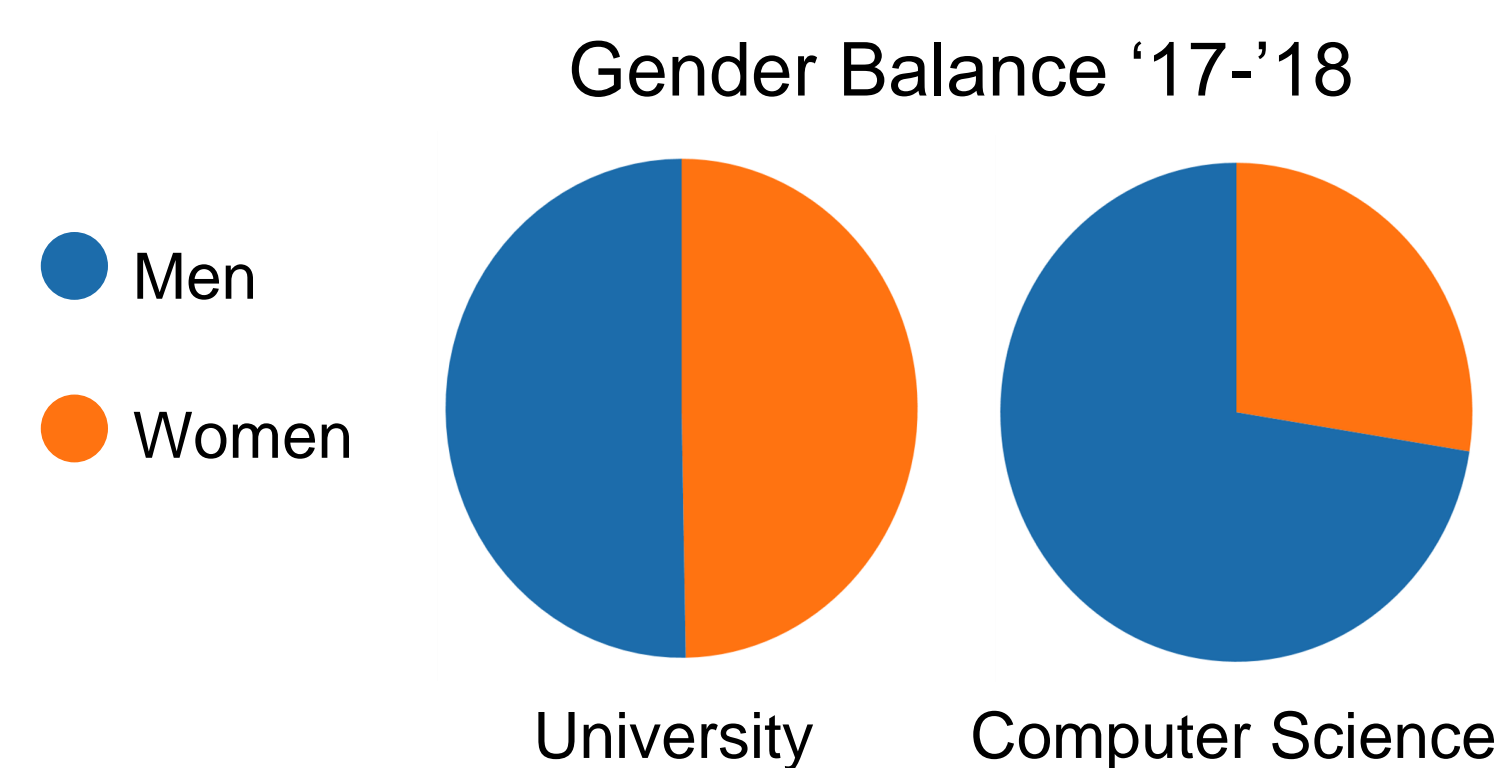
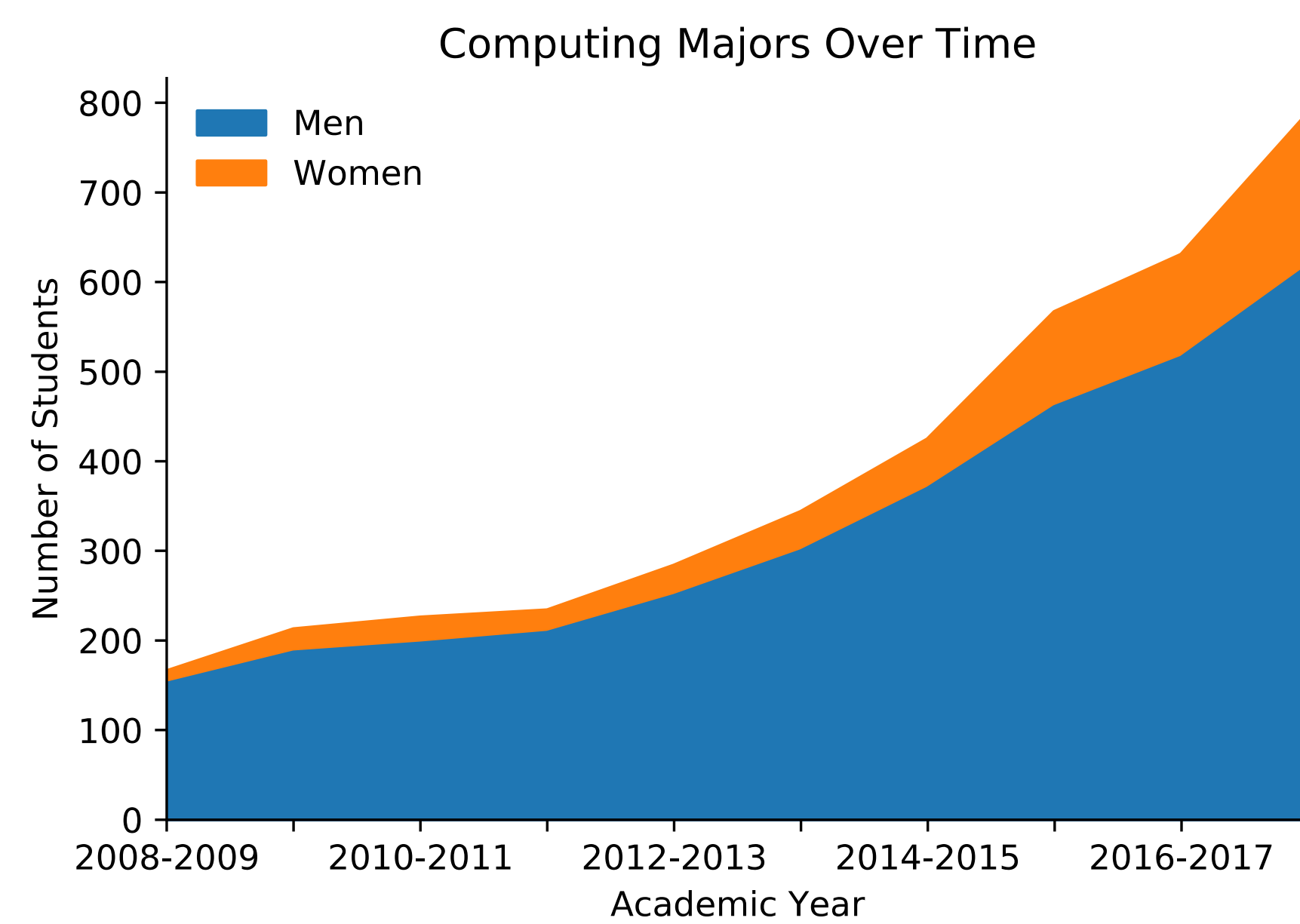


A Longitudinal View of Gender Balance in a Large Computer Science Program

Amy Baer and Andrew DeOrio

Introduction

- Computer Science has a persistent lack of women's participation.
- We lack a fine-grain analysis of the gender disparity as it changes throughout the undergraduate Computer Science curriculum.

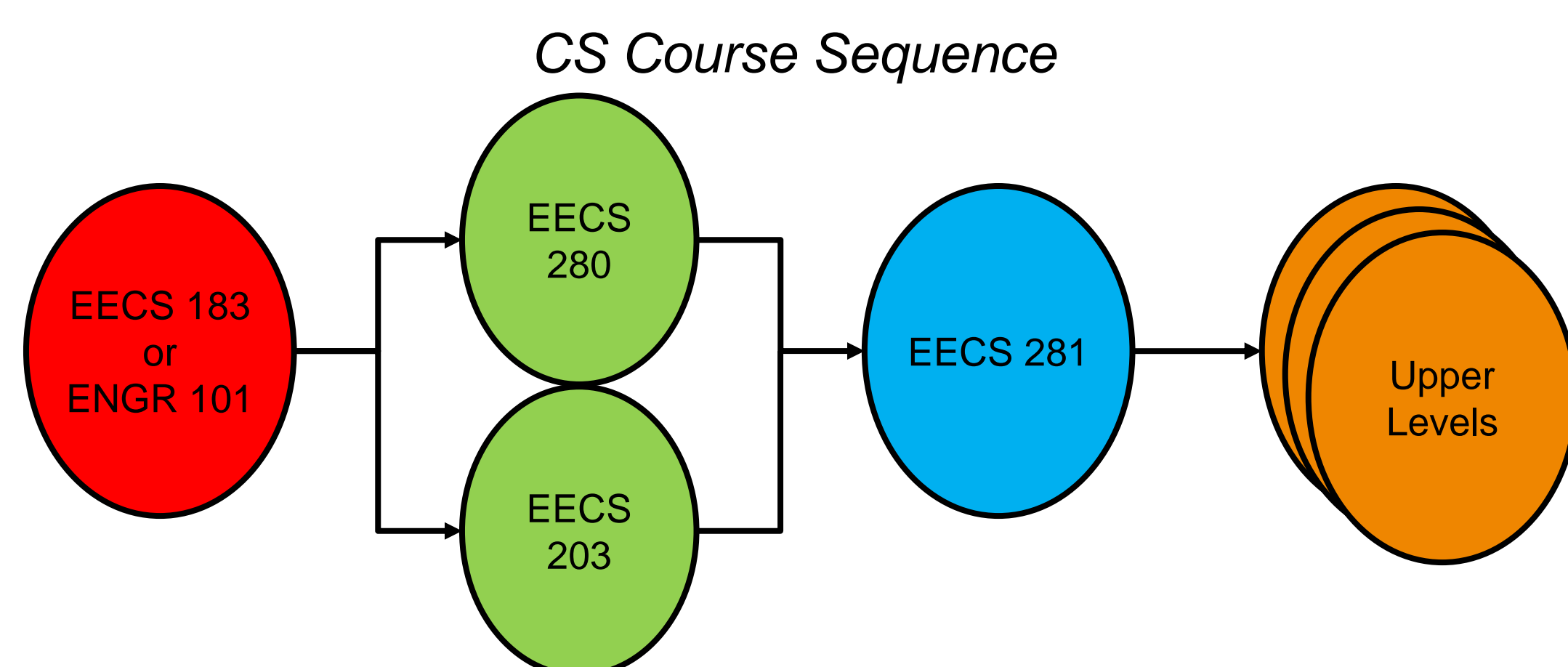


Research Questions

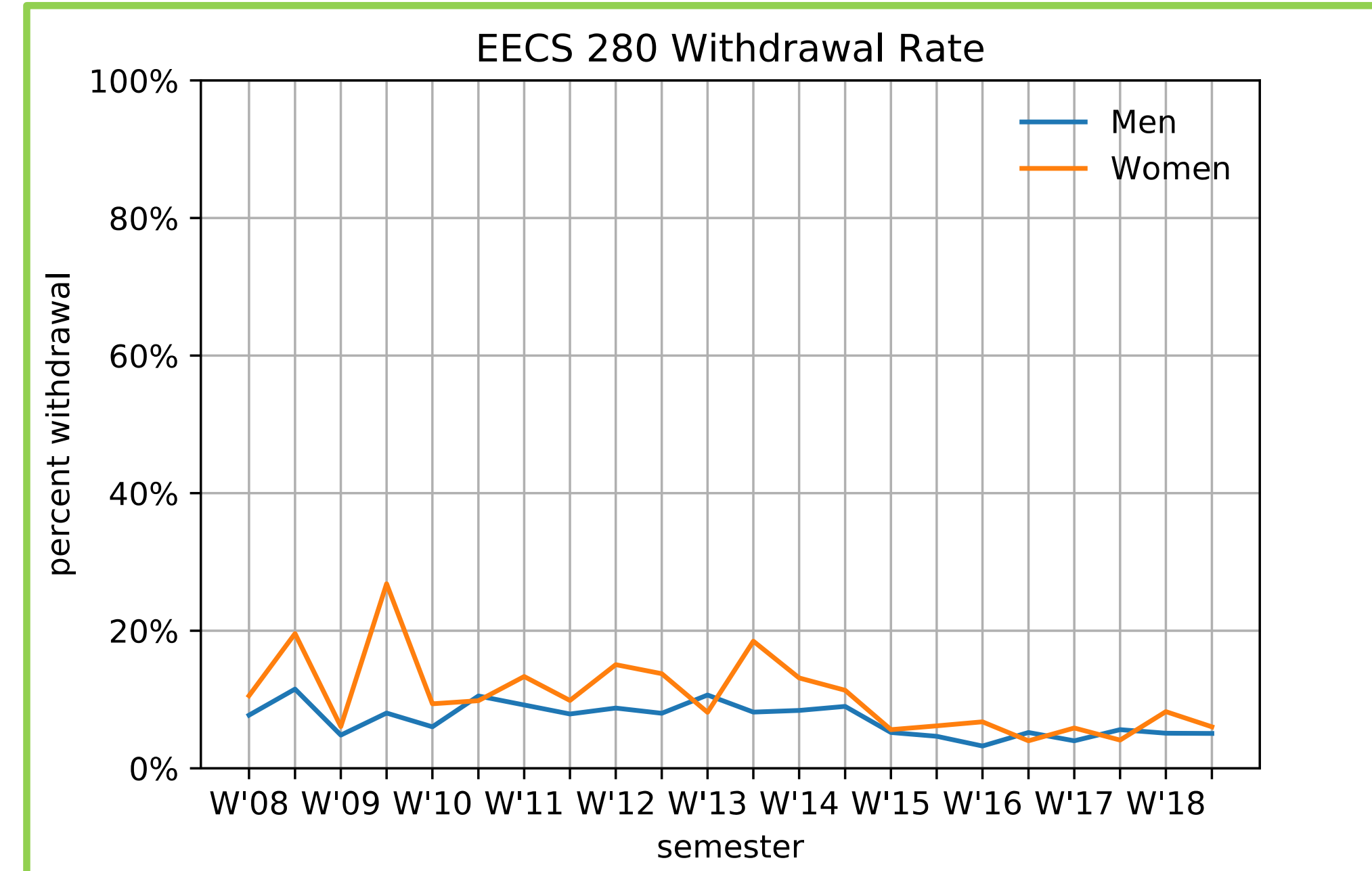
- Where in the Computer Science curriculum does the gender balance change?
- Why does the gender balance change throughout the Computer Science curriculum? Do grades play a role in this change?
- Where should future research focus?

Data Set

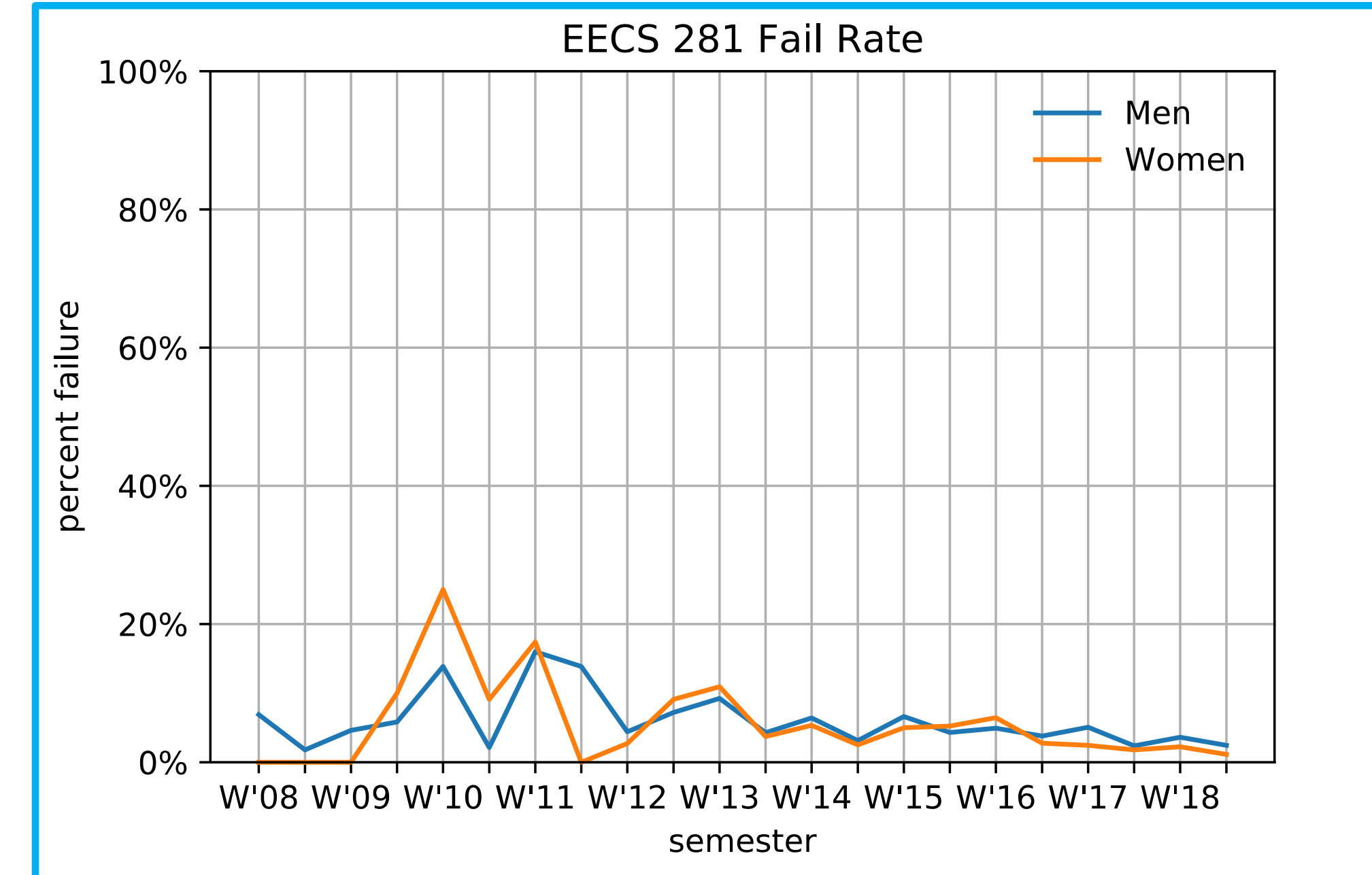
- **29,354** unique students who took a CS course over the past **10** years at U of M
- Gender, majors, minors, academic level, GPA, courses and grades



Gender Balance Parity

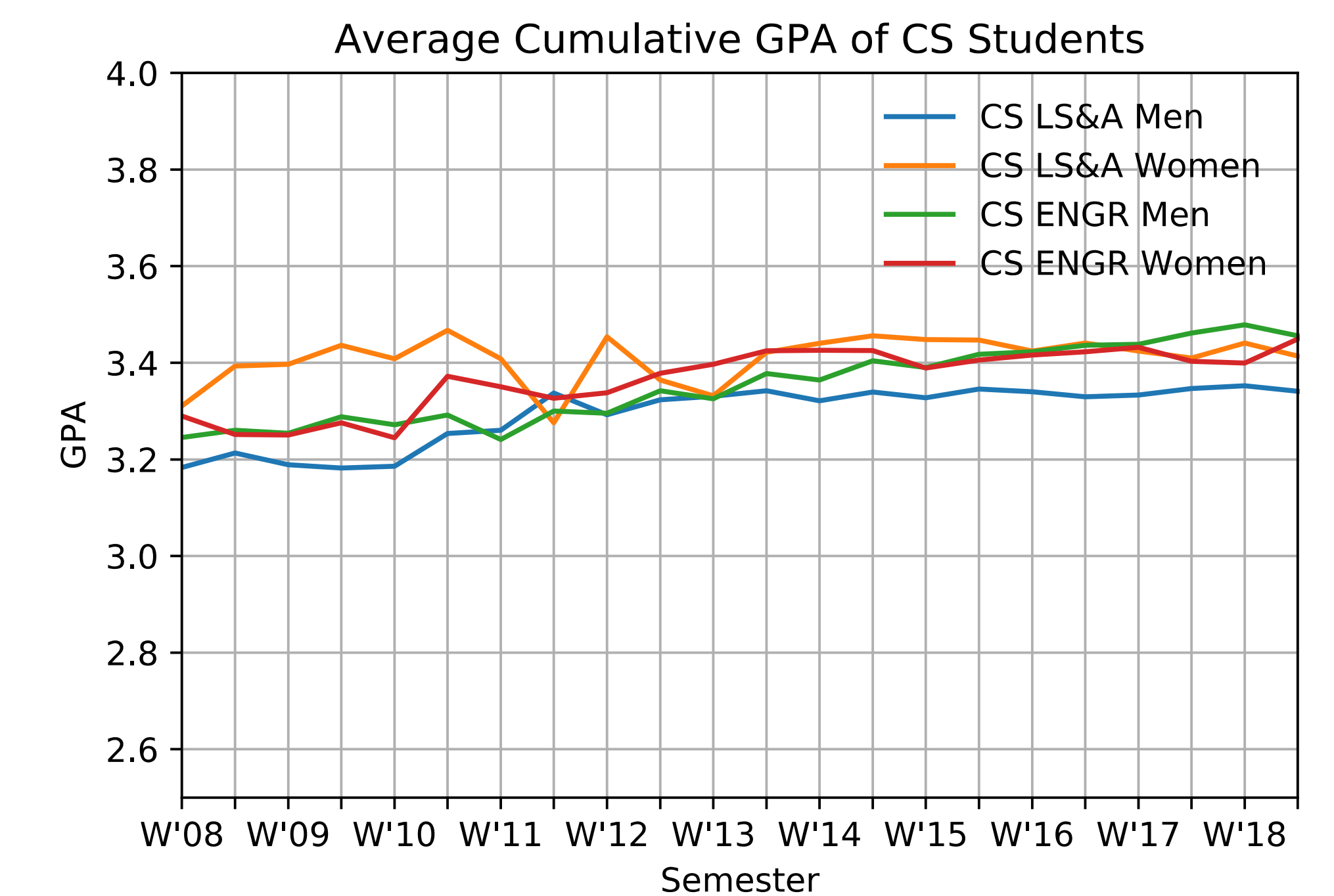


- Recently, men and women withdraw at the same rate for all courses except **EECS 281**.
- Withdrawal rates are not a major contributor to the CS gender disparity.



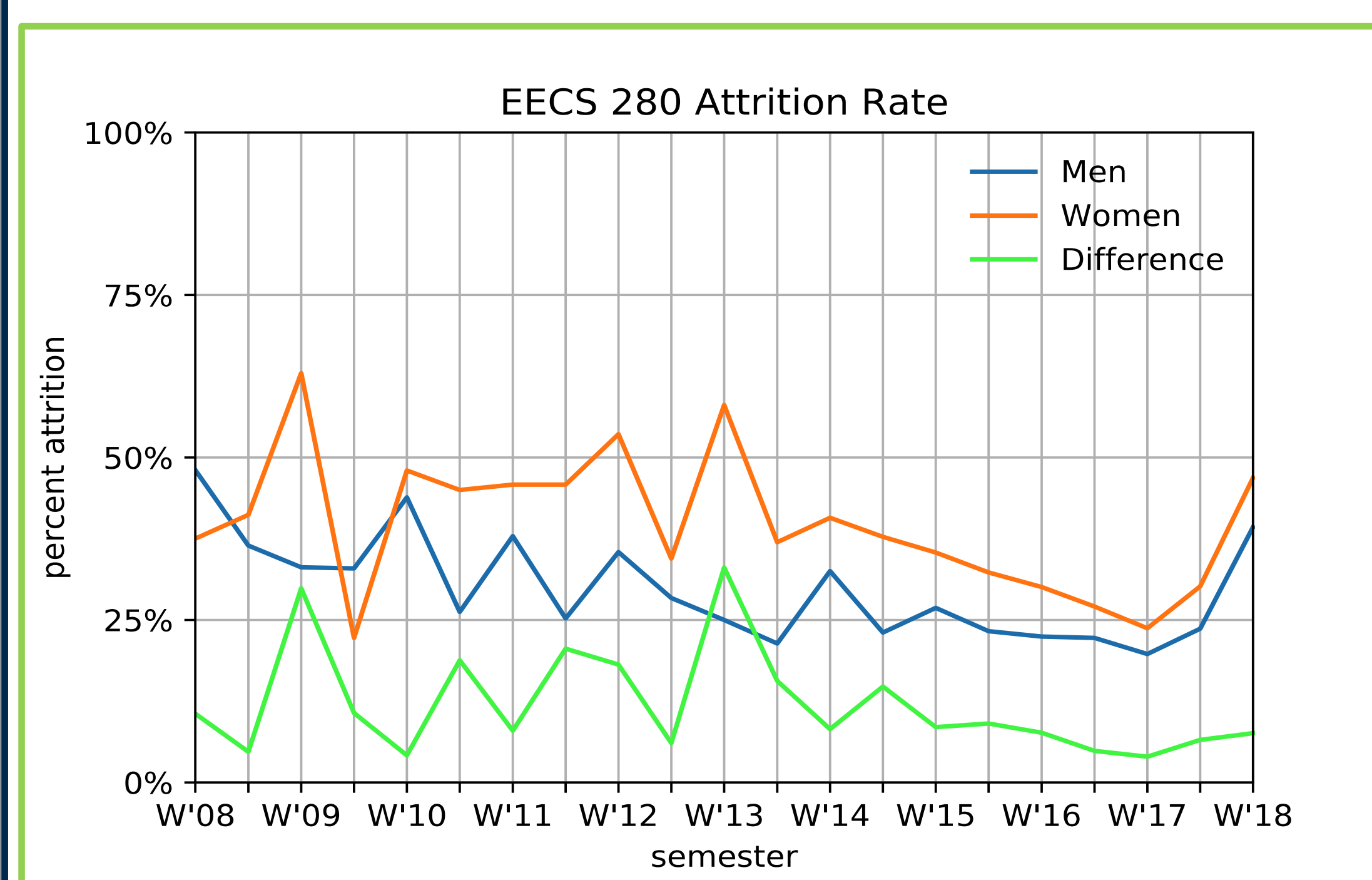
- Men and Women fail at similar rates for all courses.
- Fail rates are not a major contributor to the CS gender disparity.

Overall GPA

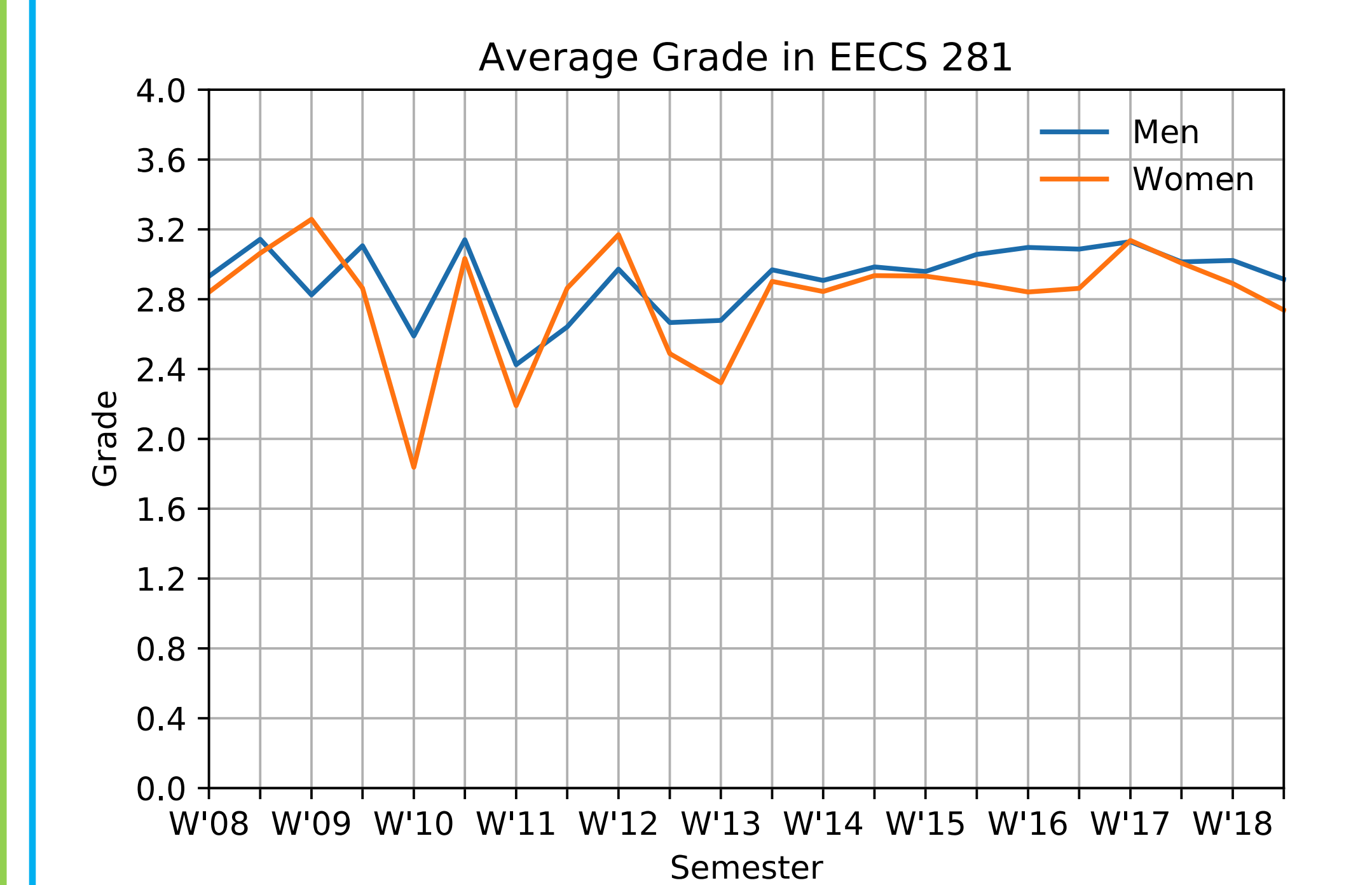
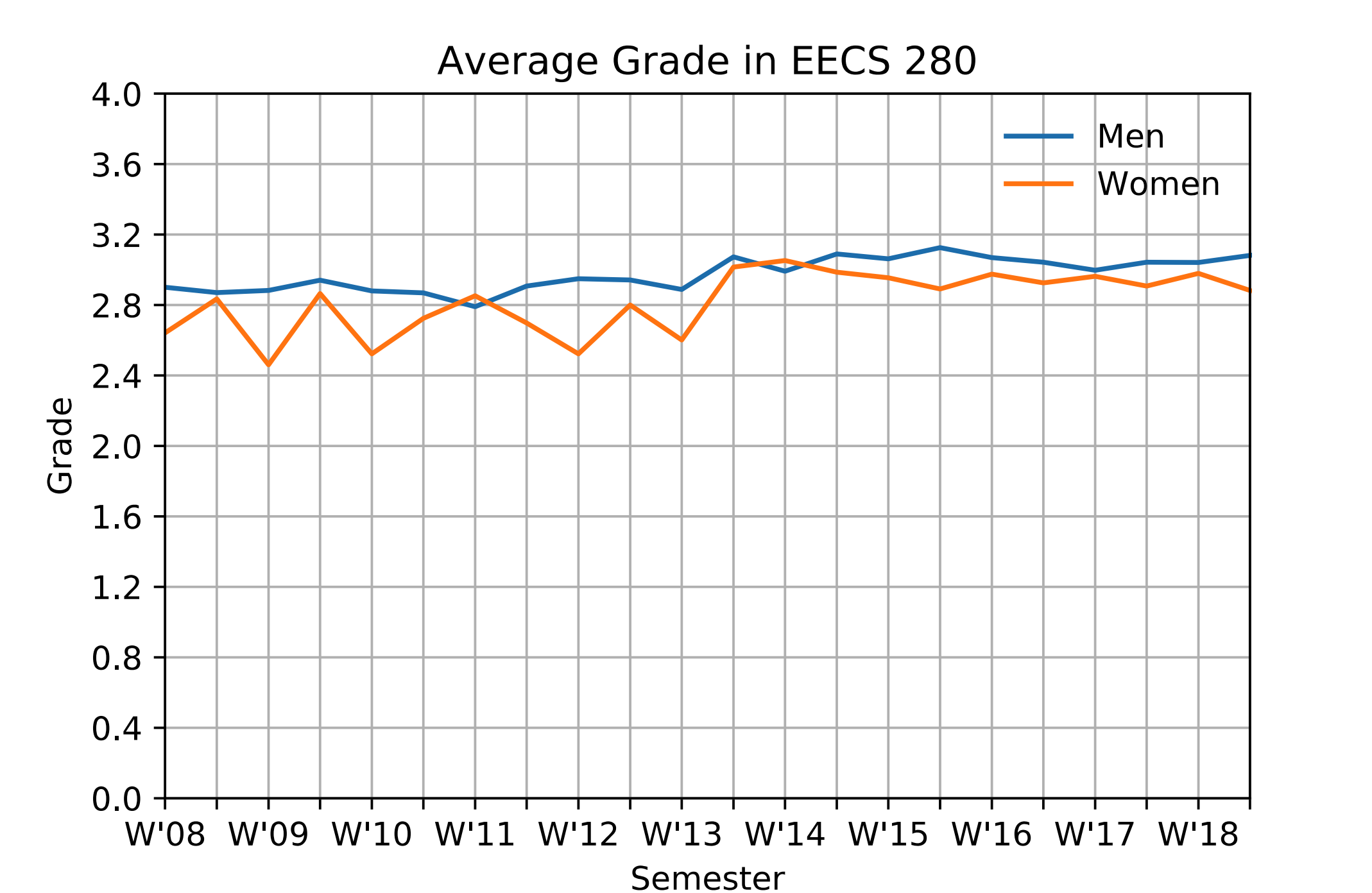
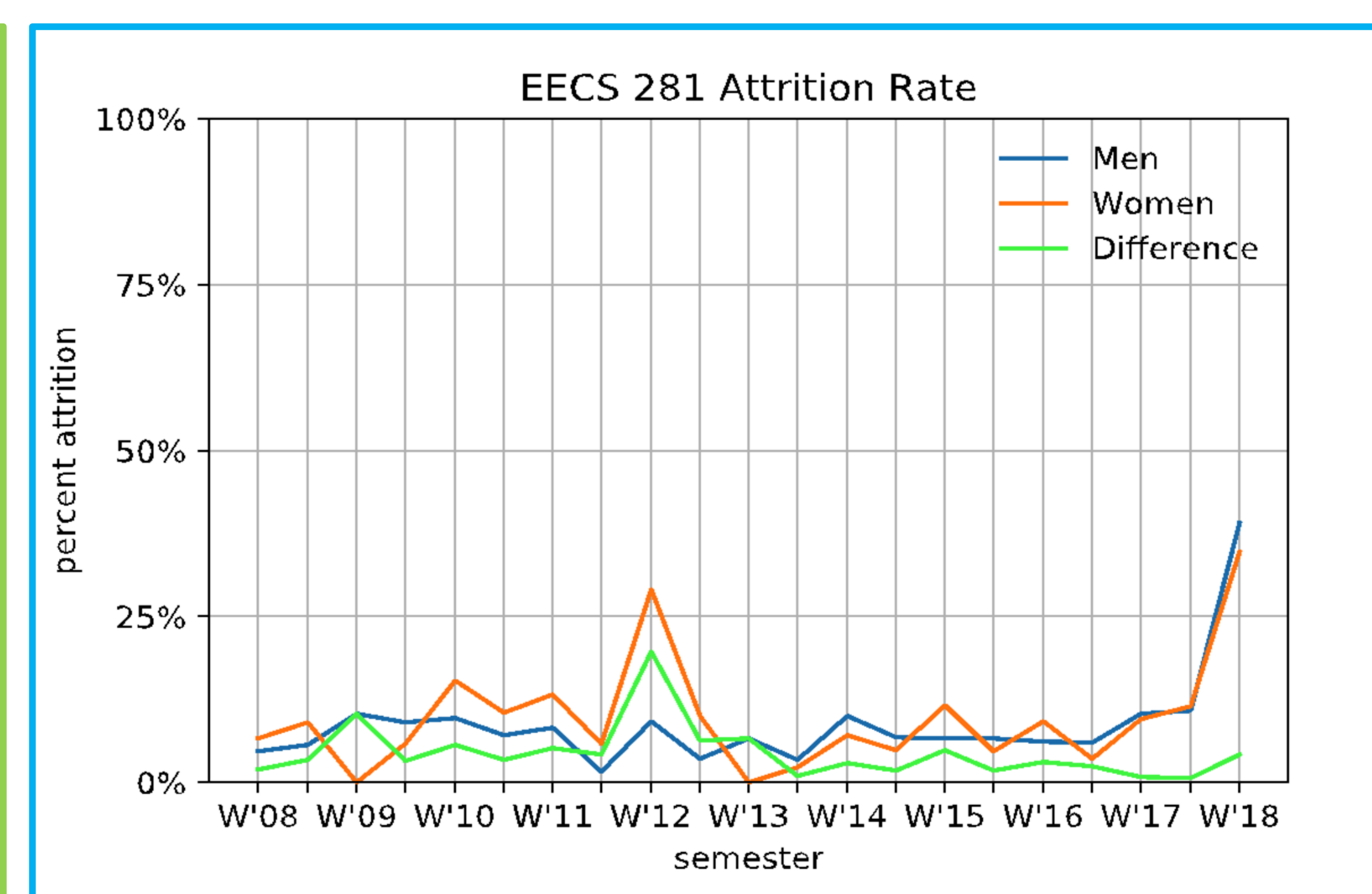


Recently, women in CS LS&A and CS Engineering receive the same or higher grades than men.

Gender Balance Discrepancies



Among those who pass, proportionally more women than men choose not to continue in the sequence. This is true for all courses except **EECS 281** and **Upper Level** courses.



Could the reason be grades? There is a gender grade disparity in **EECS 280**, **EECS 203**, and **EECS 281**. This could explain some of the attrition rate disparity.

Conclusions

- Modest increase in women's participation in all Computer Science courses over the past 10 years. Despite this increase, the gender disparity is still large.
- Women often choose not to continue in Computer Science at a higher rate than men.
- Attrition disparity is not due to women failing or withdrawing at a higher rate than men.
- Attrition disparity could be related to women often receiving lower grades than men in EECS courses despite having the same or higher overall GPAs.

Future Work

- Why do women often receive lower grades than men in EECS courses despite having higher overall GPAs?
- Are grades connected to attrition?
- What are the intentions of students taking these courses and how does that factor into their decision to continue in the sequence?