

# LA Program

Galen I Papkov & Blake Gilliland

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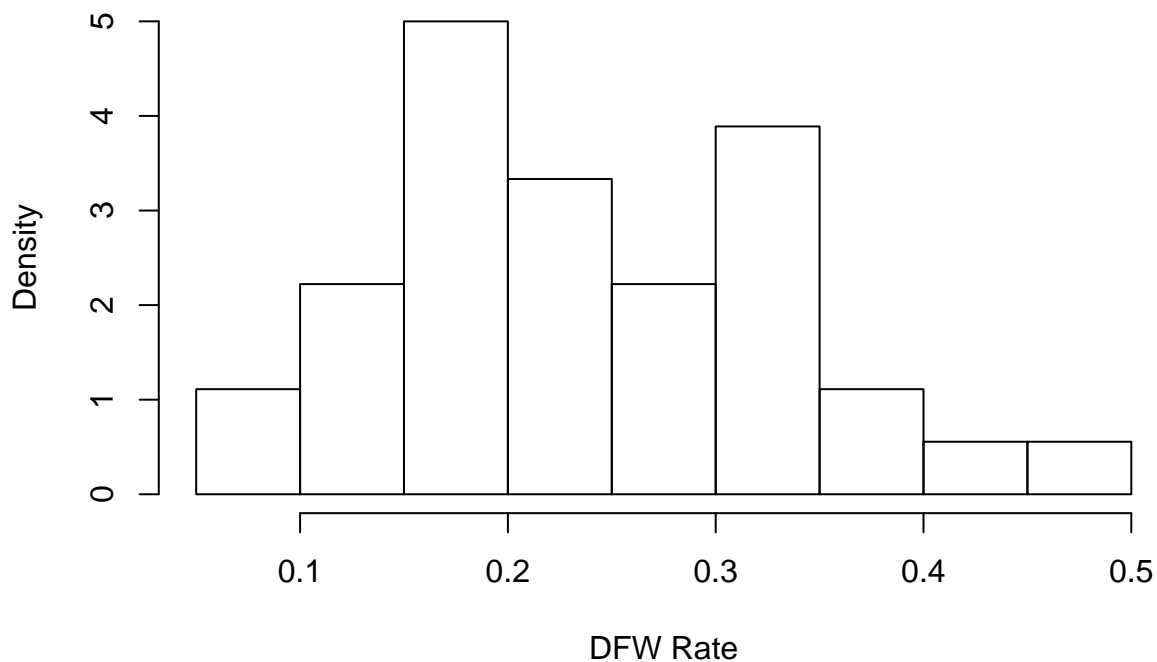
## Exploratory Data Analysis

LA	Course	DFW.Count	DFW.Rate
No	Calculus I	124	0.33
Yes	Calculus I	39	0.28
No	Calculus II	26	0.20
Yes	Calculus II	12	0.34
No	College Algebra	784	0.28
Yes	College Algebra	88	0.31
No	College Physics w/Lab II	5	0.16
Yes	College Physics w/Lab II	5	0.16
No	Elementary Calculus	76	0.35
Yes	Elementary Calculus	50	0.47
No	Engineering Mechanics	14	0.27
Yes	Engineering Mechanics	6	0.16
No	Finite Mathematics	23	0.11
Yes	Finite Mathematics	18	0.17
No	Gen'l Biology w/Lab I	477	0.34
Yes	Gen'l Biology w/Lab I	40	0.35
No	General Chemistry I	682	0.37
Yes	General Chemistry I	178	0.39
No	General Chemistry II	138	0.33
Yes	General Chemistry II	152	0.41
No	Intermediate Algebra	464	0.22
Yes	Intermediate Algebra	62	0.29
No	Intro Earth Science	47	0.15
Yes	Intro Earth Science	22	0.16
No	Intro to Computer Science	36	0.22
Yes	Intro to Computer Science	31	0.17
No	Intro. Environmental Science	13	0.09
Yes	Intro. Environmental Science	3	0.08
No	Introduction to Programming	6	0.12
Yes	Introduction to Programming	21	0.13
No	Precalculus	211	0.25
Yes	Precalculus	53	0.22
No	Social Science Statistics	12	0.18
Yes	Social Science Statistics	5	0.16
No	Statistical Methods	674	0.25
Yes	Statistical Methods	23	0.21

Paired T-test for DFW Rate, pairing by Course. Looking for an LA Effect.

```
##
## Paired t-test
##
## data: LA_DFW and NonLA_DFW
## t = 0.8984, df = 17, p-value = 0.1908
## alternative hypothesis: true difference in means is greater than 0
## 95 percent confidence interval:
## -0.01248453      Inf
## sample estimates:
## mean of the differences
##      0.01333333
```

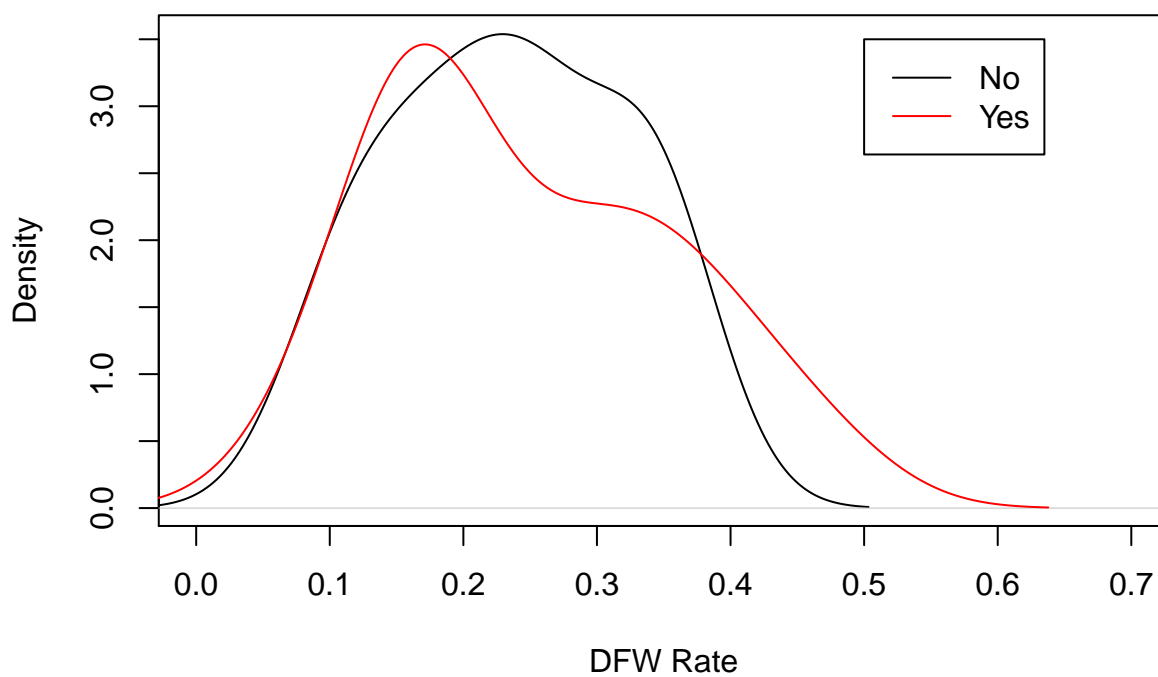
**Histogram of DFW\_Rates**



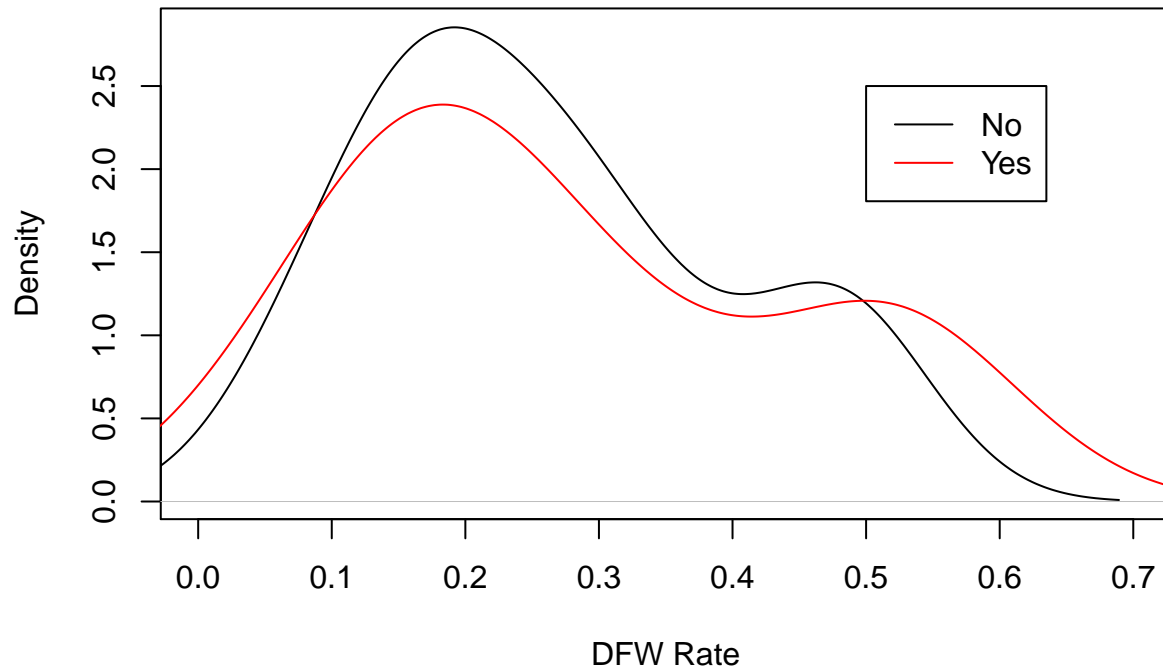
```
## The following objects are masked from dat:
##
##      Avg..DF.RATE, Avg..DFW.RATE, Avg..W.RATE, Course, Course.Name, CRN,
##      DF.Number, DFW, DFW.Cate, Historical.DFW, LA, Students, Term,
##      W.Number
##
## Shapiro-Wilk normality test
##
## data: pair_dat$Avg..DFW.RATE
## W = 0.90929, p-value = 0.01428
##
## Shapiro-Wilk normality test
##
## data: pair_dat$Avg..DFW.RATE[pair_dat$LA == "Yes"]
## W = 0.91312, p-value = 0.1512
```

```
##
## Shapiro-Wilk normality test
##
## data: pair_dat$Avg..DFW.RATE[pair_dat$LA == "No"]
## W = 0.899, p-value = 0.0919
##
## Wilcoxon signed rank test with continuity correction
##
## data: Instruct_LA and Instruct_No_LA
## V = 36, p-value = 0.4118
## alternative hypothesis: true location shift is greater than 0
```

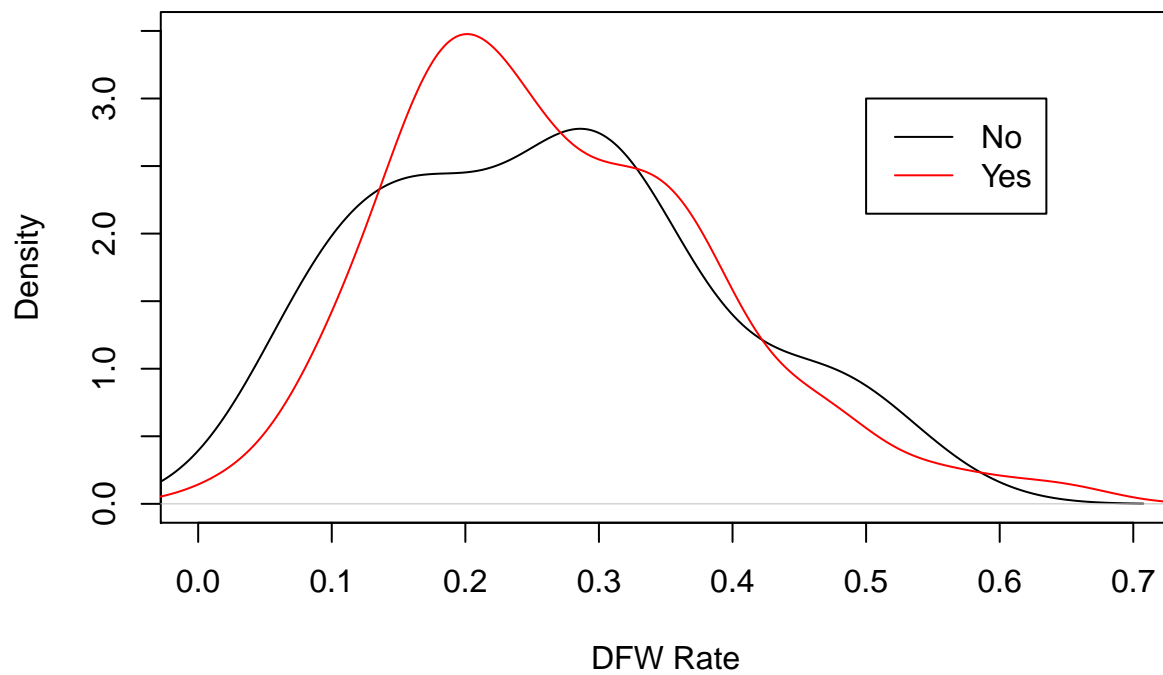
## Distribution of DFW Rates for Courses with LA's or without LA's



**Distribution of DFW Rates for Instructors  
that Taught Sections with LA's or without LA's**



**Distribution of DFW Rates Across Sections  
with LA's or without LA's**



##	Group.1	Group.2	x
## 1	BSC1010C	Fall 2016	0.35571429
## 2	CHM1045	Fall 2016	0.35500000

## 3	COP2006	Fall	2016	0.06500000
## 4	MAC1105	Fall	2016	0.28812500
## 5	MAT1033	Fall	2016	0.20882353
## 6	MGF1106	Fall	2016	0.10666667
## 7	STA2023	Fall	2016	0.23357143
## 8	CHM1045	Fall	2017	0.33571429
## 9	COP1500	Fall	2017	0.25000000
## 10	ESC1000C	Fall	2017	0.18000000
## 11	MAC1105	Fall	2017	0.29866667
## 12	MAC1147	Fall	2017	0.26454545
## 13	MAC2311	Fall	2017	0.33500000
## 14	MAT1033	Fall	2017	0.24529412
## 15	CHM1045	Fall	2018	0.41000000
## 16	CHM1046	Fall	2018	0.43333333
## 17	COP1500	Fall	2018	0.15000000
## 18	COP2006	Fall	2018	0.17000000
## 19	EVR1001C	Fall	2018	0.08666667
## 20	MAC2312	Fall	2018	0.23200000
## 21	STA2122	Fall	2018	0.17666667
## 22	BSC1010C	Spring	2017	0.34375000
## 23	CHM1046	Spring	2017	0.34000000
## 24	COP1500	Spring	2017	0.19000000
## 25	COP2006	Spring	2017	0.07000000
## 26	MAC1105	Spring	2017	0.27125000
## 27	MAC1147	Spring	2017	0.22000000
## 28	MAC2233	Spring	2017	0.38833333
## 29	PHY2054C	Spring	2017	0.16000000
## 30	CHM1045	Spring	2018	0.40200000
## 31	CHM1046	Spring	2018	0.31000000
## 32	COP1500	Spring	2018	0.19000000
## 33	COP2006	Spring	2018	0.17000000
## 34	EGM3420C	Spring	2018	0.22666667
## 35	ESC1000C	Spring	2018	0.12500000
## 36	MAC1147	Spring	2018	0.23600000
## 37	MAC2311	Spring	2018	0.30428571
## 38	MGF1106	Spring	2018	0.17666667
## 39	STA2023	Spring	2018	0.27230769