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Email Advertising Experiment

MKTG-607 Marketing Experiment

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1.
Background & Objectives

About Drexel CCG

- Drexel Career Cornerstone Group (Drexel CCG) is a voluntary, student-run and graduate-level student organization focused on bridging the knowledge gap between students and early career stages.

- Drexel CCG wants to increase engagement and retention among graduates and undergraduate students. For this purpose, they have planned to conduct informational workshops which may benefit students in their career. To increase the participation of students, the organization came up with various ideas out of which one is R programming workshop, since it is useful for all the students from different analytics departments.

Learning Objectives

- Capture the effectiveness of email advertising to students.

- Testing different variations of email content on students and select the variation with the highest conversion rate.

- Provide recommendation on email content that have most effective impact without any reminders.

2.
Experiment Design

Factor and Sample Size Estimation

- The factor we will be testing is the language styles of emails – Formal vs. Informal.
- Our sample are 1st year students from the MSBA and MBA program.
- Groups divided by student's last name alphabetically.
- Group 1 (A-L) & Group 2 (M-Z).

Factor and Sample Size Estimation

Factor	Program	Level	Sample size
Email Language Styles	MSBA	Formal	33
		Informal	33
	MBA	Formal	38
		Informal	42

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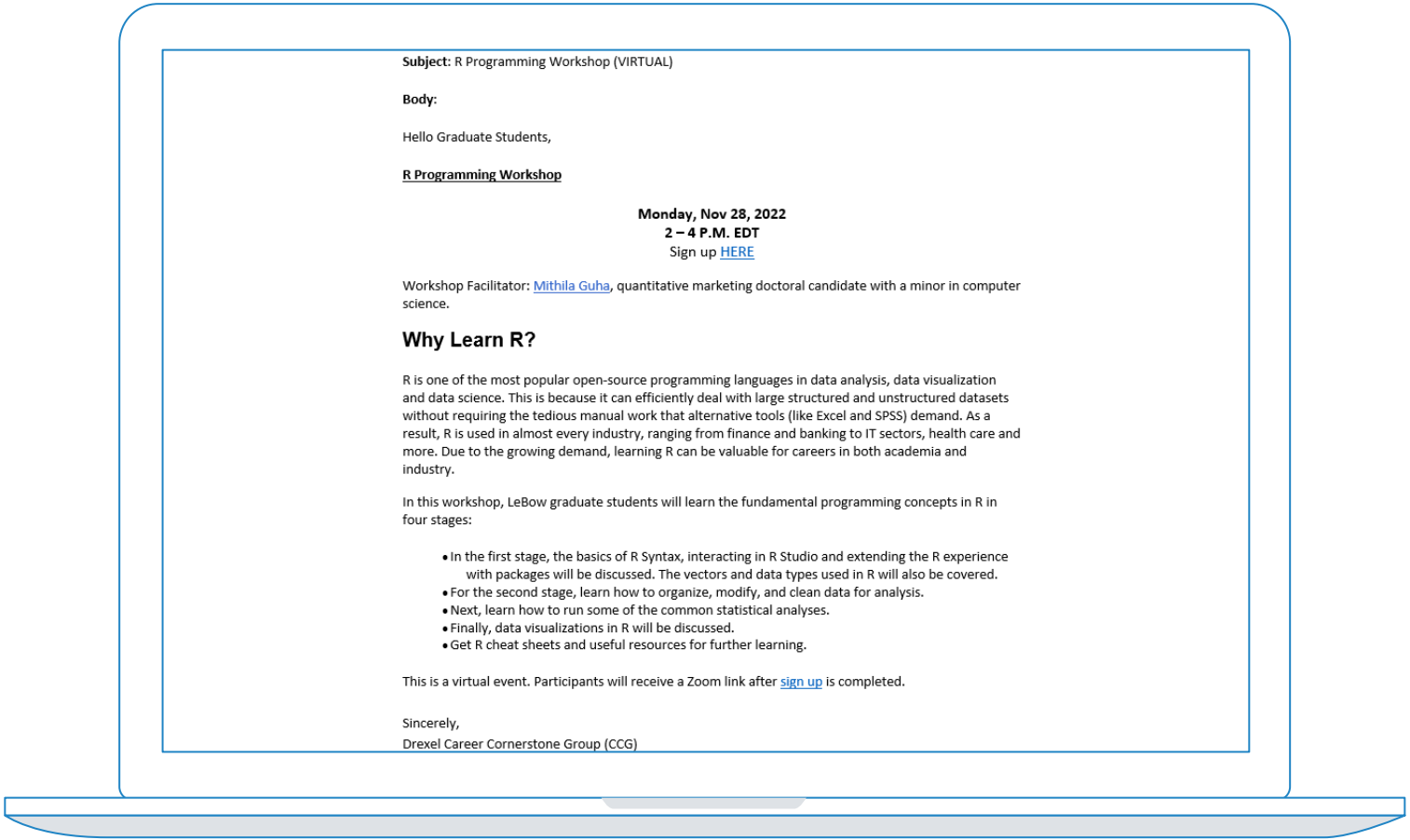
Email A – Formal Version



Subject: R Programming Workshop (VIRTUAL)

Body:

Hello Graduate Students,

R Programming Workshop

Monday, Nov 28, 2022
2 – 4 P.M. EDT
Sign up HERE

Workshop Facilitator: Mithila Guha, quantitative marketing doctoral candidate with a minor in computer science.

Why Learn R?

R is one of the most popular open-source programming languages in data analysis, data visualization and data science. This is because it can efficiently deal with large structured and unstructured datasets without requiring the tedious manual work that alternative tools (like Excel and SPSS) demand. As a result, R is used in almost every industry, ranging from finance and banking to IT sectors, health care and more. Due to the growing demand, learning R can be valuable for careers in both academia and industry.

In this workshop, LeBow graduate students will learn the fundamental programming concepts in R in four stages:

- In the first stage, the basics of R Syntax, interacting in R Studio and extending the R experience with packages will be discussed. The vectors and data types used in R will also be covered.
- For the second stage, learn how to organize, modify, and clean data for analysis.
- Next, learn how to run some of the common statistical analyses.
- Finally, data visualizations in R will be discussed.
- Get R cheat sheets and useful resources for further learning.

This is a virtual event. Participants will receive a Zoom link after sign up is completed.

Sincerely,
Drexel Career Cornerstone Group (CCG)

Email B – Informal Version

Subject line: R Programming Workshop (VIRTUAL)

Body:

Calling all Drexel Dragons,

R you ready to learn about R? You guys are in luck because our very own Drexel Career Cornerstone Group has a workshop just for you. All information will be included down below. Hope to see you guys there :)

R Programming Workshop

Monday, Nov 28, 2022
2 – 4 P.M. EDT
Sign up HERE

Workshop Facilitator: Mithila Guha

You guys have a treat in store for you. Our only Drexel University Career Cornerstone Group is offering a workshop to learn about R software. This event is open to all Drexel graduate students.

This workshop is run by Mithila Guha. Mithila is a doctorate candidate in quantitative marketing with a background in computer science. After practice, you can become an expert, let this workshop help you succeed.

Thanks again,
Drexel Career Cornerstone Group (CCG)

Experiment Design and Timeline

Nov. 22	Nov. 27	Nov. 28
Emails were sent to all 1st year master students from MSBA and MBA.	CCG posted on Linkedin to advertise the event.	Workshop Day. All participants were recorded.

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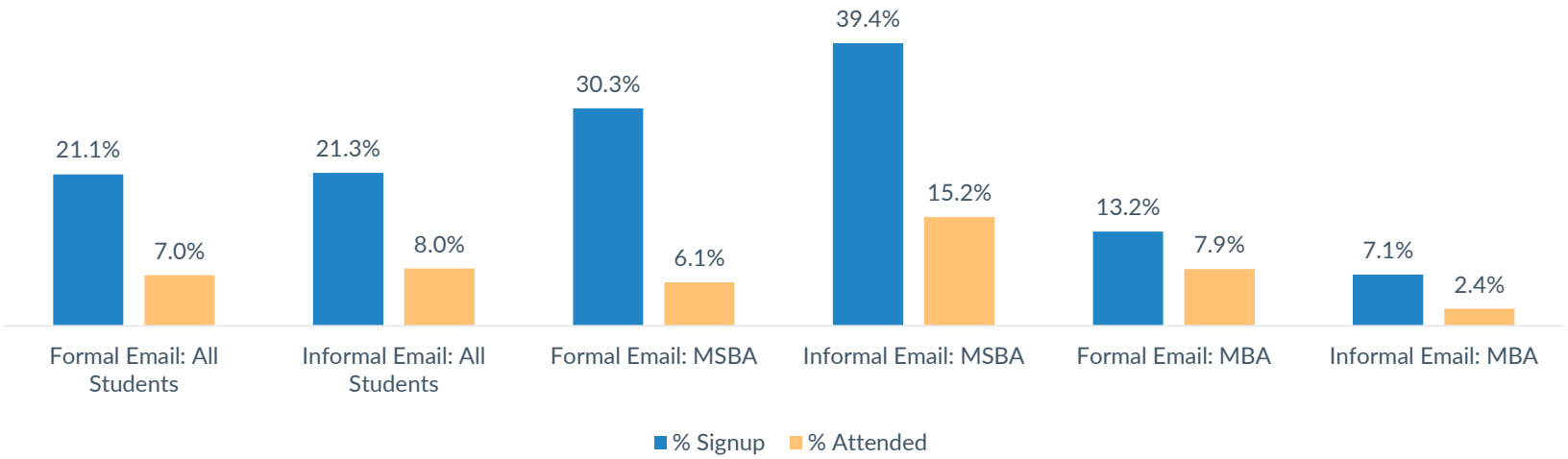
3.
Results & Analysis

Result of the Experiment



→ For MSBA students, the informal email seems to get better results, but it is the opposite for MBA students.

P-test: Sign-up

Sign-up Rate	All Students		MSBA		MBA	
	Formal	Informal	Formal	Informal	Formal	Informal
X	15	16	10	13	5	3
N	71	75	33	33	38	42
Confidence	95%	95%	95%	95%	95%	95%
Lower Limit	-0.14		-0.35		-0.09	
Upper Limit	0.13		0.16		0.22	

→ There is no significant difference between the students' rate of sign-up when receiving formal/informal email.

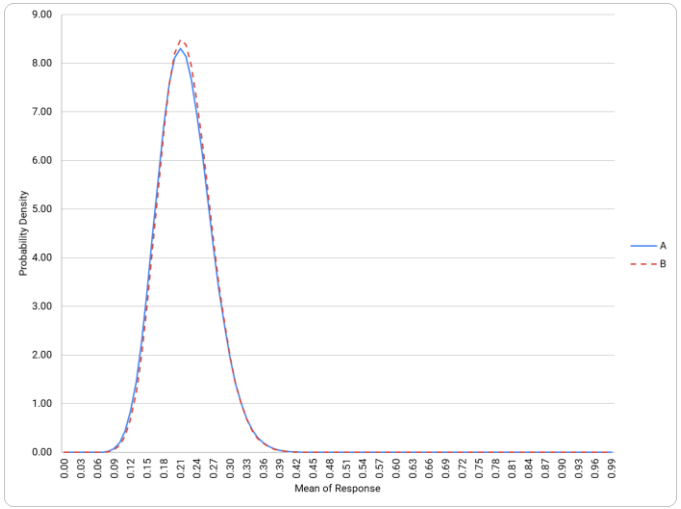
P-test: Attendance

Attendance Rate	All Students		MSBA		MBA	
	Formal	Informal	Formal	Informal	Formal	Informal
X	5	6	2	5	3	1
N	71	75	33	33	38	42
Confidence	95%	95%	95%	95%	95%	95%
Lower Limit	-0.1		-0.27		-0.07	
Upper Limit	0.08		0.09		0.18	

→ There is no significant difference between the students' rate of attend when receiving formal/informal email.

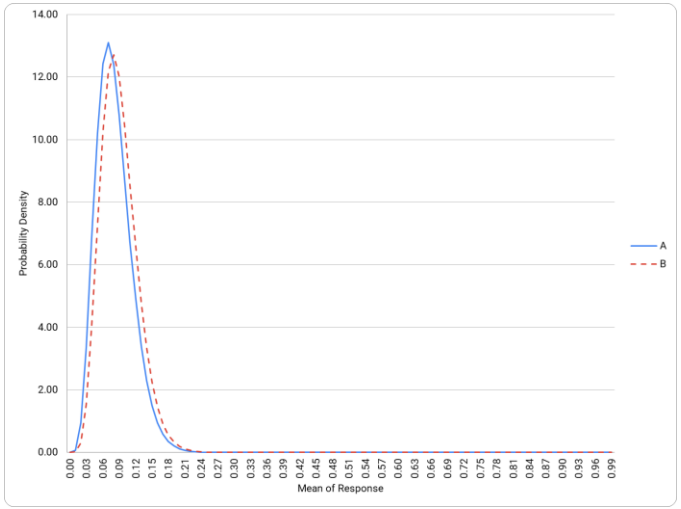
Bayesian Analysis

Beta-binominal model for effect on sign-ups for all students



CI(95%)	Email A	Email B
Low	0.135	0.136
High	0.317	0.318
P(pA>pB)	0.479	

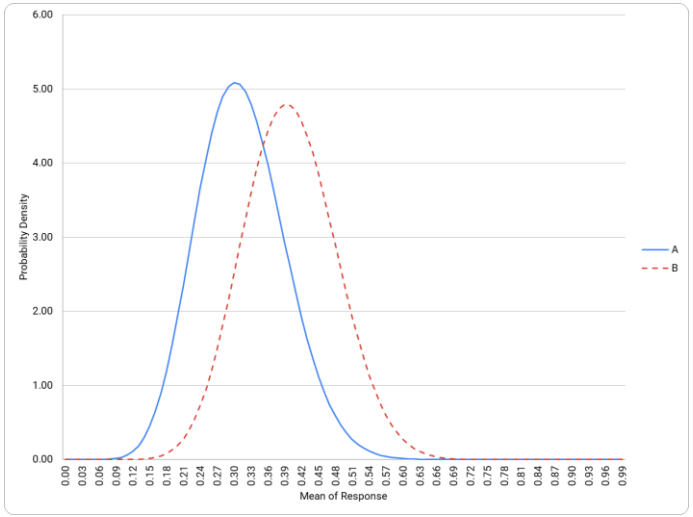
Beta-binominal model for effect on attendance for all students



CI(95%)	Email A	Email B
Low	0.032	0.038
High	0.152	0.163
P(pA>pB)	0.420	

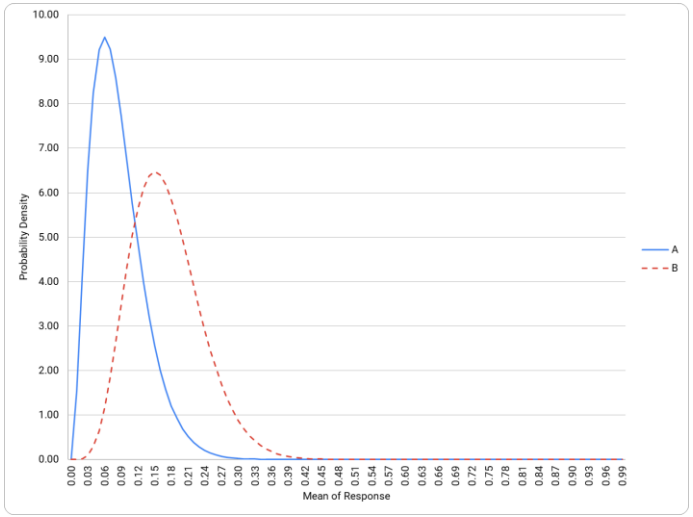
Bayesian Analysis

Beta-binominal model for effect on sign-ups for MSBA students



CI(95%)	Email A	Email B
Low	0.177	0.247
High	0.469	0.562
P(pA>pB)	0.207	

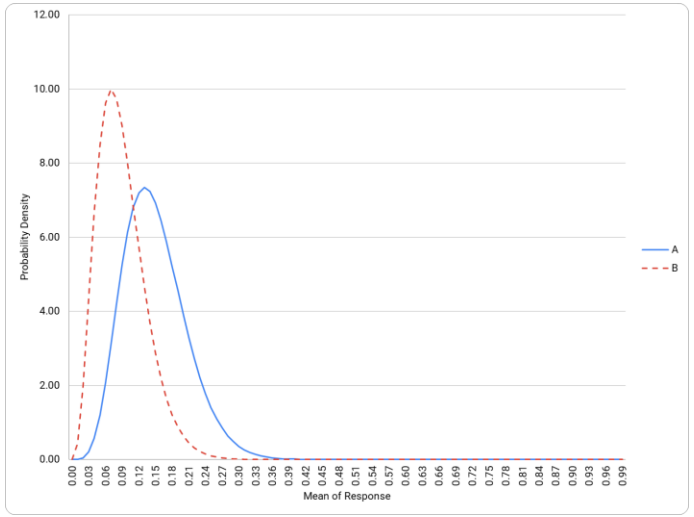
Beta-binominal model for effect on attendance for MSBA students



CI(95%)	Email A	Email B
Low	0.019	0.068
High	0.192	0.308
P(pA>pB)	0.118	

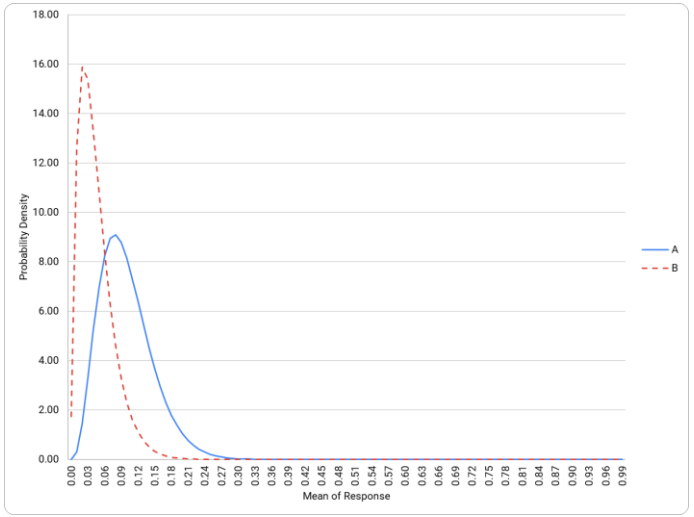
Bayesian Analysis

Beta-binominal model for effect on sign-ups for MBA students



CI(95%)	Email A	Email B
Low	0.060	0.026
High	0.270	0.189
P(pA>pB)	0.809	

Beta-binominal model for effect on attendance for MBA students



CI(95%)	Email A	Email B
Low	0.030	0.006
High	0.204	0.121
P(pA>pB)	0.844	

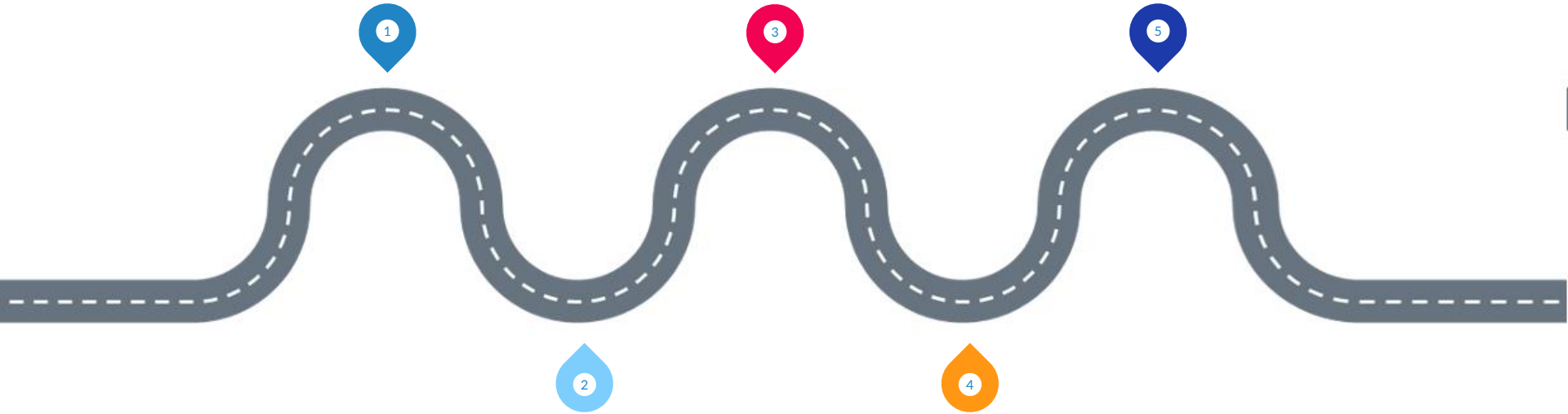
4.
Potential Confounds

Potential Confounds

There is no historical data on student attendance.

Groups might not be truly randomized.

Emails from advisors are influential.



The event is in Thanksgiving/Final week.

Students may share the events to each other.

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5.
Recommendations & Improvements

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Recommendations & Improvements

Recommendations

- No need to stick to one language style – can be flexible when broadcasting events.

Future Improvements

- Larger sample size.
- Non-technical event.
- Relevant to various academic programs.
- Full access to students' email.

Thanks!

Any questions?