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| **DATES** | **CONTENT** |
| **February** |
|  | **Module 1: Introduction to Cellular and Molecular Biology (2h)** |
| 2025/02/06 | * 1. Overview of eukaryotic cell structure and function
	2. Cellular processes (cell cycle, DNA replication, transcription, translation)
 |
| 2025/02/13 | * 1. Basics of molecular biology and genetics: Epigenetic modifications (DNA methylation, histone modifications, and non-coding-RNAs)
 |
| **Module 2: Nutrigenetics and Nutrigenomics (1h)** |
| 2025/02/20 | * 1. Basics of Nutrigenetics and Nutrigenomics
	2. Gene-nutrient interactions (nutrient-induced epigenetic changes)
 |
| **Module 3: Molecular basis of chronic diseases. Signaling pathways and related key factors (2h)** |
| 2025/02/27 | * 1. Overview of chronic diseases
	2. Inflammation and Chronic Diseases
 |
| **March** |
|  | 2025/03/06 | * 1. Oxidative Stress and Cellular Damage. The key role of the mitochondria
	2. Apoptosis and Cell Proliferation in Disease Progression
 |
| **Module 4: Properties and applications of Bioactive compounds in chronic diseases (4h)** |
| 2025/03/13 | * 1. Bioactive compounds: Definition, classification, and bioavailability
 |
| 2025/03/20 | * 1. Impact of bioactive compounds on cell signaling. Modulation of inflammatory pathways
 |
| 2025/03/27 | * 1. Bioactive compounds and metabolic diseases
	2. Bioactive compounds and cardiovascular disorders
 |
| **April** |
|  | 2025/04/03 | * 1. Bioactive compounds and neurodegenerative diseases
	2. Bioactive compounds and cancer
 |
| **Module 5: Cellular and molecular laboratory methodologies (3h)** |
| 2025/04/10 | * 1. Cell culture
	2. Animal models
 |
| **May** |
|  | 2025/05/08 | * 1. Analysis of cell cycle
	2. Mitochondrial metabolism
 |
| 2025/05/15 | * 1. Methods for gene expression and small non-coding RNAs evaluation
	2. Methods for Protein Expression assessment
 |

**PhD in Food Sciences and Human Health - Cellular and Molecular Biology Coursework**

**Every Thursday at 12:00 AM**

**Link per partecipare**

**https://teams.microsoft.com/l/meetup-join/19%3ajuHBb2f5uOehadW2YSf9KNq0zpWZDXCCWKPH02uqq301%40thread.tacv2/1737990551337?context=%7b%22Tid%22%3a%22117b418d-fb21-416f-a85f-1e9ff725bf2c%22%2c%22Oid%22%3a%22826be601-9d19-4587-b882-fc9af563c1a8%22%7d**