Scoring Evaluations

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Contents

Data Import

Exported **Assignment Type Summaries** from GradeCraft and imported.

```
library(readr)
library(dplyr)
library(tidyr)
datafile <- 'Principles of Nutritional Sciences Assignment Type Summary - 2018-02-01.csv'

library(readr)
dataset <- read_csv(datafile)

dropped.students <- c('dave.bridges','ajian','zhongyli')

assessment.dataset <-
  dataset %>%
  select(-`First Name`, -`Last Name`, -Email, -Team) %>%
  gather(Assignment, Points, -Username) %>%
  filter(!(Username %in% dropped.students)) %>%
  arrange(Points)

summary.dataset <-
  assessment.dataset %>%
  group_by(Username) %>%
  summarize(Total = sum(Points)) %>%
  arrange(-Total)
```

This script imports the data from **Principles of Nutritional Sciences Assignment Type Summary - 2018-02-01.csv**. This script is located at /Users/davebrid/Documents/GitHub/TeachingLectures/Michigan/NUTR630/Evalua Summary/GradeCraft Metrics and was most recently run on Sat Feb 17 11:34:33 2018

```
library(ggplot2)

p <- ggplot(data=summary.dataset, aes(x=Total))
p + geom_histogram(binwidth=50) +
  labs(x="Final Points",y="Number of Students", title="Distribution of Final Points") +
  geom_vline(aes(xintercept=1000), color="red", linetype="dashed", size=1) +
  geom_vline(aes(xintercept=950), color="red", linetype="dashed", size=0.5) +
  geom_vline(aes(xintercept=900), color="red", linetype="dashed", size=0.5) +
  geom_vline(aes(xintercept=850), color="red", linetype="dashed", size=0.5) +
  geom_vline(aes(xintercept=800), color="red", linetype="dashed", size=0.5) +
```

```
  geom_vline(aes(xintercept=750), color="red", linetype="dashed", size=0.5) +
  geom_vline(aes(xintercept=700), color="red", linetype="dashed", size=0.5)
```

Distribution of Final Points
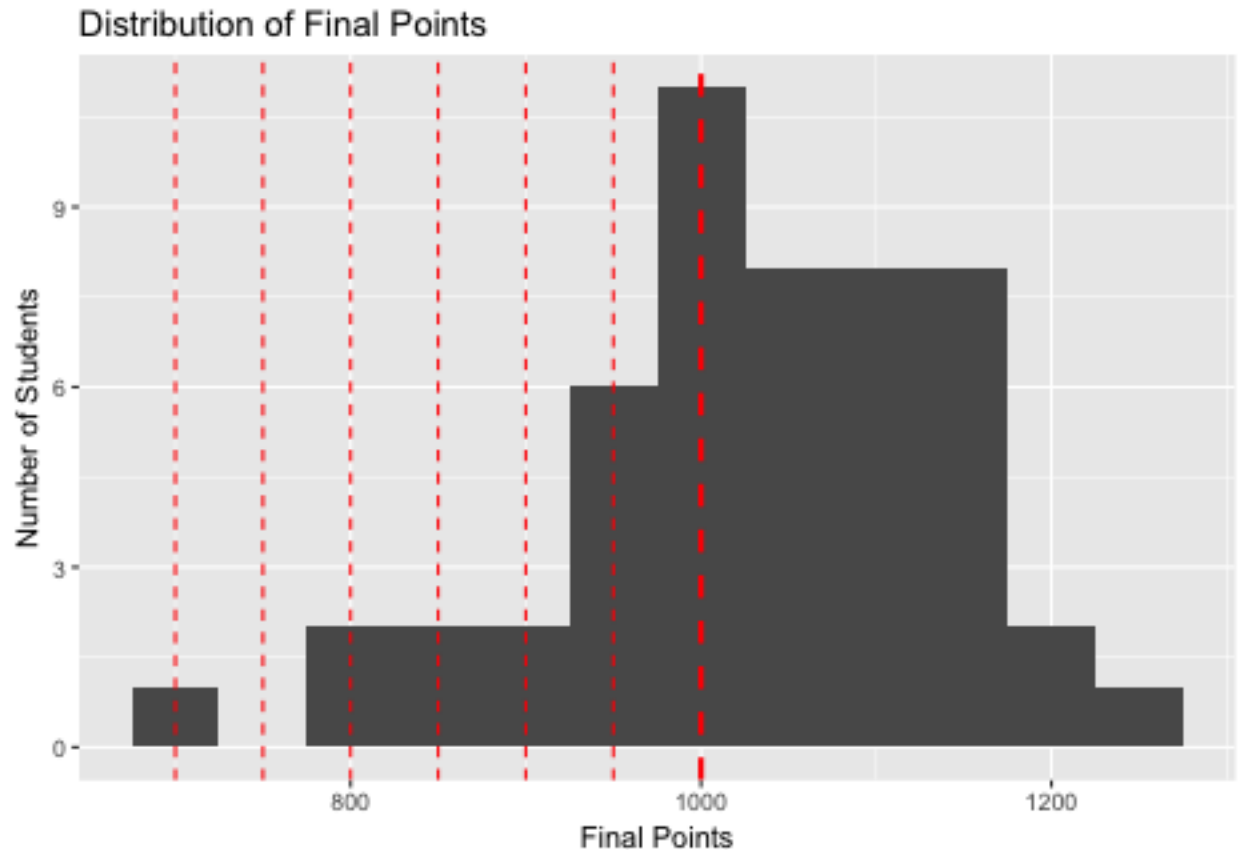
There were 31 students who earned an A. Among those who earned an A, their average points were 1096.419. This means that the A students averaged **96.419** points too many than they needed. This is relative to the overall mean of 1028.255

Assessment Choices

Aggregated

```
required.assignments <- c('Midterm','Class Based Assignments','In Class Quiz')

assignment.summary.data <-
  assessment.dataset %>%
  group_by(Assignment) %>%
  summarize(Mean.Points = mean(Points),
            SD.Points = sd(Points)) %>%
  mutate(Required = ifelse(Assignment %in% required.assignments, "Required", "Optional")) %>%
  mutate(Required = relevel(as.factor(Required), ref="Required")) %>%
  arrange(Required, -Mean.Points)

assignment.summary.data.required <-
  assessment.dataset %>%
```

```r
  mutate(Required = ifelse(Assignment %in% required.assignments, "Required", "Optional")) %>%
  mutate(Required = relevel(as.factor(Required), ref="Required")) %>%
  group_by(Username, Required) %>%
  summarize(Points = sum(Points)) %>%
  group_by(Required) %>%
  summarize(Median.Points = median(Points),
            Median.Points.SD = sd(Points)) %>%
  mutate(Relative.Points = Median.Points/sum(Median.Points) *100,
         Relative.Points.SD = Median.Points.SD/sum(Median.Points)*100)

assignment.summary.data.relative <-
  assessment.dataset %>%
  group_by(Username) %>%
  mutate(Total = sum(Points)) %>%
  group_by(Assignment) %>%
  summarize(Relative.Points = mean(Points/Total)*100,
            SD.Relative.Points = sd(Points/Total)*100) %>%
  mutate(Required = ifelse(Assignment %in% required.assignments, "Required", "Optional")) %>%
  mutate(Required = relevel(as.factor(Required), ref="Required")) %>%
  arrange(Required, -Relative.Points)

positions <- as.character(assignment.summary.data$Assignment)

library(forcats)

assignment.summary.data$Assignment <- fct_relevel(assignment.summary.data$Assignment, positions)
assignment.summary.data.relative$Assignment <- fct_relevel(assignment.summary.data.relative$Assignment,

p <- ggplot(assignment.summary.data, aes(y=Mean.Points, x=Assignment))
p + geom_bar(stat='identity', aes(fill=Assignment,col=Required)) + scale_x_discrete(limits = positions)
  labs(title="Aggregate Assignment Breakdown",  y = "Average Points") +
  theme(axis.title.x=element_blank(),
        axis.text.x=element_blank(),
        axis.ticks.x=element_blank())
```
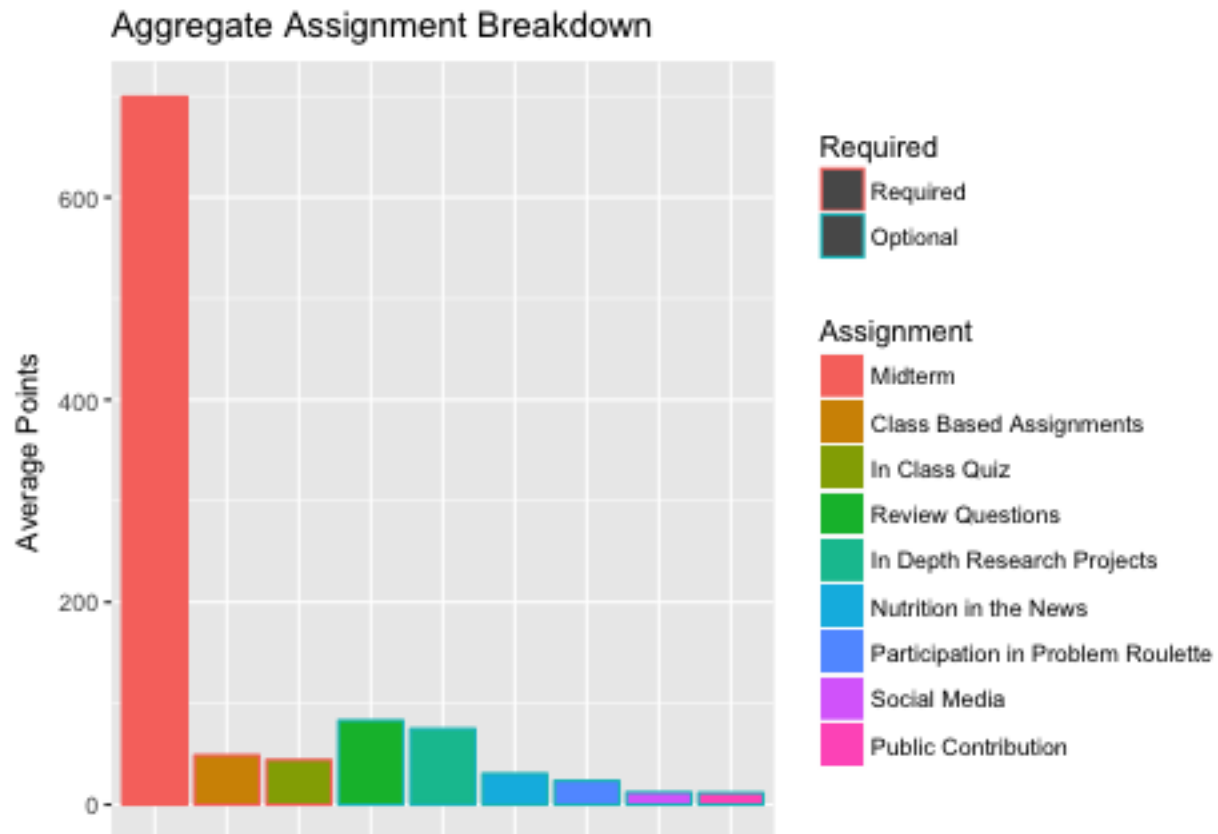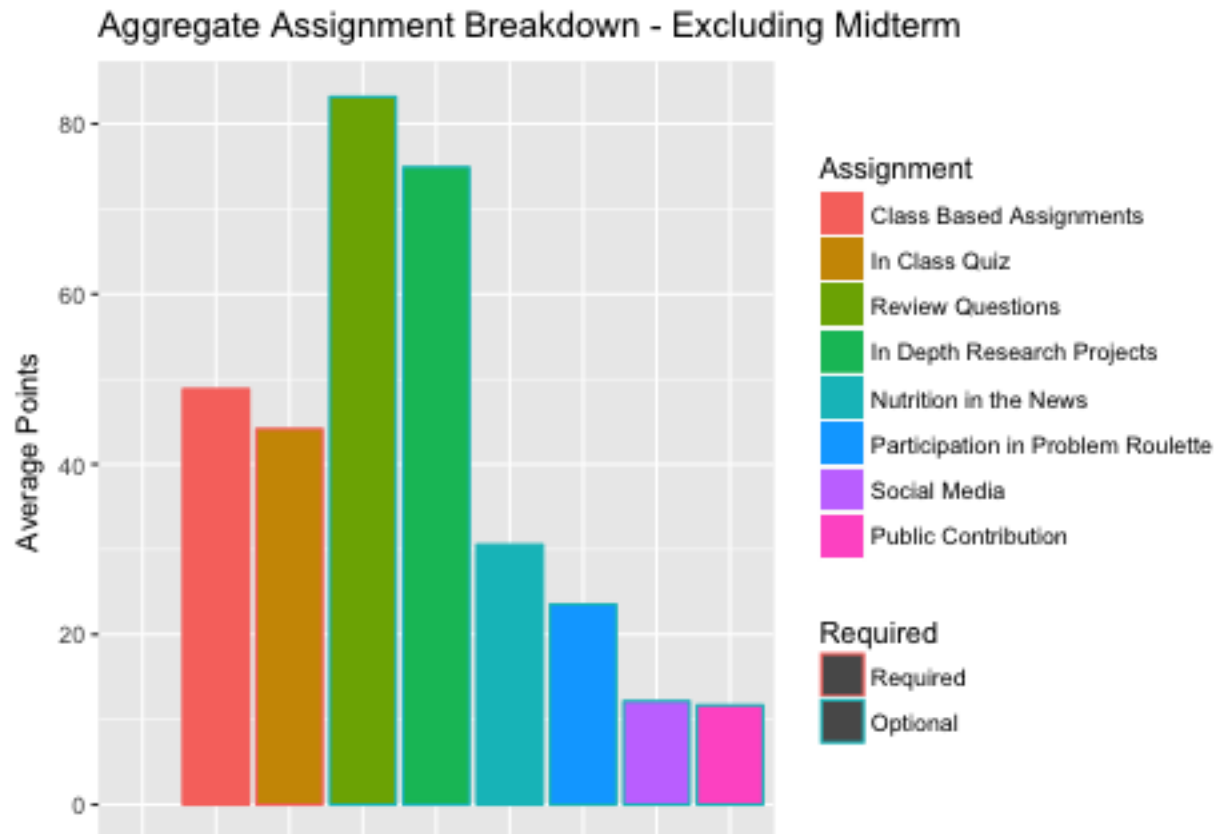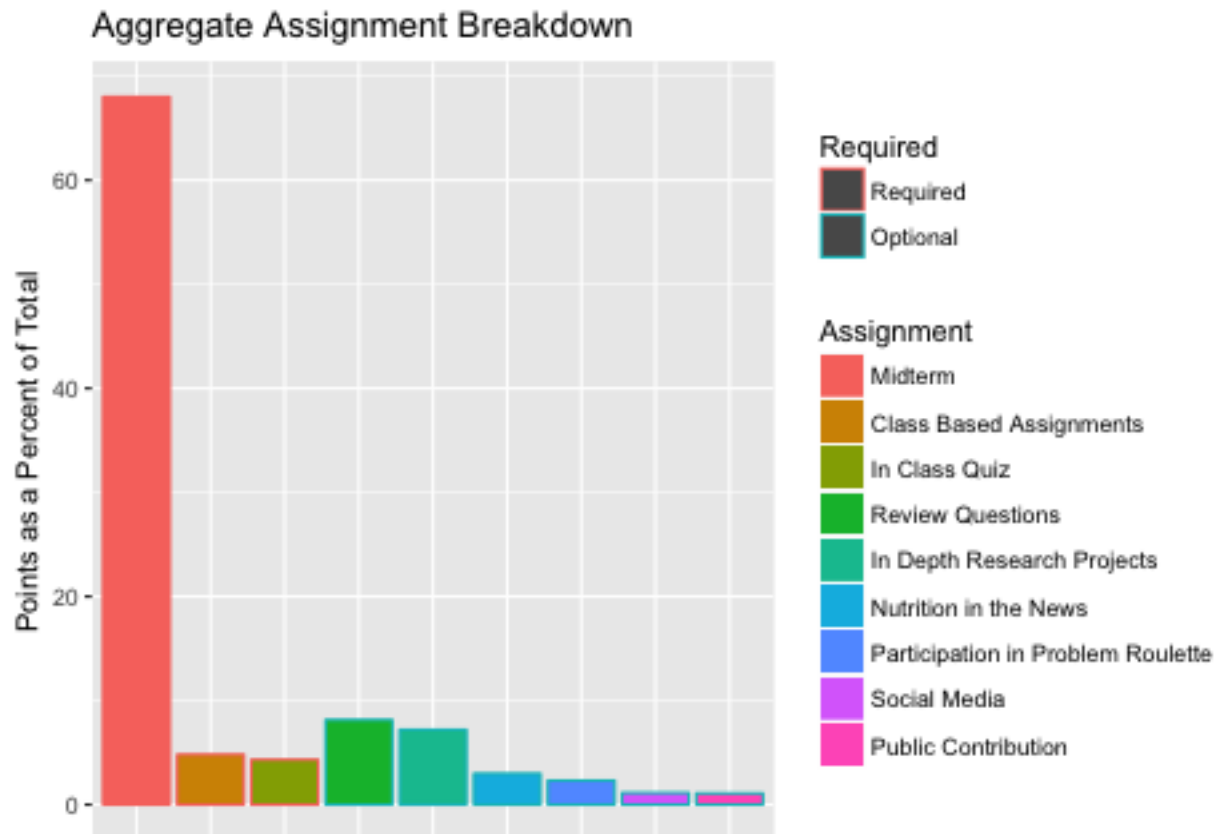
```
p <- ggplot(filter(assignment.summary.data, Assignment != 'Midterm'), aes(y=Mean.Points, x=Assignment))
p + geom_bar(stat='identity', aes(fill=Assignment,col=Required)) + scale_x_discrete(limits = positions)
  labs(title="Aggregate Assignment Breakdown - Excluding Midterm", y = "Average Points") +
  theme(axis.title.x=element_blank(),
        axis.text.x=element_blank(),
        axis.ticks.x=element_blank())
```

Aggregate Assignment Breakdown - Excluding Midterm


```r
p <- ggplot(assignment.summary.data.relative, aes(y=Relative.Points, x=Assignment))
p + geom_bar(stat='identity', aes(fill=Assignment,col=Required)) + scale_x_discrete(limits = positions)
  labs(title="Aggregate Assignment Breakdown",  y = "Points as a Percent of Total") +
  theme(axis.title.x=element_blank(),
        axis.text.x=element_blank(),
        axis.ticks.x=element_blank())
```

Aggregate Assignment Breakdown


```r
p <- ggplot(filter(assignment.summary.data.relative, Assignment != 'Midterm'), aes(y=Relative.Points, x=
p + geom_bar(stat='identity', aes(fill=Assignment,col=Required)) + scale_x_discrete(limits = positions)
  labs(title="Aggregate Assignment Breakdown - Excluding Midterm", y = "Points as a Percent of Total")
  theme(axis.title.x=element_blank(),
        axis.text.x=element_blank(),
        axis.ticks.x=element_blank())
```

Aggregate Assignment Breakdown - Excluding Midterm
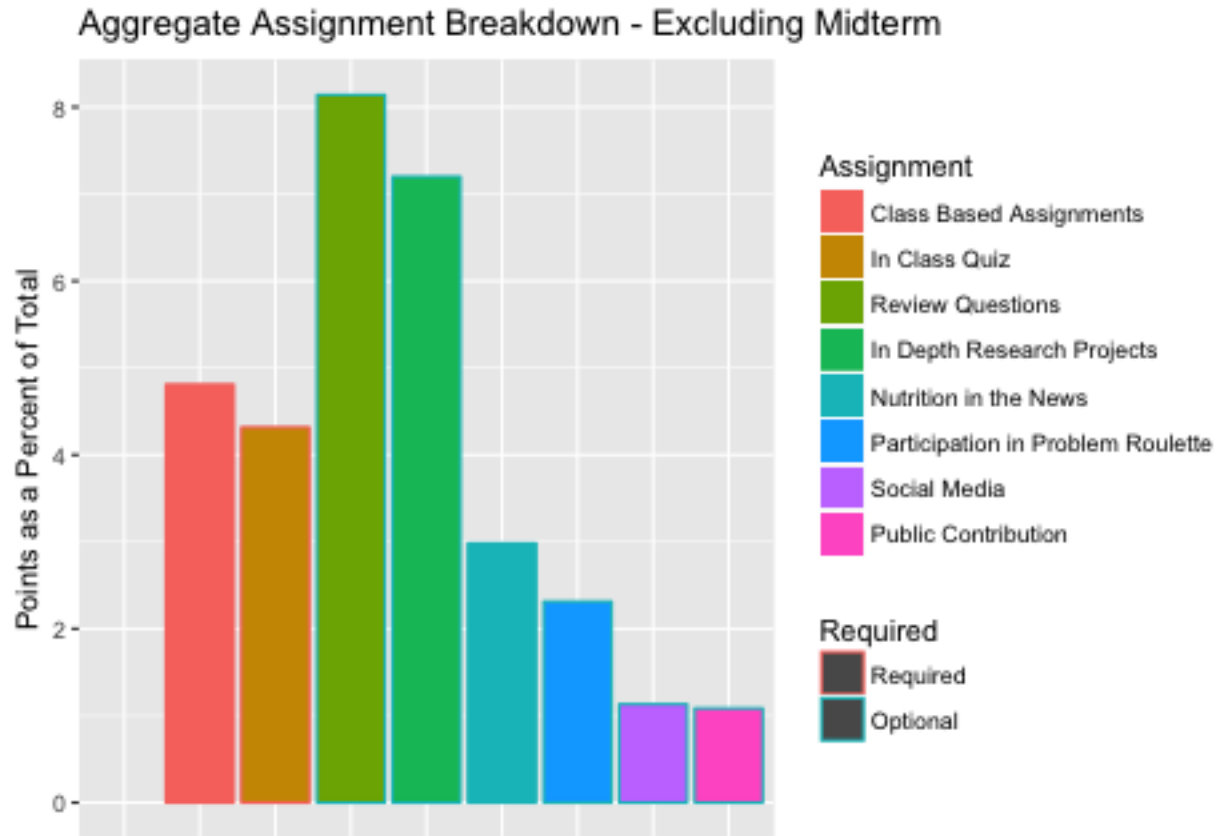

```r
kable(assignment.summary.data.required, caption="Average total points")
```

Table 1: Average total points

Required	Median.Points	Median.Points.SD	Relative.Points	Relative.Points.SD
Required	799	94.7	77.8	9.22
Optional	228	69.1	22.2	6.73

```r
kable(assignment.summary.data, caption="Average total points per assignment")
```

Table 2: Average total points per assignment

Assignment	Mean.Points	SD.Points	Required
Midterm	699.3	91.72	Required
Class Based Assignments	48.8	2.10	Required
In Class Quiz	44.1	4.56	Required
Review Questions	83.2	22.84	Optional
In Depth Research Projects	74.9	47.25	Optional
Nutrition in the News	30.5	20.60	Optional
Participation in Problem Roulette	23.5	9.34	Optional
Social Media	12.2	17.78	Optional
Public Contribution	11.7	23.19	Optional

```
kable(assignment.summary.data.relative, caption="Average Relative points per assignment as a percent of
```

Table 3: Average Relative points per assignment as a percent of
total

Assignment	Relative.Points	SD.Relative.Points	Required
Midterm	68.02	5.766	Required
Class Based Assignments	4.81	0.633	Required
In Class Quiz	4.32	0.450	Required
Review Questions	8.14	2.371	Optional
In Depth Research Projects	7.20	4.604	Optional
Nutrition in the News	2.98	2.020	Optional
Participation in Problem Roulette	2.31	0.921	Optional
Social Media	1.13	1.629	Optional
Public Contribution	1.08	2.142	Optional

Student Level

```
assessment.dataset$Username <- fct_relevel(assessment.dataset$Username, summary.dataset$Username)
assessment.dataset$Assignment <- fct_relevel(assessment.dataset$Assignment, positions)

p <- ggplot(assessment.dataset, aes(y=Points,x=Username))

p + geom_bar(stat='identity', aes(fill=Assignment)) +
  labs(title="Student Level Assignment Breakdown") +
  theme(axis.title.x=element_blank(),
        axis.text.x=element_blank(),
        axis.ticks.x=element_blank()) +
    geom_hline(aes(yintercept=1000), color="black", linetype="dashed", size=0.5)
```

Student Level Assignment Breakdown