

Nutrition, Physiological Regulation and Major Human Diseases**Subject Name:**

Nutrition, Physiological Regulation and Major Human Diseases

Course Type:

Lectures/case studies with personal work

Outline:

Major chronic human diseases such as diabetes and cardiovascular pathologies are characterized by interplay between genetic background and life style with an important nutritional component. In the extreme case derangements may lead to the “metabolic syndrome” with consequences on glucose homeostasis and cardiovascular organs. The recent increase in obesity and nutrition-related disease further underscores the necessity to understand the basis of the impact of nutrition/life style on health.

This course will provide participants with models of normal and altered nutrition homeostasis and paradigms to study their influence in animal models. The course will focus on nutrition signalling, integration, short-term experimental effects and long-term epidemiology, from the point of view of the whole body, organs and down to the cellular and molecular level.

Semester Schedule and Credit:

<u>Subject</u>	<u>Year</u>	<u>Semester</u>	<u>Day/Period</u>	<u>Credit</u>
Nutrition, Physiological Regulation and Major Human Diseases	2	Fall		3

Location:

University of Bordeaux (UB)

Instructor Information:

Prof. J. Lang, Prof. J.P. Savineau, Associated Prof M. Raoux, Associated NN,

General Instructional Objective (GIO):

During this course student will learn about:

- Nutrition sensing, energy repartition and homeostasis
- Basic concepts of molecular, cellular and integrative aspects in nutrition homeostasis and cardiovascular function
- Current animal and cellular models used in such studies
- How to read, understand and integrate corresponding research results
- Explore the field through examples of defined pathologies and molecules which have positive or negative human health benefits as well as therapeutic approaches

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Specific Behavioral Objectives (SBO):

Students will receive

- An integrative view how major vital functions are regulated and how set-points are defined in physiological settings and influenced or changed by nutritional status.
- Information about experimental and therapeutic approaches as well as molecular effects of nutrients and drugs.
- Elementary idea of the genetic landscape that influences the systems

Course Overview/ Schedule:

- 1) Lectures by specialists
- 2) Analysis of published data
- 3) Case studies of selected regulatory circuits in health and disease

Homework:

- At home, students will have to prepare a survey of a major topic. They will have to present as a conference to other students.

Grading Method and Criteria:

Students are evaluated on their attendance to lectures. Each student has to take part in the presentation of one major aspect of the topics discussed, either concerning sensing mechanisms, physiological and pathological adaptation as well as therapeutic intervention (nutritional/drug). Both the clarity and the accuracy of the presentations will be quoted. Each student will also have to answer to precise questions from the audience. The accuracy of their answer will be evaluated.

Textbook/ Referenced Materials: None

Notes: None