Course evals

Adham farag

September 22, 2020

```
library(pequod)
```

```
## Loading required package: ggplot2
```

```
## Loading required package: car
```

```
## Loading required package: carData
```

```
library(readr)
library(janitor)
```

```
##
## Attaching package: 'janitor'
```

```
## The following objects are masked from 'package:stats':
##
##     chisq.test, fisher.test
```

```
library(gmodels)
library(productplots)
library(CGPfunctions)
```

```
## Registered S3 method overwritten by 'DescTools':
##   method         from
##   reorder.factor gdata
```

```
## Warning in checkMatrixPackageVersion(): Package version inconsistency detected.
## TMB was built with Matrix version 1.2.17
## Current Matrix version is 1.2.18
## Please re-install 'TMB' from source using install.packages('TMB', type = 'source') or ask CRAN for a
```

```
## Registered S3 method overwritten by 'broom.mixed':
##   method      from
##   tidy.gamlss broom
```

```
## Registered S3 methods overwritten by 'lme4':
##   method                          from
##   cooks.distance.influence.merMod car
##   influence.merMod                car
##   dfbeta.influence.merMod         car
##   dfbetas.influence.merMod        car
```

```
library(pequod)
library(jtools) # for summ()
library(ggpubr)
library(dplyr)
```

```
##
```

```
## Attaching package: 'dplyr'
```

```
## The following object is masked from 'package:car':
##
##     recode
```

```
## The following objects are masked from 'package:stats':
##
##     filter, lag
```

```
## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```
library(haven)
library(surveytoolbox)
```

```
data01 = read_csv("data.csv")
```

```
## Parsed with column specification:
## cols(
##   .default = col_character(),
##   Invited = col_double(),
##   Responded = col_double()
## )
```

```
## See spec(...) for full column specifications.
```

```
data01<-na.omit(data01)
data01
```

```
## # A tibble: 92 x 30
##    Course Campus Term  Section Invited Responded Mean1 Mean2 Mean3 Mean4 Mean5
##    <chr>  <chr>  <chr> <chr>     <dbl>     <dbl> <chr> <chr> <chr> <chr> <chr>
##  1 JRE42~ UTSG   Fall~ LEC0103      55        18 2.4   2.5   2.8   2.7   2.8
##  2 JRE42~ UTSG   Fall~ LEC0103      54        14 3.2   3.1   3.6   3.2   3.2
##  3 JRE42~ UTSG   Fall~ LEC0103      55        37 2.5   2.8   3.8   3     3.1
##  4 JRE42~ UTSG   Fall~ LEC0103      53        14 2.8   3.6   3.6   3.1   3.2
##  5 JRE42~ UTSG   Summ~ LEC0101      48        20 3.5   3.6   4     3.5   3.4
##  6 JRE42~ UTSG   Wint~ LEC0103      52        16 2.4   2.1   2.3   2.4   2.5
##  7 JRE42~ UTSG   Wint~ LEC0103      55        31 2.9   3.2   3.4   2.9   3
##  8 JRE42~ UTSG   Wint~ LEC0103      46        14 3.7   4     4.3   4.1   4.1
##  9 MGHB0~ UTSC   Fall~ LEC01        62        18 2.6   2.7   3.2   2.8   2.9
## 10 MGHB0~ UTSC   Fall~ LEC01        52        28 2.7   2.8   2.9   2.5   2.8
## # ... with 82 more rows, and 19 more variables: Mean6 <chr>, Median1 <chr>,
## #   Median2 <chr>, Median3 <chr>, Median4 <chr>, Median5 <chr>, Median6 <chr>,
## #   Mode1 <chr>, Mode2 <chr>, Mode3 <chr>, Mode4 <chr>, Mode5 <chr>,
## #   Mode6 <chr>, StdDev1 <chr>, StdDev2 <chr>, StdDev3 <chr>, StdDev4 <chr>,
## #   StdDev5 <chr>, StdDev6 <chr>
```

```
# filter UTSC data
UTSC_Data <-  data01[data01$Campus=="UTSC",]
UTSC_Data <- na.omit(UTSC_Data)
# filter UTM data
UTM_Data <-  data01[data01$Campus=="UTM",]
UTM_Data <- na.omit(UTM_Data)
# filter UTSG data
UTSG_Data <-  data01[data01$Campus=="UTSG",]
```

```r
UTSG_Data <- na.omit(UTSG_Data)
```

```r
UTSC_Data <- UTSC_Data[!(UTSC_Data$Mean1 == "N/A") , ]
UTSC_Data$Mean6 <- as.numeric(as.character(UTSC_Data$Mean6))
```

```r
# calculate response rate for each course
data_RR<-data01$Responded/data01$Invited
data_RR<-na.omit(data_RR)

data_RR_UTSC<-UTSC_Data$Responded/UTSC_Data$Invited
data_RR_UTSC<-na.omit(data_RR_UTSC)

data_RR_UTSG<-UTSG_Data$Responded/UTSG_Data$Invited
data_RR_UTSG<-na.omit(data_RR_UTSG)

data_RR_UTM<-UTM_Data$Responded/UTM_Data$Invited
data_RR_UTM<-na.omit(data_RR_UTM)
# print out the average of the response rate for each campus
print(paste("Total avg response rate is: ",mean(data_RR)))
```

```
## [1] "Total avg response rate is:  0.343801101306044"
```

```r
print(paste("UTSC avg response rate is: ",mean(data_RR_UTSC)))
```

```
## [1] "UTSC avg response rate is:  0.335847140407165"
```

```r
print(paste("UTM avg response rate is: ",mean(data_RR_UTM)))
```

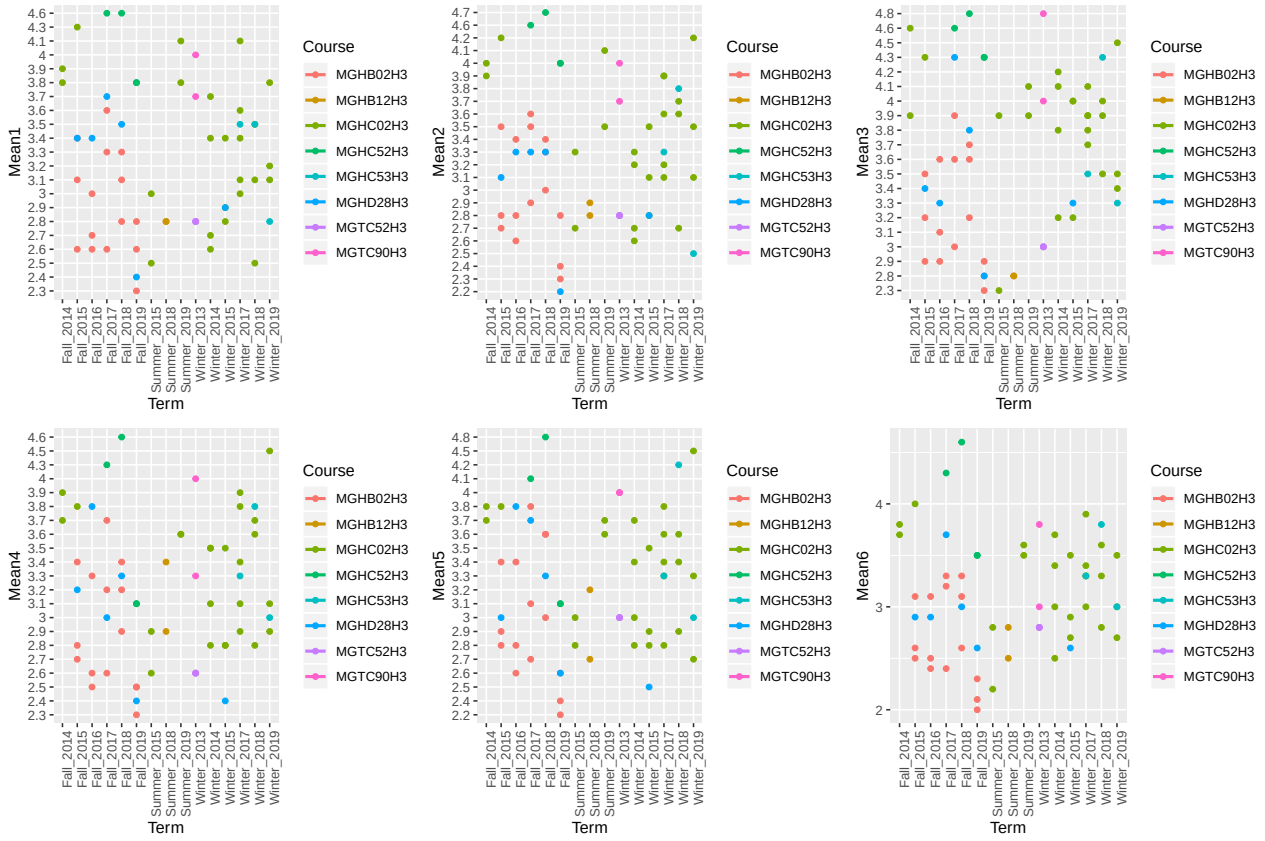
```
## [1] "UTM avg response rate is:  0.360746890577574"
```

```r
print(paste("UTSG avg response rate is: ",mean(data_RR_UTSG)))
```

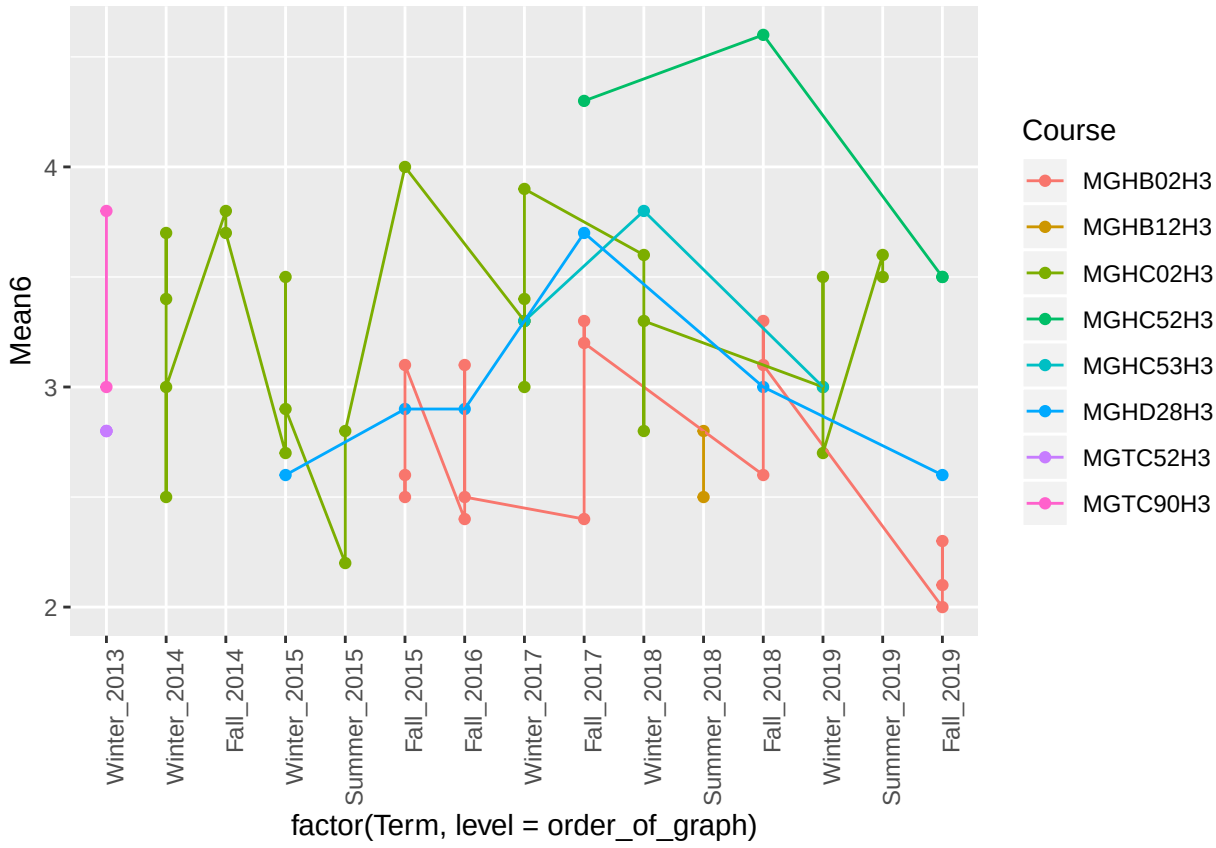
```
## [1] "UTSG avg response rate is:  0.357633288156258"
```

```r
# Just make plots and put term in x axis and means in y axis
  g1 <- ggplot(UTSC_Data, aes(x=Term, y=Mean1, color=Course)) +
  geom_point() +
  geom_smooth(method=lm, se=FALSE, fullrange=TRUE) + theme(axis.text.x = element_text(angle = 90, hjust

  g2 <- ggplot(UTSC_Data, aes(x=Term, y=Mean2, color=Course)) +
  geom_point() +
  geom_smooth(method=lm, se=FALSE, fullrange=TRUE) + theme(axis.text.x = element_text(angle = 90, hjust
    g3 <- ggplot(UTSC_Data, aes(x=Term, y=Mean3, color=Course)) +
  geom_point() +
  geom_smooth(method=lm, se=FALSE, fullrange=TRUE) + theme(axis.text.x = element_text(angle = 90, hjust
      g4 <- ggplot(UTSC_Data, aes(x=Term, y=Mean4, color=Course)) +
  geom_point() +
  geom_smooth(method=lm, se=FALSE, fullrange=TRUE) + theme(axis.text.x = element_text(angle = 90, hjust
        g5 <- ggplot(UTSC_Data, aes(x=Term, y=Mean5, color=Course)) +
  geom_point() +
  geom_smooth(method=lm, se=FALSE, fullrange=TRUE) + theme(axis.text.x = element_text(angle = 90, hjust
          g6 <- ggplot(UTSC_Data, aes(x=Term, y=Mean6, color=Course)) +
  geom_point() +
  geom_smooth(method=lm, se=FALSE, fullrange=TRUE) + theme(axis.text.x = element_text(angle = 90, hjust


# combine all the plots in one view for easier comaprison
```

```
ggarrange(g1, g2, g3,g4,g5,g6,
ncol = 3, nrow = 3)
```




```
order_of_graph = c("Winter_2013","Summer2013","Winter_2014","Fall_2014","Winter_2015","Summer_2015","Fa
  ggplot(UTSC_Data, aes(x = factor(Term, level =order_of_graph), y=Mean6, color=Course, group =Course))
  geom_point() +geom_line() + theme(axis.text.x = element_text(angle = 90, hjust = 1))
```




```
UTSC_Data$Course[UTSC_Data$Course == "MGHC02H3"] <- "MGHC02/90H3"
UTSC_Data$Course[UTSC_Data$Course == "MGTC90H3"] <- "MGHC02/90H3"

UTSC_Data$Course[UTSC_Data$Course == "MGHC52H3"] <- "MG(H/T)C52H3"
UTSC_Data$Course[UTSC_Data$Course == "MGTC52H3"] <- "MG(H/T)C52H3"
```

```
data01$Course[data01$Course == "MGHC02H3"] <- "MGHC02/90H3"
data01$Course[data01$Course == "MGTC90H3"] <- "MGHC02/90H3"

data01$Course[data01$Course == "MGHC52H3"] <- "MG(H/T)C52H3"
data01$Course[data01$Course == "MGTC52H3"] <- "MG(H/T)C52H3"

data01 <- data01[!(data01$Mean1 == "N/A") , ]
data01$Mean6 <- as.numeric(as.character(data01$Mean6))
data01$StdDev6 <- as.numeric(as.character(data01$StdDev6))
```

```
## Warning: NAs introduced by coercion
```

```
UTSC_Data$StdDev6 <- as.numeric(as.character(UTSC_Data$StdDev6))

data01_new <- UTSC_Data %>%
group_by(Term,Course) %>%
summarise(Mean = mean(Mean6),sd = mean(StdDev6))
```

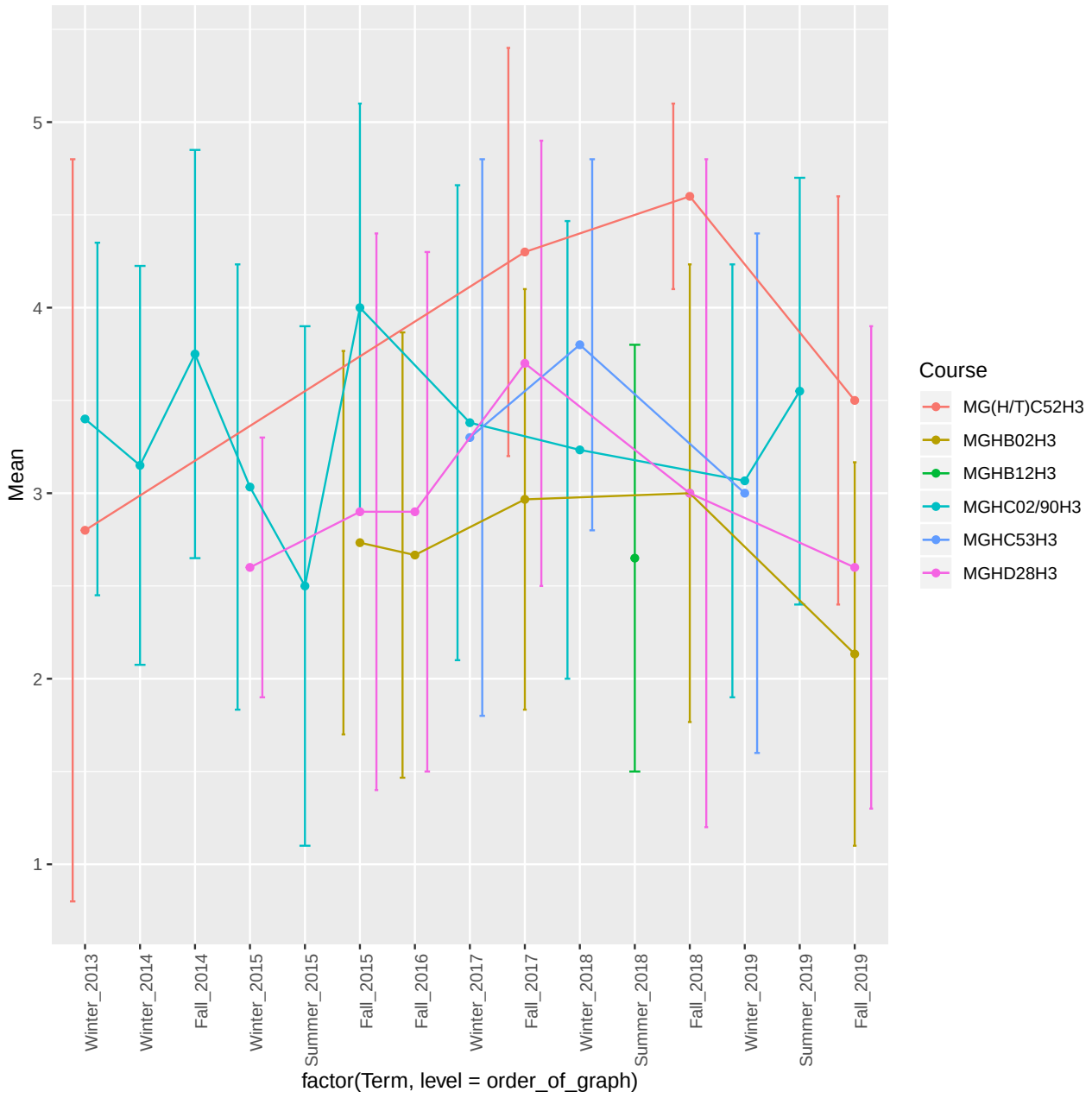
```
## `summarise()` regrouping output by 'Term' (override with `.groups` argument)
```

```
data01_new
```

```
## # A tibble: 29 x 4
```

```
## # Groups:   Term [15]
##    Term      Course        Mean    sd
##    <chr>     <chr>        <dbl> <dbl>
##  1 Fall_2014 MGHC02/90H3   3.75  1.1
##  2 Fall_2015 MGHB02H3      2.73  1.03
##  3 Fall_2015 MGHC02/90H3   4     1.1
##  4 Fall_2015 MGHD28H3      2.9   1.5
##  5 Fall_2016 MGHB02H3      2.67  1.2
##  6 Fall_2016 MGHD28H3      2.9   1.4
##  7 Fall_2017 MG(H/T)C52H3  4.3   1.1
##  8 Fall_2017 MGHB02H3      2.97  1.13
##  9 Fall_2017 MGHD28H3      3.7   1.2
## 10 Fall_2018 MG(H/T)C52H3  4.6   0.5
## # ... with 19 more rows
```

```
order_of_graph = c("Winter_2013","Summer2013","Winter_2014","Fall_2014","Winter_2015","Summer_2015","Fa
  ggplot(data01_new, aes(x = factor(Term, level =order_of_graph), y=Mean, color=Course, group =Course))
                 position=position_dodge(.9))+
  geom_point() +     geom_line() + theme(axis.text.x = element_text(angle = 90, hjust = 1))
```




```
data02 <- read_sav("item11allsem-cir.sav")
data02 <- data02[c("Semester","Course","it11")]
names(data02)[names(data02) == 'Semester'] <- 'Term'

data02$it11 <- likert_convert(data02$it11,7,1,5,1) #7-point scale to 5-point scale

data02_new <- data02 %>%
group_by(Term,Course) %>%
summarise(Mean = mean(it11))
```

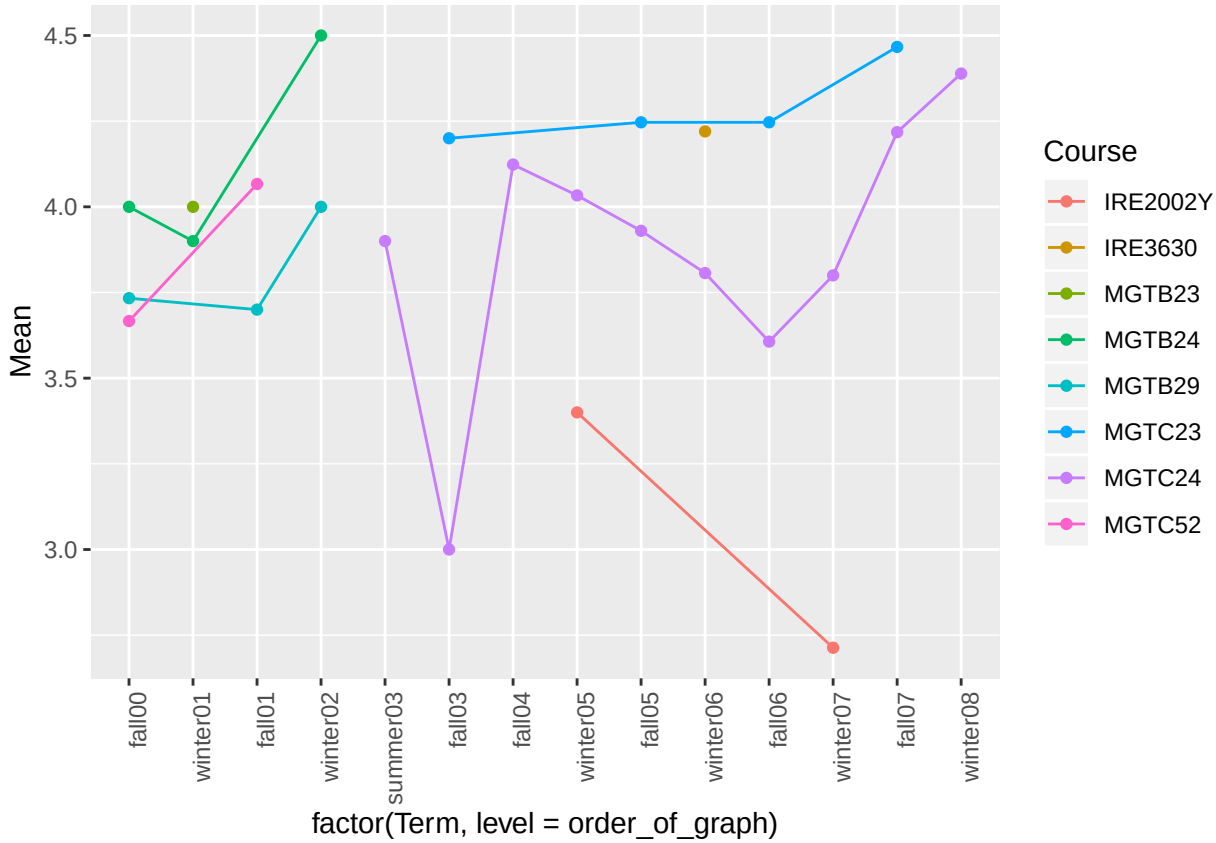
```
## `summarise()` regrouping output by 'Term' (override with `.groups` argument)
```

```
data02_new
```

```
## # A tibble: 26 x 3
```

```
## # Groups:   Term [14]
##    Term   Course  Mean
##    <chr>  <chr>  <dbl>
##  1 fall00 MGTB24  4
##  2 fall00 MGTB29  3.73
##  3 fall00 MGTC52  3.67
##  4 fall01 MGTB29  3.7
##  5 fall01 MGTC52  4.07
##  6 fall03 MGTC23  4.20
##  7 fall03 MGTC24  3
##  8 fall04 MGTC24  4.12
##  9 fall05 MGTC23  4.25
## 10 fall05 MGTC24  3.93
## # ... with 16 more rows
```

```
order_of_graph = c("winter00","summer00","fall00","winter01","summer01","fall01","winter02","summer02",
  ggplot(data02_new, aes(x = factor(Term, level =order_of_graph), y=Mean, color=Course, group =Course))+
  geom_point() +     geom_line() + theme(axis.text.x = element_text(angle = 90, hjust = 1))
```




```
# MERGE THE DATA FROM 00-08 and 11-19
FINAL <- rbind(data01_new,data02_new)

FINAL <- FINAL[c("Term","Course","Mean")]
FINAL
```

```
## # A tibble: 55 x 3
## # Groups:   Term [29]
##    Term      Course        Mean
```

```
##    <chr>     <chr>         <dbl>
##  1 Fall_2014 MGHC02/90H3   3.75
##  2 Fall_2015 MGHB02H3      2.73
##  3 Fall_2015 MGHC02/90H3   4
##  4 Fall_2015 MGHD28H3      2.9
##  5 Fall_2016 MGHB02H3      2.67
##  6 Fall_2016 MGHD28H3      2.9
##  7 Fall_2017 MG(H/T)C52H3  4.3
##  8 Fall_2017 MGHB02H3      2.97
##  9 Fall_2017 MGHD28H3      3.7
## 10 Fall_2018 MG(H/T)C52H3  4.6
## # ... with 45 more rows
```

```
FINAL$Course[FINAL$Course == "MGHC02"] <- "MGHC02/90H3"
FINAL$Course[FINAL$Course == "MGTC90"] <- "MGHC02/90H3"

FINAL$Course[FINAL$Course == "MGHC52"] <- "MG(H/T)C52H3"
FINAL$Course[FINAL$Course == "MGTC52"] <- "MG(H/T)C52H3"
```

```
order_of_graph = c("winter00","summer00","fall00","winter01","summer01","fall01","winter02","summer02",


  ggplot(FINAL, aes(x = factor(Term, level =order_of_graph), y=Mean, color=Course, group =Course))+
  geom_point() +     geom_line() + theme(axis.text.x = element_text(angle = 90, hjust = 1))
```