# Exam C

You can download the combined lecture notes for this module at: https://asta.math.aau.dk/course/asta/2018-1/std/lecture/3-2?file=C/module-C.pdf

Remember to load the `mosaic` package first:

```r
library(mosaic)
```

## House prices

In this exercise you will study the data described in Agresti EXAMPLE 9.10.

You are studying house sales in Gainesville, Florida, where among other things the data contain the selling price (`Price`), property taxes (`Taxes`) and house size (`Size`).

Read in the data:

```r
HousePrices <- read.delim("https://asta.math.aau.dk/datasets?file=HousePrice.txt")
head(HousePrices)
```

```
##   Taxes  Price Size
## 1  3104 279900 2048
## 2  1173 146500  912
## 3  3076 237700 1654
## 4  1608 200000 2068
## 5  1454 159900 1477
## 6  2997 499900 3153
```

- Make a relevant plot of the variables and discuss how they are related.

- Explain the concept of correlation and determine whether there is significant positive correlation between `Taxes` and `Size`.

```r
## Delete this line and write a command using cor.test(...)
```

Fit a multiple regression model with Price as the response variable and `Taxes` and `Size` as predictors.

```r
## Delete this line and write a command using lm(...)
```

- What are the parameters of the model and what is the interpretation of these parameters?

- What is the prediction equation?

$$\widehat{y} =$$

Explain the output of

```r
summary(model)
```

where `model` is the fitted multiple regression model. This explanation should as a minimum include

- Calculation of `t value` and determination and interpretation of p-value.

- Interpretation of `Multiple R-squared`.

- How the table of output can be used to construct confidence intervals for parameters. This should be supplemented by actual calculation for the current data using `confint`.

Finally, you have to investigate whether or not there is an interaction between the effect of `Taxes` and the effect of `Size` as predictors of `Price`.