



#FIRSTGEN

Harnessing the Power of Data to Expand Opportunities for First-gen Students

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FGFQ Challenge

Data

Gateway Courses

Visualizing Student Data

Discussion

References

FG First Quarter Challenge - Social Sciences

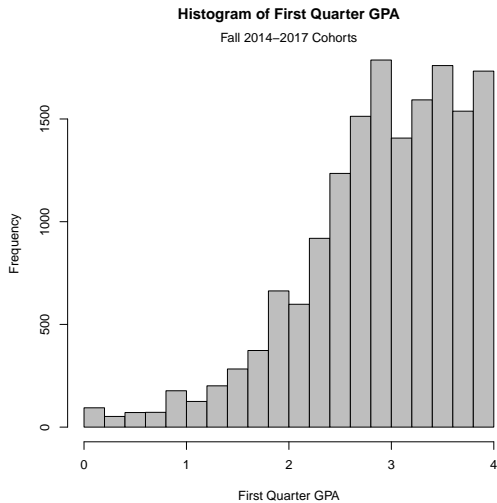
- ▶ Mentors
 - ▶ 3rd and 4th year first gen
 - ▶ Paid as work study
- ▶ Track Success at UCI
 - ▶ Institutional Data
 - ▶ Card Swipe Data
 - ▶ Survey Data
- ▶ <https://www.firstgen.socsci.uci.edu/>

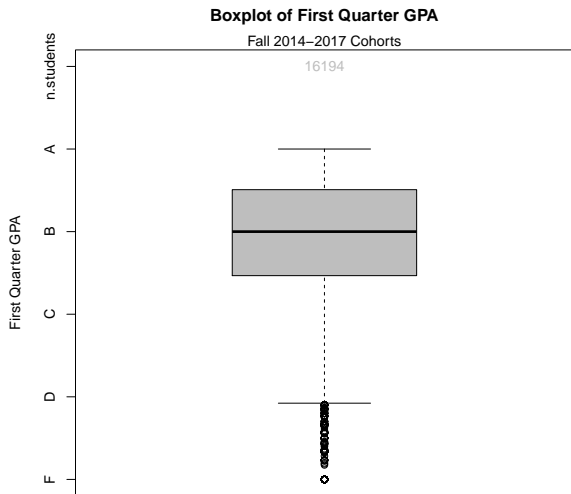
FGFQ Challenge - Study Design

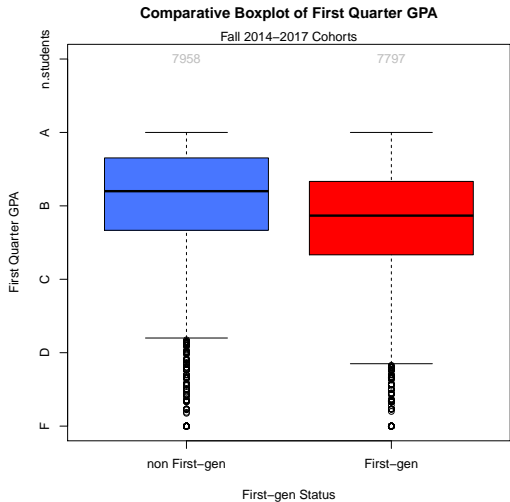
- ▶ Pilot year
 - ▶ 60 students (self-selected)
- ▶ Fall 2018
 - ▶ 1,000 incoming freshman
 - ▶ 600 First-gen
 - ▶ All First-gen students received a welcome and invitation
 - ▶ Matched cohort
 - ▶ Randomly assign half to the intervention
 - ▶ Cut off RSVPs at 150 (currently have 140 and still recruiting)

Questions about First-gen success

- ▶ Data
 - ▶ What data would you need to understand first-gen success?
 - ▶ What data can help with advising?
 - ▶ Wish list







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Data Collection from Students

- ▶ New Data
 - ▶ Pre, post, and year-end surveys
 - ▶ Motivation
 - ▶ Belongingness
 - ▶ Help-seeking
 - ▶ Self-sufficiency
 - ▶ Focus groups and interviews

Data Collection from Existing Sources

- ▶ Institutional Data
 - ▶ OIR data
 - ▶ Registrar Data
 - ▶ Admissions Data
 - ▶ Financial Aid Data
 - ▶ Housing Data
 - ▶ Card Swipe Data (multiple sources)
 - ▶ Disability Data
 - ▶ Probation Data

Data Sources Overview

- ▶ [Student Surveys](#)
- ▶ Clickstream data
 - ▶ from Canvas
- ▶ Demographic Data
- ▶ [Institutional Data](#)
- ▶ Classroom Observation Data
 - ▶ [COPUS](#)
 - ▶ [SPROUT](#)

IRB

- ▶ Legitimate Educational Interest
- ▶ Blanket IRB
- ▶ <http://tlrc.dtei.uci.edu/irb-approval-made-easier/>

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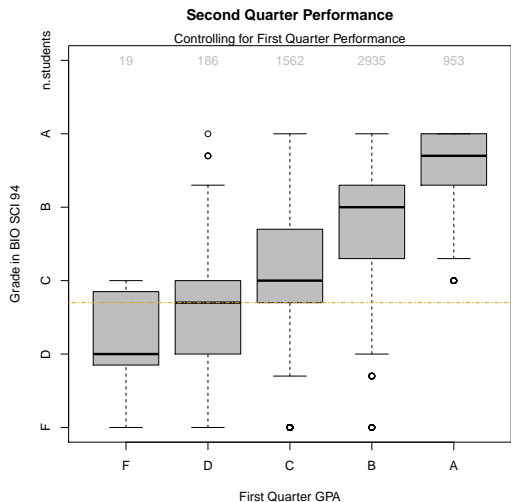
The UCI Dataset

- ▶ 47% of the 2017 Freshman cohort is First-gen
 - ▶ 2008-2016 cohorts range from 32% to 58%
- ▶ 2014 - 2017 newly matriculated Freshman
 - ▶ Approximately half take
 - ▶ Math 1B, 2A, 2B
 - ▶ CHEM 1A, 1B, 1C
 - ▶ BIO SCI 93, 94

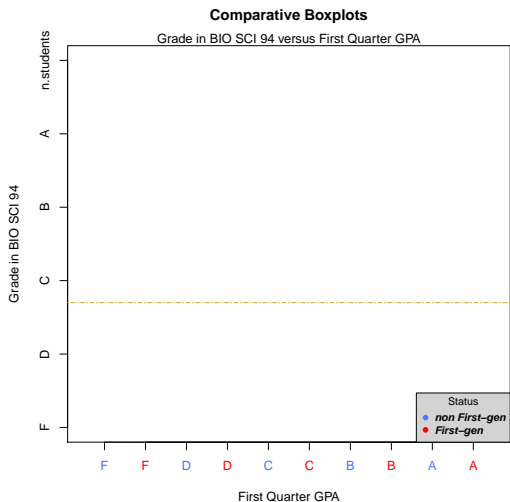
Identifying Gaps in Gateway Courses

- ▶ National effort to broaden participation in STEM
- ▶ Media Coverage
 - ▶ “Top college doing the most for the American Dream”
 - ▶ NY Times
 - ▶ 4th in nation for “best value”
 - ▶ Forbes
- ▶ What can we learn from our data?

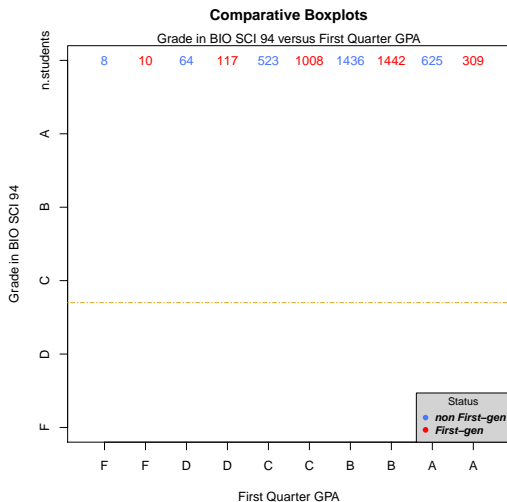
BIO SCI 94



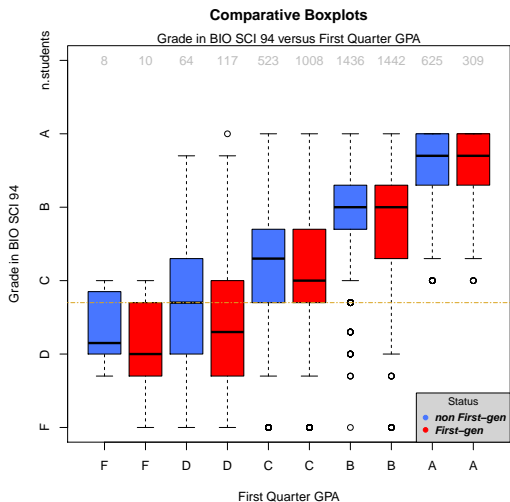
BIO SCI 94



BIO SCI 94



BIO SCI 94



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Graphing Student Data over Time

- ▶ Allows you to process more information
- ▶ Let's consider one First-gen students journey at UCI

2014 Fall Quarter

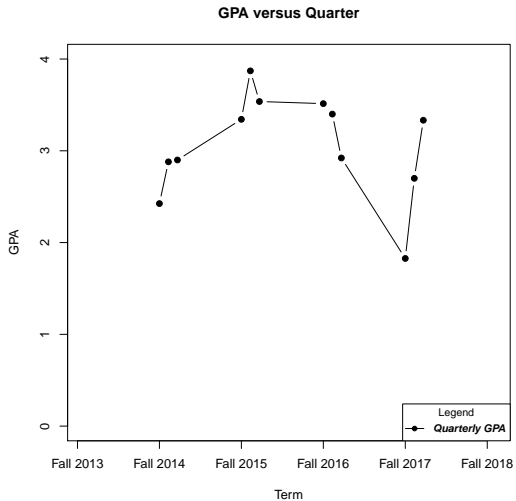
DNA TO ORGANISMS	BIO SCI	93	4.0	C	8.0					
INTRO WRITING & RHET	WRITING	39A	4.0	B+	13.2					
CALCULUS	MATH	2B	4.0	C-	0.0	<u>RD</u>				
BASIC ECONOMICS	ECON	20A	4.0	B-	10.8					
Term Totals	ATTM:	12.0	PSSD:	16.0	GPTS:	32.0	GPA:	2.667	BAL:	8.0
Cumulative Totals	ATTM:	12.0	PSSD:	16.0	GPTS:	32.0	GPA:	2.667	BAL:	8.0

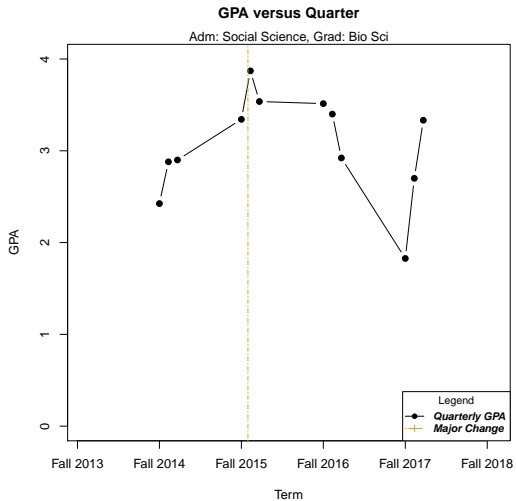
2015 Winter Quarter

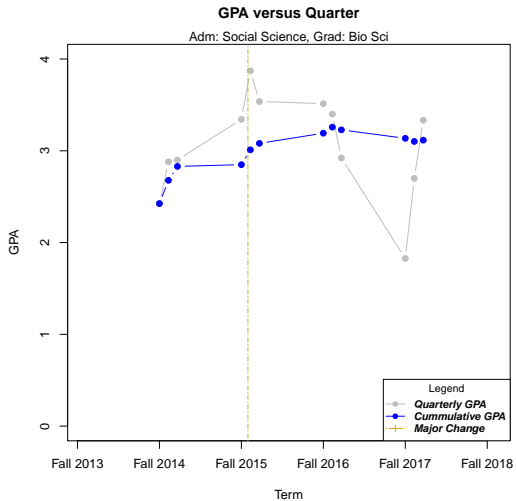
ORGANISMS TO ECOSYS	BIO SCI	94	4.0	B	12.0					
CRIT READING & RHET	WRITING	39B	4.0	B-	10.8					
MATH FOR ECONOMISTS	MATH	4	4.0	A-	14.8					
INTR SOCIOCULT ANTH	ANTHRO	2A	4.0	C	8.0					
BASIC ECONOMICS II	ECON	20B	4.0	B	12.0					
Term Totals	ATTM:	20.0	PSSD:	20.0	GPTS:	57.6	GPA:	2.880	BAL:	17.6
Cumulative Totals	ATTM:	32.0	PSSD:	36.0	GPTS:	89.6	GPA:	2.800	BAL:	25.6

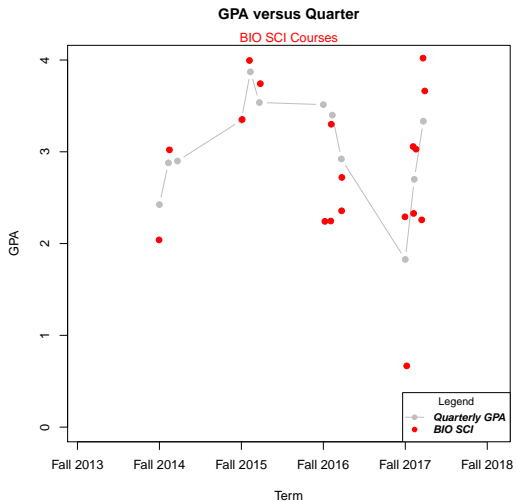
2015 Spring Quarter

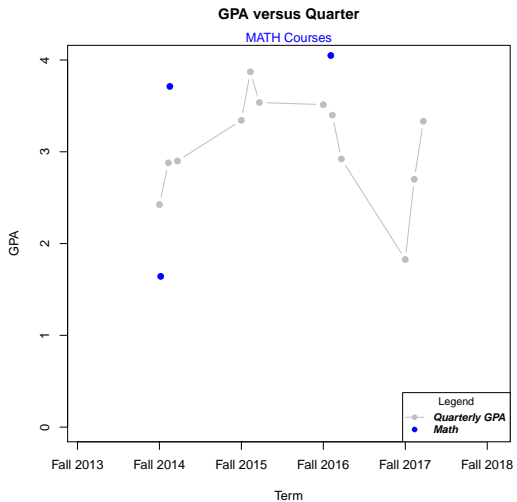
BEATLES & THE 60S	MUSIC	8	4.0	B+	13.2					
ARTS OF JAPAN	ART HIS	42C	4.0	B+	13.2					
ARGUMENT & RESEARCH	WRITING	39C	4.0	C+	9.2					
PSYCH FUNDAMENTALS	PSY BEH	11A	4.0	B-	10.8					
Term Totals	ATTM:	16.0	PSSD:	16.0	GPTS:	46.4	GPA:	2.900	BAL:	14.4
Cumulative Totals	ATTM:	48.0	PSSD:	52.0	GPTS:	136.0	GPA:	2.833	BAL:	40.0

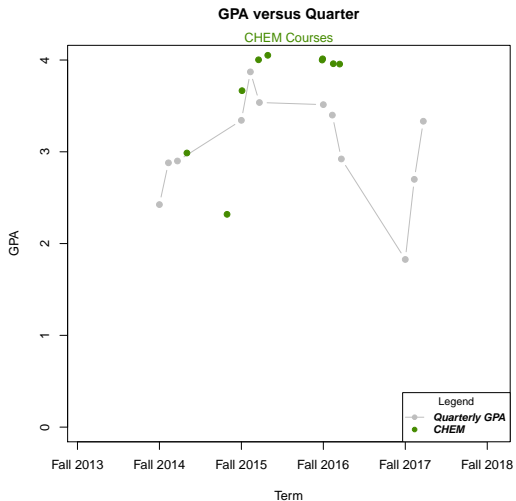












Dept	Course	Grade
BIO SCI	93	C
BIO SCI	94	B
BIO SCI	97	B+
BIO SCI	44	A
BIO SCI	E106	A-
BIO SCI	E150	C+
BIO SCI	25	C+
BIO SCI	98	B+
BIO SCI	99	B-
BIO SCI	M122	C+
BIO SCI	M143	D-
BIO SCI	E109	C+
BIO SCI	E179	B
BIO SCI	D104	B
BIO SCI	D170	C+
BIO SCI	E112L	A-
BIO SCI	E120	C+
BIO SCI	M180	A+
MATH	2B	C-
MATH	4	A-
MATH	2B	A
CHEM	1A	B
CHEM	1B	C+
CHEM	1C	A-
CHEM	51A	A+
CHEM	51B	A
CHEM	180	A
CHEM	51C	A
CHEM	180	A
CHEM	180	A



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Open Forum



Research Approach

- ▶ Obtain rich sources of data
- ▶ Create informative visualizations
- ▶ Leverage statistical techniques
- ▶ Collaborate in multidisciplinary teams
- ▶ Disseminate knowledge

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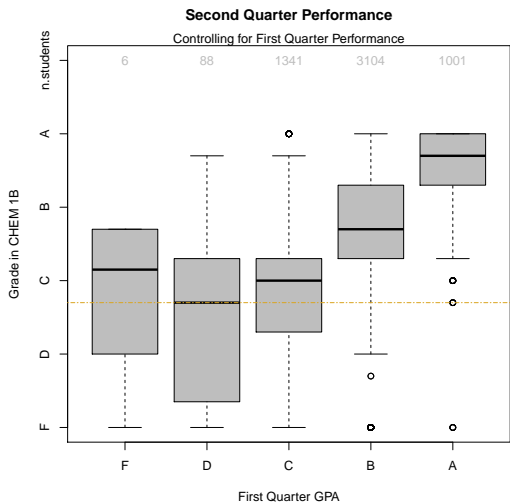
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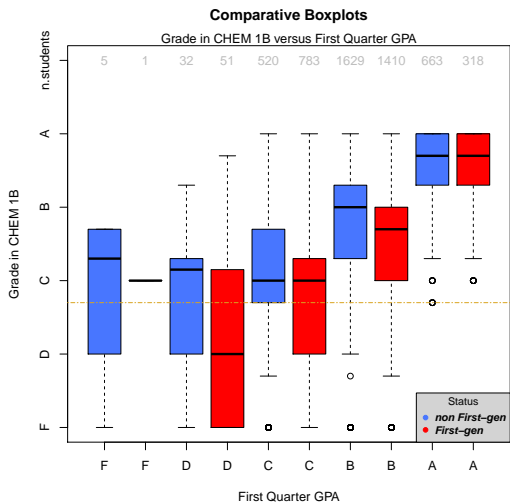
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References

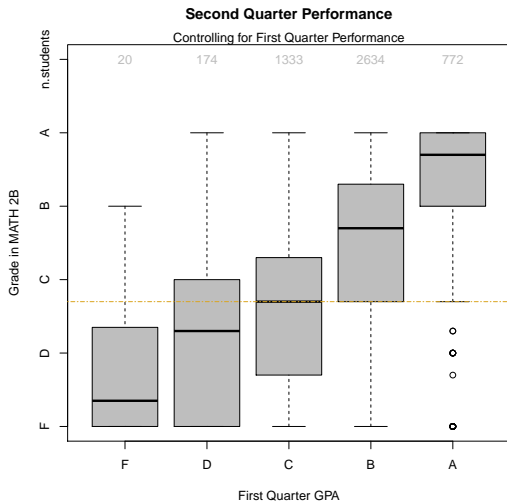
CHEM 1B



CHEM 1B



MATH 2B



Software Packages (Free and open source)

- ▶ R
 - ▶ Download [here](#)
 - ▶ Reproducibility
 - ▶ Functions
 - ▶ Packages
- ▶ L^AT_EX
 - ▶ Typesetting Program
 - ▶ [Overleaf](#)
 - ▶ Collaborative Writing and Publishing