Movement Science at Grand Valley

Clients: Dr. Christina Beaudoin and Dr. Colleen Lewis

Consultants: Michael Heylmun and Jacob Maring

Project Background

Looking at GVSU's FIT classes:

- FIT classes are physical activity oriented one-credit academic courses. They are credit/no credit.

- There is wide variety in what these courses look like. Typically just under 100 courses running each semester.

- FIT classes have very low barriers to entry.

- Who takes FIT courses, and how does it serve them?

We're interested in how these FIT classes benefit first-year students.

Number of FIT Courses Taken by Class

- Freshmen are the predominant class that take FIT courses.

- Sophomores and Seniors take a comparable number of courses.

- Graduate students hardly take any FIT courses.

### Number of FIT Classes Taken by Class Standing
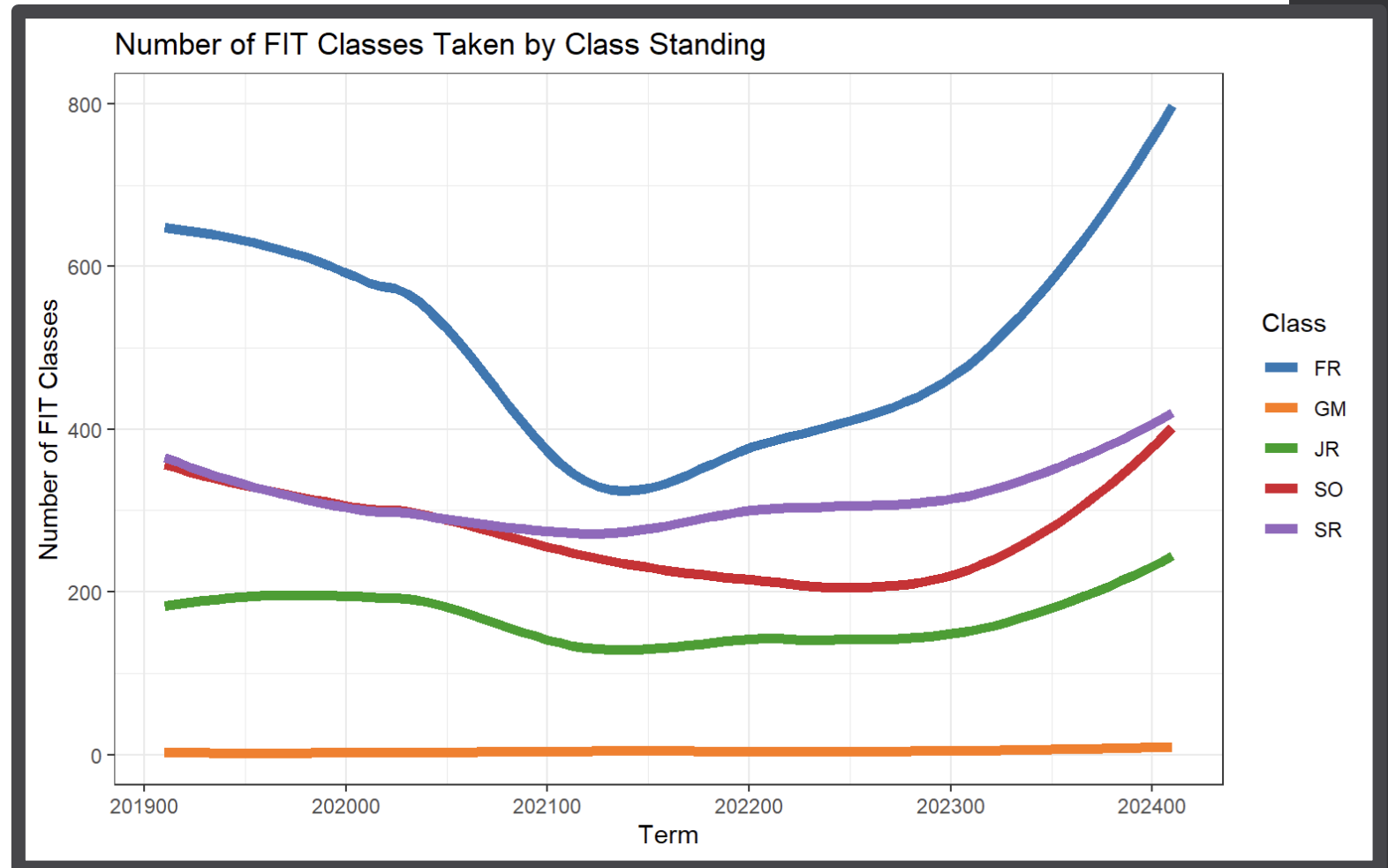
Project Objectives

- What is the difference in retention for first-year students who enroll in FIT courses and those who do not enroll in FIT courses?

- How does enrollment in a FIT course in a student's freshman year relate to their time to graduate?

- How does enrollment in a FIT course in a student's freshman year relate to their first year GPA?

Freshman Retention Rate

- Freshman Retained is a "Yes" if student returns the following year.

- 85% of freshman that took a FIT class and received credit were retained compared to only 76% that did not take any FIT courses.

Comparison of FIT Class Taken and Retention Rate
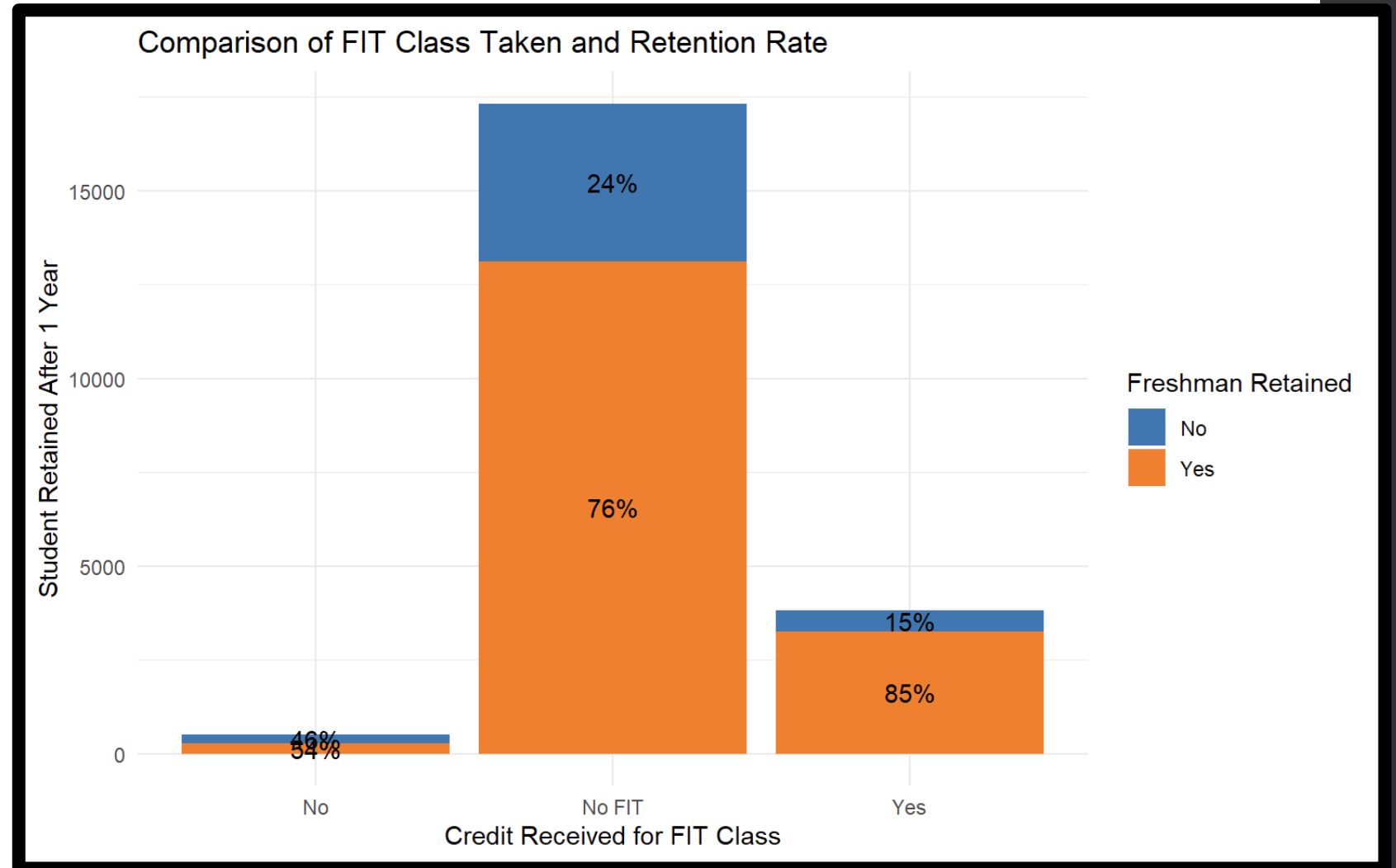
Chi-Squared Test

The difference is significant; freshman who take a FIT class are more likely to return to Grand Valley for a second year.

```
        2-sample test for equality of proportions with continuity correction

data:   c(3520, 13114) out of c(4325, 17330)
X-squared = 63.153, df = 1, p-value = 9.561e-16
alternative hypothesis: greater
95 percent confidence interval:
 0.04589275 1.00000000
sample estimates:
   prop 1     prop 2
0.8138728 0.7567224
```

Freshman Retention Rate by Year

- This result holds for freshman starting in every academic year as well, with the effect in some years greater than others.

Comparison of FIT Class Taken and Retention Rate Faceted by Start Year
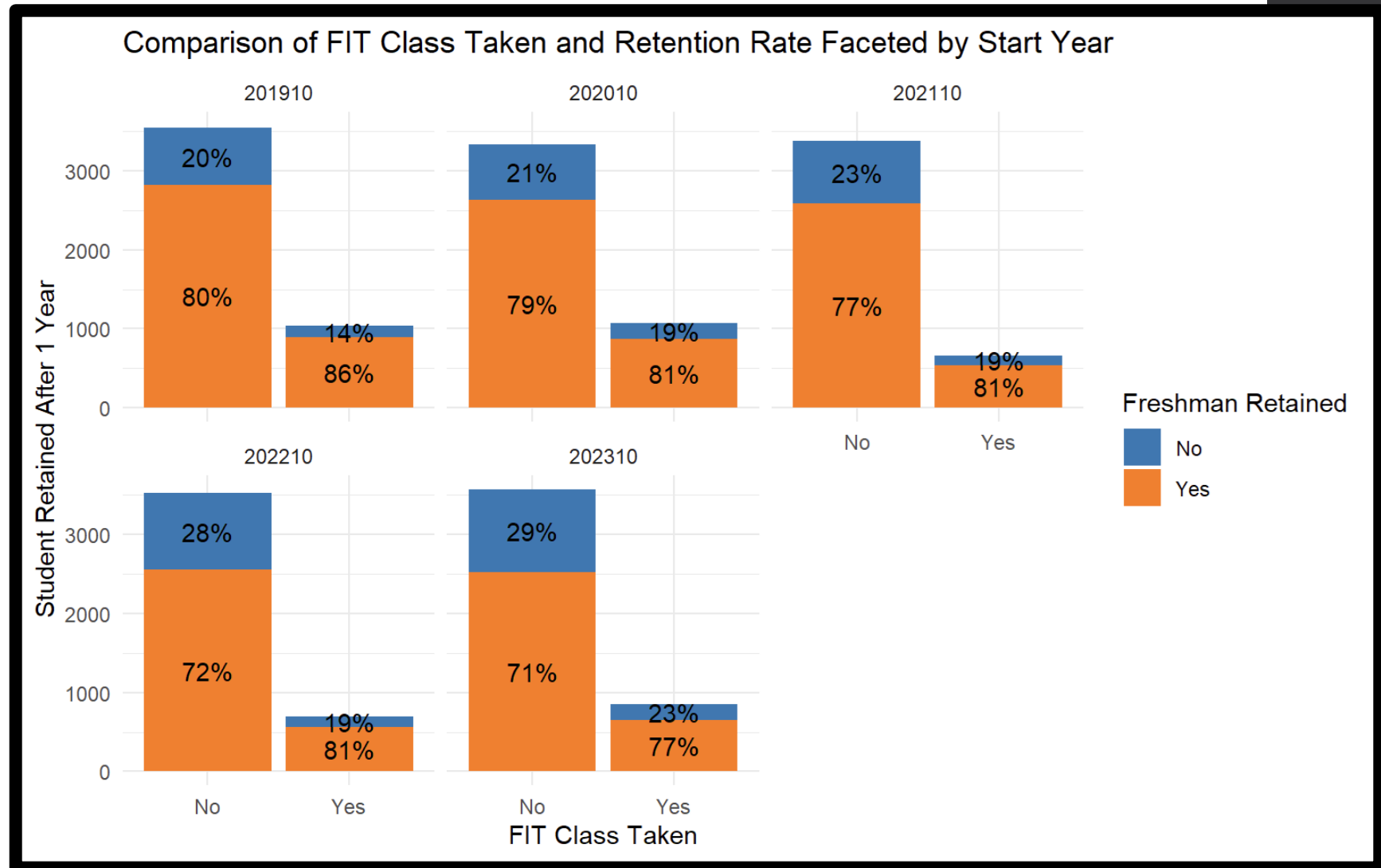
Graduation Times by FIT Class

- Students graduate when terms end.

- There is likely no difference between students who succeed in FIT, and those who don't take FIT courses.

Comparison of FIT Class Achievement Level on Time to Graduate
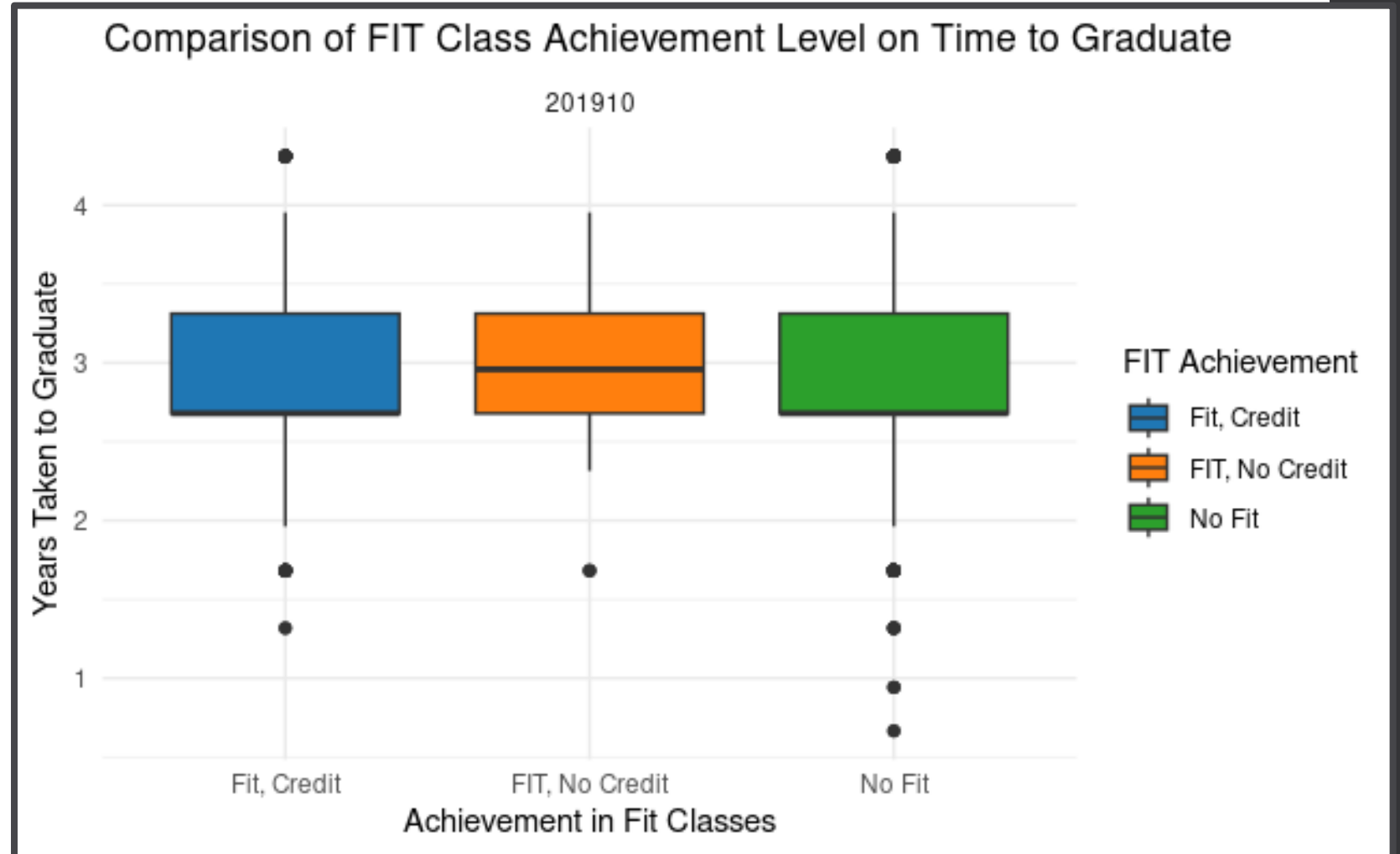
ANOVA Table of Time to Graduation

The effect of FIT classes is not significantly related to Time to Graduate.

```
Analysis of Variance Table

Response: TTGnumeric
             Df   Sum Sq Mean Sq  F value     Pr(>F)
fitClass      1     0.76  0.7552   2.9753  0.0846055 .
oncampus      1     3.46  3.4644  13.6490  0.0002227 ***
firstgen      1     0.38  0.3786   1.4917  0.2220067
Residuals  5057  1283.58  0.2538
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
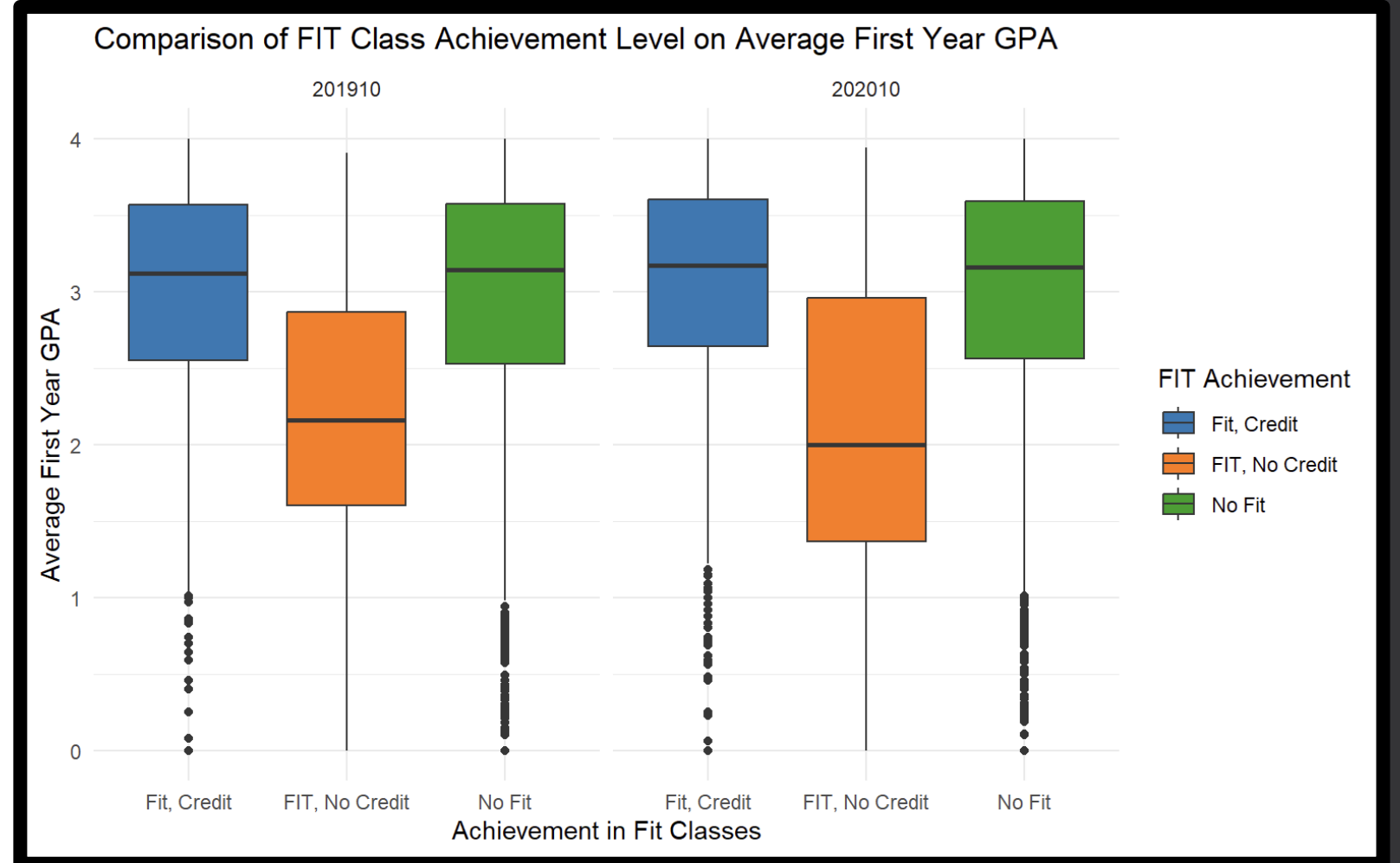
Freshman GPA by FIT Class

- Similarly with GPA, there is likely no difference in freshman GPA from those who take FIT classes and those that don't.

Comparison of FIT Class Achievement Level on Average First Year GPA

ANOVA Table of Freshman GPA

Again, the effect of FIT classes is not significantly related to a student's first-year GPA. The effect should only diminish for later years.

```
Analysis of Variance Table

Response: firstYearGPA
            Df  Sum Sq Mean Sq  F value Pr(>F)
fitClass     1     0.0    0.02   0.0246 0.8754
oncampus     1   136.0  136.05 159.4576 <2e-16 ***
firstgen     1   395.4  395.44 463.4898 <2e-16 ***
Residuals 21274 18150.5    0.85
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Freshman GPA by Year

- The difference can be seen further here when it is broken down by year.

- There does seem to be a negative trend in GPA over the last four years.

Comparison of Average First Term GPA by Year
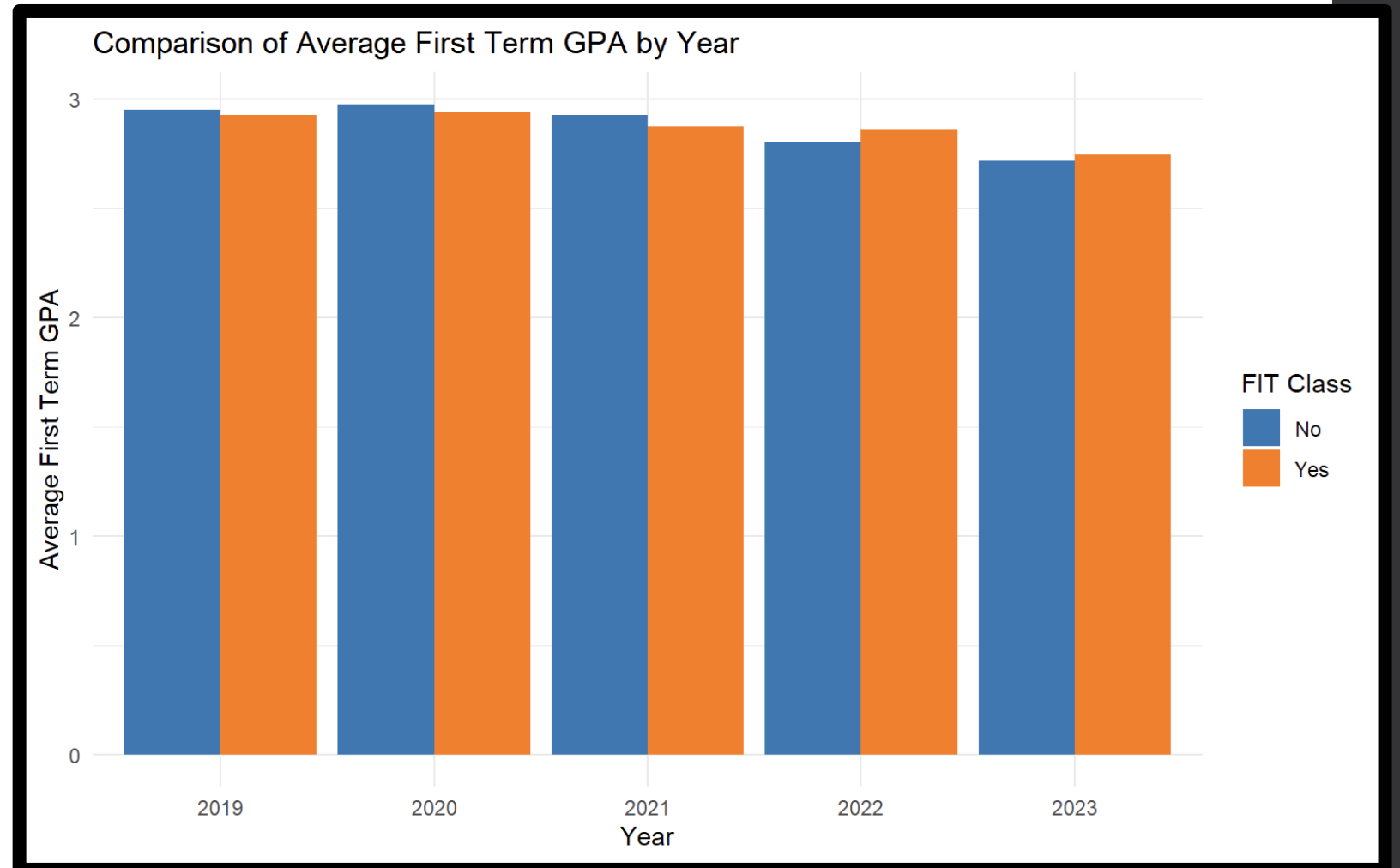
Conclusions

- The difference in retention rates for freshmen students is statistically significant and is higher for those that took a FIT course their freshman year over those that did not.

- Freshmen enrolled in a FIT course was not statistically significant in decreasing time to graduate. It was not shown that freshmen that took FIT courses graduated faster than their peers.

- No correlation was found between a freshman taking a FIT course and an increased GPA.

Questions/Feedback?