testing Landing Page 1

BUDGET
\$10,000

BALANCE
\$10,000

Topics / Modules

Scenario

Objectives

A/B Test Trials

Your Final Selection

Run Simulation

A/B Test Trial 1

Edit the product image for both Test A and Test B by clicking on the respective boxes and selecting the features you would like to implement in the A/B test.

To learn more about A/B testing best practices, read this [article](#).

You can run up to 12 A/B tests. Remember, you're aiming to **maximize the percentage of returning customers**.


Your final grade for the round will be based on the test you select before clicking "Run Simulation." If you don't select a test, your grade will be based on the highest-performing test from the last trial you submitted.

Edit each panel of your landing page by mousing over them and clicking. After you complete each task on the page you can run your tests.

Test A

Test B

Product image settings



Back

Continue

Run Trial

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Allocate budget with simulated dollars

STUKENT

MIMIC Analytics

Results Progress

Round 4 — Advanced Data Integration

BUDGET
\$10,000

BALANCE
\$10,000

Topics / Modules

☐ Scenario

☐ Objectives

☐ Decisions

☐ Analytics Report

☒ Budget Allocation

Run Simulation

☐ Budget Allocation

REMAINING
\$3,500.00

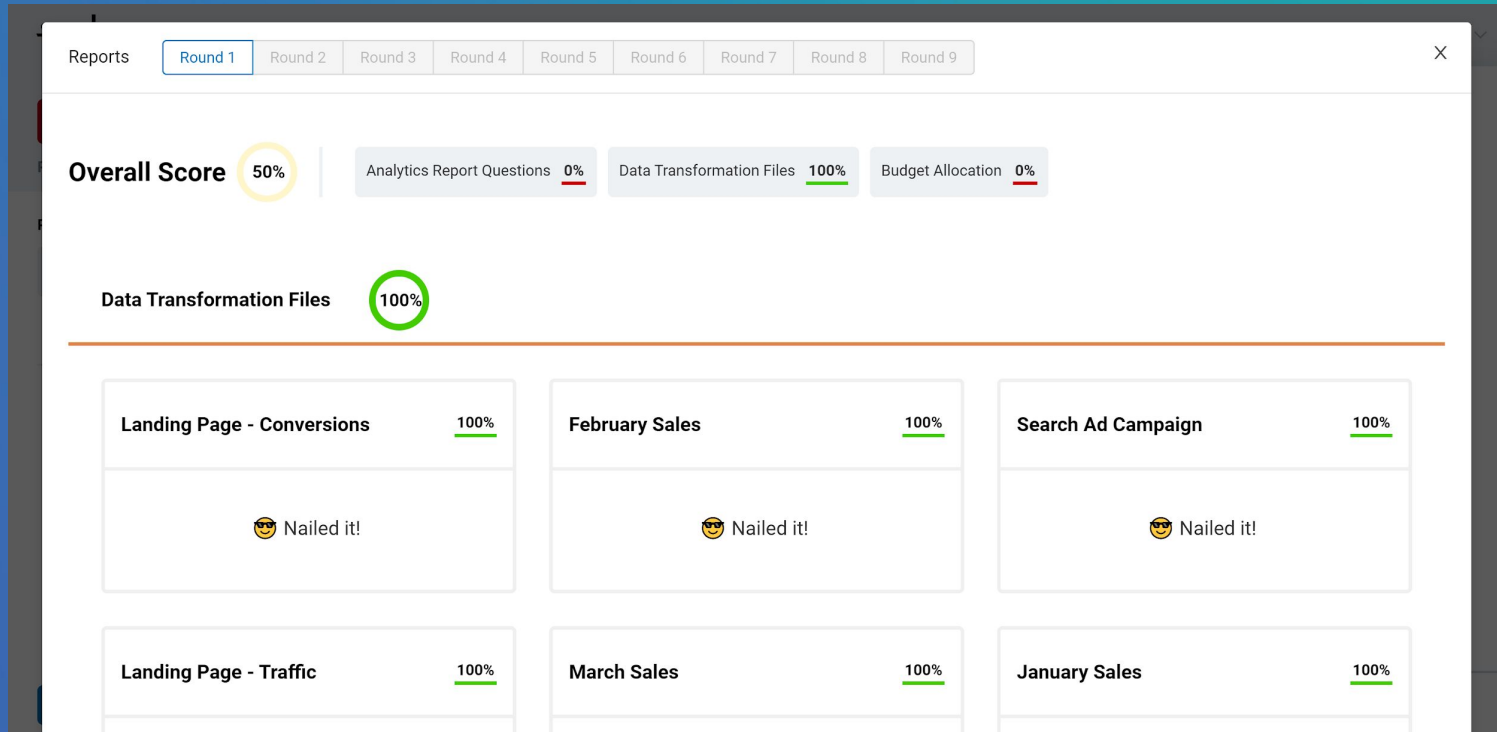
Personas		Amount
Back-to-School Mindy	<div><div></div><div>\$0</div><div></div><div>\$3000</div></div>	<div>3000</div>
Up-and-Comer Raj	<div><div></div><div>\$0</div><div></div><div>\$3000</div></div>	<div>500</div>
Seaside Sally	<div><div></div><div>\$0</div><div></div><div>\$3000</div></div>	<div>1500</div>
Energetic Jill	<div><div></div><div>\$0</div><div></div><div>\$3000</div></div>	<div>1500</div>

Back

Run Simulation

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Auto Graded Data Uploads



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Student Tutorials

MIMIC Analytics

Results Progress

Round 1 — Basic Data Transformation

BUDGET \$10,000

BALANCE \$10,000

Topics / Modules

Introduction

Scenario

Objectives

Landing Page

Sales

Run Simulation

Objectives

You've been given access to three

- Web data
- Sales data
- Search ad campaign data

You can access these datasets and explore them. Open the CSV files in Microsoft Excel or Google Sheets.

Your first task is to *clean* the data.

*If you need help using formulas, watch this video.

Let's Review the Process

Back

Continue

Guides

Data cleaning deals with outliers, impossible values, and incorrect values.

Outliers

Data cleaning includes identifying outliers in the data. Outliers are data values outside the range of typical values. For example, think of a database that includes the number of customer purchases. If the dataset shows that most customers made between one and 10 purchases, except one customer made 37 purchases, it may be wise to clear the value that is out of the ordinary.

For help using formulas to identify outliers, watch the following Excel tutorial videos.

Quartile

Product	Price	Date
Orange leather pouch	40.885	01/06/2019
White backpack with blue and red accents	40.885	01/11/2019
White tote with a blue stripe	67	02/22/2019
White backpack with black and red accents	74	01/14/2019
Pink tote with blue stripe	62	01/06/2019
Blue rolling travel bag	83	01/24/2019
Heather grey pouch with black polka dots	36	01/06/2019
White and pink striped	59	01/20/2019
Orange leather pouch	87	01/06/2019
Orange leather pouch	89	01/06/2019
Heather grey pouch with black polka dots	63	01/17/2019
Heather grey pouch with black polka dots	65	01/06/2019
Black rolling travel bag	34	01/10/2019
Blue rolling travel bag	61	01/17/2019
Heather grey messenger bag	48	01/29/2019

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Instructor Resources



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[Mimic Analytics Instructor Guide](#)

[Mimic Analytics Instructor Answer Key](#)

[Mimic Analytics Objectives, Questions
and Budget Allocations](#)

[Mimic Analytics Tutorial Videos](#)

[7 Tips to Succeed in Mimic Analytics
Blog Post](#)



Join us tomorrow!

Mimic Analytics Boot Camp



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Play through the brand new A/B testing rounds, learn how to use the simulation in your course and connect with other professors. There will be prizes :)

Times available:

12:00 p.m. MST

1:30 p.m. MST



Thank you!

You can get free instructor access to *Mimic Analytics* here:

<https://www.stukent.com/higher-ed/mimic-analytics-simulation/>

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