VRIJE UNIVERSITEIT BRUSSEL

Basic math skills requirements for Social Sciences students

Dear prospective student,

This document will help you understand whether your level of math is sufficient to follow statistics courses in the Social Sciences programme.

The required basic math skills are listed below per topic, and are illustrated by means of example exercises ($\triangleright$). These concepts are assumed known and will not be repeated in the courses.

Arithmetic

- Basic operations with real numbers: addition, subtraction, multiplication, division

    $\triangleright$ Compute
    $$2 \cdot (5 + 12 \div 3) \div 3 - 1, \qquad 0.5 \cdot 1.2 - 0.1$$

- Powers and roots: squares and square roots

    $\triangleright$ Compute
    $$\sqrt{10^2}, \qquad \sqrt{2500}, \qquad 1.2^2, \qquad \sqrt{5^2 - 4^2}, \qquad (8.5 - 7.8)^2$$

- Fraction rules: addition, subtraction, multiplication, division, squares and square roots

    $\triangleright$ Simplify the following expressions
    $$3 + \frac{1}{4 + \frac{1}{5}}, \qquad -\frac{2}{3} \div \frac{4}{5} + \frac{3}{7}, \qquad \frac{5}{\left(\frac{3}{2}\right)^2}, \qquad \sqrt{\frac{30^2}{5}}$$

- Percentages: notation and computation

    $\triangleright$ 12% of the 200 students earned a grade of "A" for a given course. How many students earned an "A"?

    $\triangleright$ John is taking his driving exam, which consists of 100 questions. The first time he answers correctly to 50 questions, the second time to 60 questions. How large is the percent increase?

Algebra

- Summation sign: notation and computation

  ▷ Compute

  $$\sum_{i=1}^{5} i, \qquad \sum_{i=0}^{5} \left(1 + 2i - i^2\right)$$

Geometry

- Straight lines: Cartesian equation, slope, intercept

  ▷ Draw the following lines on the Cartesian plane

  $$y = 2x + 3, \qquad y = \frac{-x + 3}{2}$$