

# EDS241: Assignment 3

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This exercise asks you to implement some of the techniques presented in Lectures 6-7. The goal is to estimate the causal effect of maternal smoking during pregnancy on infant birth weight using the treatment ignorability assumptions. The data are taken from the National Natality Detail Files, and the extract “SMOKING\_EDS241.csv” is a random sample of all births in Pennsylvania during 1989-1991. Each observation is a mother-infant pair. The key variables are:

**The outcome and treatment variables are:**

- `birthwgt` = birth weight of infant in grams
- `tobacco` = indicator for maternal smoking

**The control variables are:**

- `mage`: mother’s age
- `meduc`: mother’s education
- `mblack`: = 1 if mother is Black
- `alcohol`: =1 if consumed alcohol during pregnancy
- `first`: =1 if first child
- `diabete`: = 1 if mother is diabetic
- `anemia`: =1 if mother anemic