

**Program:** The course stems from the concept of “system biology” as related to the complexity of the relationship between environment, with particular concern to diet and nutrition, and human health and disease. More in the detail, the course deals with the role of nutrients and bioactive dietary molecules in the regulation of gene expression allowed by novel “high throughput technologies. The course will also tackle the effects of the genotype variants on the body response to diet and disease risk at individual and population level, providing elementary notions on Bayesian probabilistic approach.

**Aims:** The course will deal with diet-genome interactions and the application of nutritional strategies in health maintenance. Students should become familiar with the concept that external molecules present in our foods can affect human metabolism and gene expression in different cells and tissues. The course will address the utilization of the concept of “system biology” to nutrition.

**Pre-requisites:** Basic knowledge of biochemistry, physiology and molecular biology of intermediate metabolism and nutrients. Basic knowledge of human genetics.

**Evaluation:** The final evaluation will be performed according to an oral test. The student will be asked to address a “nutritional problem” associated to a specific genotype characteristic or to a specific physiological condition. The student is expected to be able to possess the knowledge and the ability to integrate information obtained within the face-to-face lectures. The active participation to lectures will be considered together with the logic underlying the student’s answers, the ability to utilize a proper technical language and the clarity of the speech