| **Module Name** | **Module Code** |
|---|---|
| Nutrigenomics and Nutrigenetics | AEF-el008 |
| **Module Coordinator** | |
| Prof. Dr. Frank Döring | |
| **Organizer** | |
| Institute of Human Nutrition and Food Science - Molecular Prevention | |
| **Faculty** | |
| Faculty of Agricultural and Nutritional Sciences | |
| **Examination Office** | |
| Faculty of Agricultural and Nutritional Sciences - Examination Office | |

| | |
|---|---|
| **ECTS Credits** | 6 |
| **Evaluation** | Graded |
| **Duration** | one semester |
| **Frequency** | Only takes place during winter semesters |
| **Workload per ECTS Credit** | 30 hours |
| **Total Workload** | 180 hours |
| **Contact Time** | 60 hours |
| **Independent Study** | 120 hours |
| **Teaching Language** | English |

| **Recommended Requirements** | | | |
|---|---|---|---|
| Understanding of biochemistry, nutrition physiology, basic knowledge of genetics/molecular biology | | | |
| **Module Courses** | | | |
| **Course Type** | **Course Name** | **Compul-sory/Optional** | **SWS** |
| Lecture | Nutrigenomics and Nutrigenetics lecture | Compulsory | 2 |
| Seminar | Nutrigenomics and Nutrigenetics seminar | Compulsory | 2 |
| **Prerequisits for Admission to the Examination(s)** | | | |
| | | | |

| Examination(s) | | | | |
|---|---|---|---|---|
| **Examination Name** | **Type of Examination** | **Evaluation** | **Compulsory / Optional** | **Weighting** |
| Written Examination: Nutrigenomics and Nutrigenetics | Written Examination | Graded | Compulsory | 100 |

**Further Information on the Examination(s)**

1.+2. period in winter semester
1. period in summer semester

examiner: Prof. Dr. Döring, Dr. Gottschling, Dr. Goele
QIS: 92000 with number 92010 of Examination

**Course Content**

- Principals of Nutrigenomic and Nutrigenetic Underlying principles of human metabolism Principals in genetics Aspects of microRNAs Genotype-phenotype concept with respect to nutrition Reverse and forward genetics in model organisms Basics and applications of developmental biology and neuroscience The meaning of short and long term regulation in human metabolism Research strategies to understand the influence of nutrition on development and neuronal functions

**Learning Outcome**

The students know the principals of Nutrigenetic and Nutrigenomic. Using different research strategies, the students can identify novel genes by using bioinformatics tools in the context of nutritional phenotypes and understand basic mechanisms of developmental biology and neuroscience in the context of nutrition. They understand and applicate classical genetics and model organism. The students are able to analyze information of original papers according to the context of the event and are able to discuss these information critically.

**Reading List**

- Biochemical, Physiological, Molecular Aspects of Human Nutrition. Stipanuk. Saunders Elsevier. 2. . or higher editions. Metabolic regulation, a human perspective; Frayn; Wiley-Blackwell; 3rd. or higher editions Developmental Biology. Gilbert, Barresi. Sinauer Associates. 10th or higher editions. Current literature from the database Pubmed. Teaching material will be presented and provided within the first lecture of the semester

**Additional Information**

unlimited, the arragement of the seminar courses are in the first lesson

| Use | Compulsory / Optional | Semester |
|---|---|---|
| Master, 1-Subject, Agricultural Sciences, Specialisation Agricultural Economics, (Version 2017) | Optional | 1 - 3 |
| Master, 1-Subject, Agricultural Sciences, Specialisation Agricultural Economics, (Version 2013) | Optional | 1 - 3 |
| Master, 1-Subject, Agricultural Sciences, Special. Agricultural Economics and Agribusiness # Specific Field of Study: Agricultural Economics, (Version 2008) | Optional | 1 - 3 |
| Master, 1-Subject, Agricultural Sciences, Special. Agricultural Economics and Agribusiness # Specific Field of Study: Agribusiness, (Version 2008) | Optional | 1 - 3 |
| Master, 1-Subject, Agricultural Sciences, Specialisation Agribusiness, (Version 2017) | Optional | 1 - 3 |
| Master, 1-Subject, Agricultural Sciences, Specialisation Agribusiness, (Version 2013) | Optional | 1 - 3 |
| Master, 1-Subject, Agricultural Sciences, Specialisation Crop Sciences, (Version 2017) | Optional | 1 - 3 |
| Master, 1-Subject, Agricultural Sciences, Specialisation Crop Sciences, (Version 2013) | Optional | 1 - 3 |
| Master, 1-Subject, Agricultural Sciences, Specialisation Crop Sciences, (Version 2008) | Optional | 1 - 3 |
| Master, 1-Subject, Agricultural Sciences, Specialisation Animal Sciences, (Version 2017) | Optional | 1 - 3 |
| Master, 1-Subject, Agricultural Sciences, Specialisation Animal Sciences, (Version 2013) | Optional | 1 - 3 |
| Master, 1-Subject, Agricultural Sciences, Specialisation Animal Sciences, (Version 2008) | Optional | 1 - 3 |
| Master, 1-Subject, Agricultural Sciences, Specialisation Environmental Sciences, (Version 2017) | Optional | 1 - 3 |
| Master, 1-Subject, Agricultural Sciences, Specialisation Environmental Sciences, (Version 2013) | Optional | 1 - 3 |
| Master, 1-Subject, Agricultural Sciences, Specialisation Environmental Sciences, (Version 2008) | Optional | 1 - 3 |
| Master, 1-Subject, AgriGenomics, (Version 2017) | Optional | 1 - 3 |
| Master, 1-Subject, AgriGenomics, (Version 2010) | Optional | 1 - 3 |
| Master, 1-Subject, Biology, (Version 2011) | Optional | 1 - 3 |
| Master, 1-Subject, Biology, (Version 2007) | Optional | 1 - 3 |
| Master, 1-Subject, Dairy Science, (Version 2017) | Optional | 1 - 3 |
| Master, 1-Subject, Nutritional and Food Science, (Version 2013) | Optional | 1 - 3 |
| Master, 1-Subject, Nutritional and Consumer Economics, (Version 2017) | Optional | 1 - 3 |
| Master, 1-Subject, Nutritional and Consumer Economics, (Version 2013) | Optional | 1 - 3 |
| Master, 1-Subject, Nutritional Sciences and Household Economics, Specialisation Nutritional and Consumer Economics, (Version 2008) | Optional | 1 - 3 |
| Master, 1-Subject, Nutritional Sciences and Household Econo- | Optional | 1 - 3 |