

ENTMLGY 6702 Entomological Techniques and Data Analysis

Boxplots and points

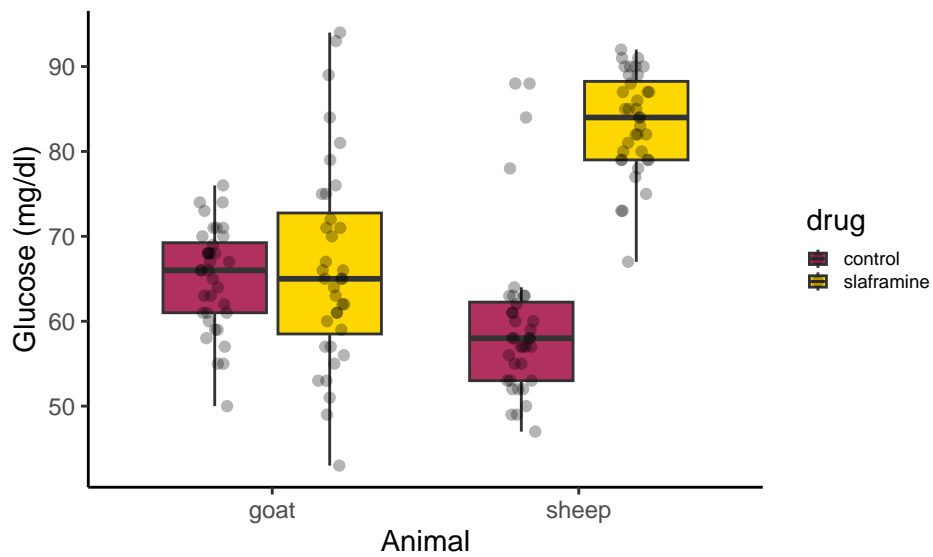
Load in the `glucose_df.txt` dataset.

```
gluc_df <- read.table("glucose_df.txt", sep="\t", header=T)
summary(gluc_df)
```

```
##      rep      animal      diet      drug
## Min.   : 1.00  Length:144  Length:144  Length:144
## 1st Qu.: 3.75  Class :character  Class :character  Class :character
## Median : 6.50  Mode  :character  Mode  :character  Mode  :character
## Mean   : 6.50
## 3rd Qu.: 9.25
## Max.   :12.00
##      glucose
## Min.   :43.00
## 1st Qu.:59.00
## Median :66.00
## Mean   :68.65
## 3rd Qu.:79.00
## Max.   :94.00
```

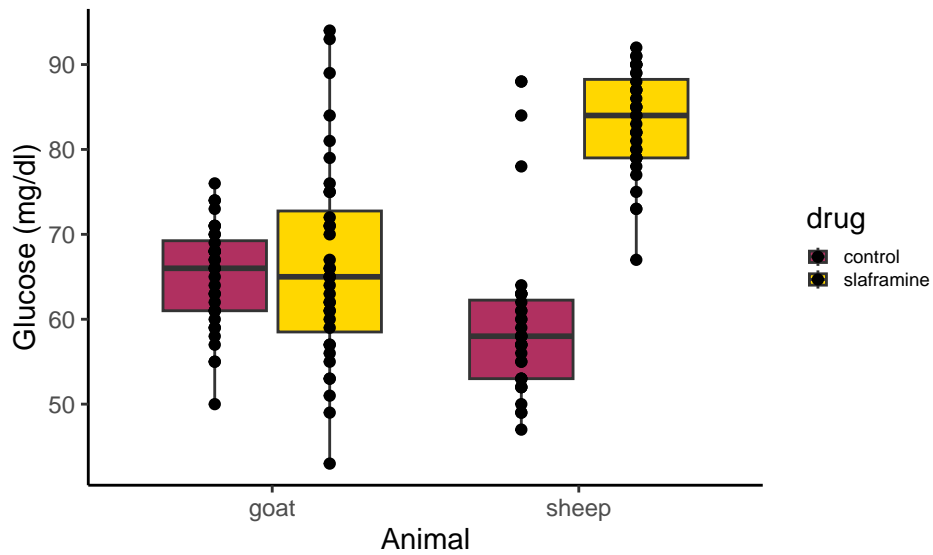
Option 1: Using jittering. Note that the `alpha` command in making the points transparent as well.

```
library(tidyverse)
ggplot(gluc_df, mapping=aes( y=glucose, x=animal, fill=drug))+
  geom_boxplot(outlier.color=NA)+
  geom_point(position = position_jitterdodge( jitter.width = 0.1), alpha=0.3)+
  theme_classic()+
  ylab("Glucose (mg/dl)")+
  xlab("Animal")+
  theme(legend.text=element_text(size=7))+
  theme(legend.key.size = unit(0.3, 'cm'))+
  scale_fill_manual(values=c("maroon", "gold"))
```



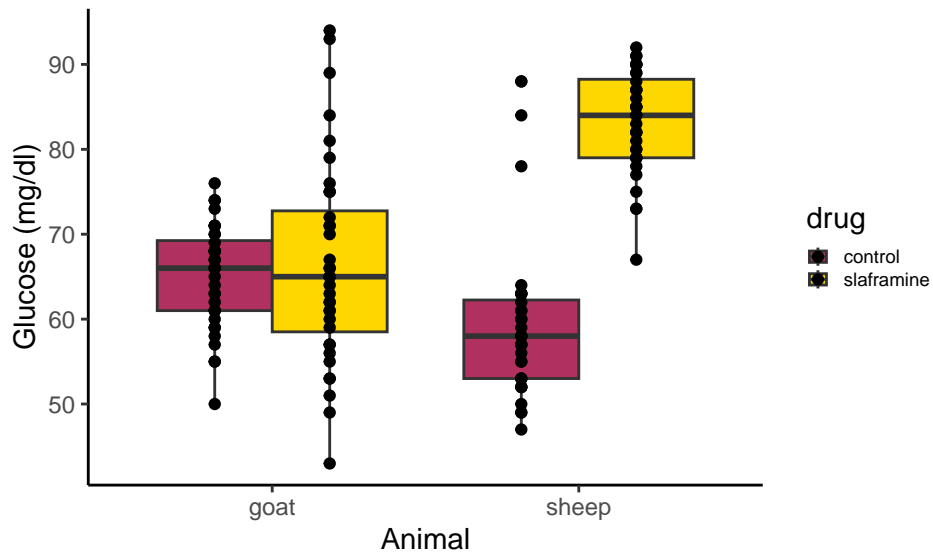
Option 2: Use `width = 0.75`, but ensure you have `fill=drug` in the first line when first making the call to `ggplot()`.

```
ggplot(gluc_df, mapping=aes( y=glucose, x=animal, fill=drug))+  
  geom_boxplot( outlier.color=NA)+  
  geom_point(position=position_dodge(width=0.75))+  
  ylab("Glucose (mg/dl)")+  
  xlab("Animal") +  
  theme_classic()+  
  theme(legend.text=element_text(size=7))+  
  theme(legend.key.size = unit(0.3, 'cm'))+  
  scale_fill_manual(values=c("maroon", "gold"))
```



Option 3 (and a bit more on how this works): when making a grouped boxplot, ggplot (under the hood) is imposing a “dodge” (moving and spacing out the boxes for display). To ensure that the points are perfectly on top of the plots, we need to use the same exact dodge value.

```
ggplot(gluc_df, mapping=aes( y=glucose, x=animal, fill=drug))+  
geom_boxplot(position=position_dodge(width=0.75), outlier.color=NA)+  
  geom_point(position=position_dodge(width=0.75))+  
ylab("Glucose (mg/dl)")+  
xlab("Animal")+  
theme_classic()+  
theme(legend.text=element_text(size=7))+  
theme(legend.key.size = unit(0.3, 'cm'))+  
scale_fill_manual(values=c("maroon", "gold"))
```



Option 4: you can organize your points nicely as well, if ya like.

```
ggplot(gluc_df, mapping=aes( y=glucose, x=animal, fill=drug))+  
geom_boxplot(position=position_dodge(width=0.75), outlier.color=NA)+  
geom_dotplot(binaxis = "y", stackdir = "center", binwidth = 3,  
  position=position_dodge(0.75), dotsize=0.4, alpha=1)+  
ylab("Glucose (mg/dl)")+  
xlab("Animal")+  
theme_classic()+  
theme(legend.text=element_text(size=7))+  
theme(legend.key.size = unit(0.3, 'cm'))+  
scale_fill_manual(values=c("maroon", "gold"))
```

