The course presents an introduction to the concepts and tools of neutron scattering and its applications to the study of matter. The course provides the key notions of neutron-matter interactions and scattering theory. Differential cross-sections and scattering functions will be introduced for both nuclear (coherent and incoherent) and magnetic scattering. The most important neutron scattering techniques (diffraction, QUENS, INS spectroscopy and polarization analysis) and the corresponding instrumentation will be illustrated, also by using examples and case studies, ranging from magnetism to biophysics. The course aims to provide a critical approach to neutron experiments and the underlying physics phenomena as well as to introduce the fundamentals of neutron scattering data analysis.