

Current computational resources and statistical methods allow the development of descriptive studies, such as the characterization of the genome, proteome, and metabolome of model species or of an individual, as well as the characterization of a pathological or environmental change condition. Such studies are often followed by hypothesis-driven research on a specific gene or molecular mechanism .

These experiments can be performed in different settings – in the laboratory, in the field, or through virtual (digital) modeling. Generally we think of descriptive work as being based on observations, with no manipulation of nature , but if one intends to study a dependent variable, then one changes and/or controls independent variables and observes the consequences . It is desirable to use multiple lines of evidence, obtained by different tests or different fields of study, to evaluate any scientific idea. Therefore, it is important that students understand the distinction between experimental work and descriptive work .and that both types of studies are useful and equally important for the advance of scientific knowledge