Today's datasets are in the following zip file on Canvas: mediationExamples.zip.

The data in the file medEx1.csv is from Leerkes and Crockenberg (1999), who were interested in studying the relationship between how children were raised by their own mothers (maternal care = X) and their later feelings of maternal self-efficacy (Y) when they, in turn, became mothers. Further, they predicted that this relationship was mediated by self-esteem (M), arguing that high levels of maternal care lead to high levels of self-esteem in the child, when then later translates into high levels of self-efficacy as a mother. Let's test this mediation model:

- Draw a path diagram for the direct model ($X \xrightarrow{c} Y$) and estimate the total effect c.
- Draw a path diagram for the mediation model ($X \xrightarrow{a} M \xrightarrow{b} Y$) and estimate the effects a and b.
- Use the estimates obtained in parts (a) and (b) to calculate the direct effect c' (i.e., the effect of X on Y after controlling for the mediator M).
- Use Sobel's (1982) method to test the mediation model. That is, test $\mathcal{H}_0 : ab = 0$ (i.e., no mediation occurred) against $\mathcal{H}_1 : ab \neq 0$. Report both a p-value and a Bayes factor and interpret the results of the test.

The data in the file medEx2.csv are designed to test whether self-esteem mediates the relationship between grades (X) and happiness (Y):

- Draw a path diagram for the direct model ($X \xrightarrow{c} Y$) and estimate the total effect c.
- Draw a path diagram for the mediation model ($X \xrightarrow{a} M \xrightarrow{b} Y$) and estimate the effects a and b.
- Use the estimates obtained in parts (a) and (b) to calculate the direct effect c' (i.e., the effect of X on Y after controlling for the mediator M).
- Use Sobel's (1982) method to test the mediation model. That is, test $\mathcal{H}_0 : ab = 0$ (i.e., no mediation occurred) against $\mathcal{H}_1 : ab \neq 0$. Report both a p-value and a Bayes factor and interpret the results of the test.