SEMESTER I

LSM4216 - MOLECULAR NUTRITION AND METABOLIC BIOLOGY

Prerequisite: LSM2101 Metabolism and Regulation and LSM2102 Molecular Biology
Workload: 22 lecture hours + 16 Journal Discussions + 0 Field Work/Visits + 10 hours (tutorials/student assignments/CAs)
Nutrients are essential for sustenance. Nutrients and metabolites have a deep impact on cellular response and adaptation at the genetic, epigenetic and signaling level and vice versa. Nutrients also has an effect on intestinal microbiota, which in turn alters the absorption and utilization of nutrients. This module will cover interactions between nutrients and genes, epigenetics, cell signaling and microbiota. Molecular approaches to conduct nutrition related research would be discussed.

S/N	Topics	Lectures (2 hours each)
1	Nutrient sensing and metabolic signaling Nutrient signaling in health and disease Nutrient sensing, metabolic signaling and energy homeostasis Nutrient-gene interactions and metabolic adaptations	3
2	Nutrition and Epigenetics Nutrients and metabolism in epigenetic processes Molecular approaches to study nutrition and epigenetics	2
3	Nutrition and Omics Omics approaches to identify biomarkers in health and disease Metabolites and nutrients Analysis of small molecules which provide distinct properties to different diets	3
4	Nutrition and Microbiota Gut bacteria (Microbiota) and its functions in the host Effects of nutrition on gut bacteria Microbiota and host metabolism Microbiome profiling by next-generation sequencing	3
		Total Lectures: 22h
		Journal Discussion: 16h
		Field Work/Visits: 0h
		Tutorials/Student Assignments/CAs: 10h
	Total hours:	48 h

TEXT BOOKS (Main References): NA

MODE OF ASSESSMENT:
CA (40%), Exam (40%), Journal Club Presentation (20%). More information on Journal Club will be available in IVLE and during the 1st lecture.

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