UNIVERSITÄT
BAYREUTH

General Overview of English-taught courses at the University of Bayreuth

Available during the Summer Semester 2023

An overview for the winter semester 2023/24 is expected to be available as of 01.10.2023

Faculty of Life Sciences: Food, Nutrition and Health

Number	Course Title	Type	ECTS / Credits	Duration	Module Description
70083	Food Safety and Risk Management Law	L	5	2	The purpose of the course is to provide students with a well-rounded and interdisciplinary understanding of the legal and theoretical frameworks governing food safety and food safety-related risk management in the EU, illustrated by examples of its implementation in real-life situations. The main topics include: the General Food Law and its most relevant provisions, the legal framework of food information within the EU (including labeling aspects and nutrition and health claims), and diverse additional EU food regulations on relevant topics, such as novel foods, GMOs, food contact materials, foods for specific groups, supplements, additives,
70084	Food Safety and Risk Management Law Tutorial	Tu	5	2	The purpose of the course is to provide students with a well-rounded and interdisciplinary understanding of the legal and theoretical frameworks governing food safety and food safety-related risk management in the EU, illustrated by examples of its implementation in real-life situations. The main topics include: the General Food Law and its most relevant provisions, the legal framework of food information within the EU (including labeling aspects and nutrition and health claims), and diverse additional EU food regulations on relevant topics, such as novel foods, GMOs, food contact materials, foods for specific groups, supplements, additives,
70115	Food Sociology (Thesis Writers)	Cq		2	In this colloquium, students get the possibility to present and discuss their state of master's theses, e.g., their theoretical approaches, their chosen (empirical) methods, data, results as well as their depiction of results. In order to do so, students learn in advance, how to give each other constructive feedback. In addition, depending on the students' needs, appropriate input by the docent is given to accompany in their projects. The topic of the inputs can be: ■ how to start research (research question, analysis of the state of research, planning the (empirical) phases of one's research), ■ how to carry out (data) collection, data processing and analysis (with software), • how to present data in a suitable and appropriate way, and/or ■ how to find and develop the own writing skills.
70186	Global Political Economy of Food	L	6	2	This lecture introduces students to the global political economy of food and nutrition. We learn about the global actors and institutions that govern the world food system and thus shape the prospects of providing the entire planet with a secure and sustainable supply of safe and healthy food. We learn about the most important actors and institutions of global food governance, including international organizations such as the Food and Agricultural Organization (FAO), transnational agri-food corporations such as Monsanto, philanthrocapitalist charities such as the Gates Foundation, the World Trade Organization (WTO), as well as transnational social movements like Vía Campesina.
70386	Introduction to Excel for Scientific and Business Applications	S	4-8	2	In this course you will learn how to: ■ Skillfully operate and manipulate worksheets and workbooks ■ Implement various formulas, functions, and conditional formatting to identify and analyze different data ■ Import, edit, and clean data from various external sources ■ Describe, show, and summarize the main characteristics of datasets using statistical analysis ■ Analyze data using PivotTables and PivotCharts and create dashboards ■ Visualize summarized data using interactive charts ■ Perform various what-if analyses using Excel Solver
70498	Food Security and Development	S	5	2	The Political Economy of Development; Food Security Governance in the Global South
70500	Food Security in Africa	S	5	2	This seminar aims to introduce students to food security issues in Africa. The seminar will begin by providing students with broad insights into the food security situation in Africa as well as an understanding of specific metrics used in determining food security levels. This will be followed by an exposition of core food policy issues on the continent which will be centered on: Poverty; The African farmer; The African woman farmer; Conflict; The land question and Food safety. Other food security issues that will be addressed in the seminar include: The right to food; Culture and food security; The African green revolution; Culture and food security; and Drivers of food choice.
70643	Research Strategies and Methods: Qualitative Research Methods	L	5	2	Module course: Qualitative Social Science Research Methods (Bartelmeß) • Research paradigms and designs in social sciences • Qualitative research methods (interviews, focus groups, participant observation, document analysis) • Analysing and reporting qualitative data
70644	Research Strategies and Methods: Quantitative Research Methods	S		2	Qualitative, quantitative and mixed methods research paradigms Planning studies for social and behavioural research Qualitative research methods (interviews, focus groups, participant observation, document analysis) Analysing and reporting qualitative data Quantitative research methods (questionnaires, dietary records, dietary recalls, smartphone-and sensor-based assessments, experimental approaches) Descriptively analysing and reporting quantitative data

Faculty of Life Sciences: Food, Nutrition and Health

Number	Course Title	Type	ECTS / Credits	Duration	Module Description
70646	Food Quality and Food Authenticity Law	S	4	2	The course offers students an introduction to key topics of food quality and food authenticity, in particular on labeling. The course is based on a research-based learning methodology and requires students to conduct small research projects under the guidance of the tutors. Guest lecturers will be involved and excursions might take place.
70648	Chemical Food Analysis	L	6	2	
70649	Nutrition Physiology and Immunology	L	6	2	Anatomy and function of the gastrointestinal tract; Digestion of macronutrients; Regulation of energy metabolism; Role of macro- and micronutrients in human nutrition; Malnutrition: pathogenesis of under-nutrition and overnutrition; Control of food intake and sensory biology; Organization and functions of the immune system; Practical lab work with methods in (molecular) physiology
70650	Food Supply Chain Management	L	5	2	The course tackles: Introduction to food supply chains; Supply chain drivers and metrics; Supply chain network designs; Demand forecasting; Aggregated planning; Supply chain coordination; Uncertainty in food supply chains
70651	Food Supply Chain Management	E	5	2	
70654	Chemical Food Analysis	PT	6	2	
70655	Nutrition Physiology and Immunology	PT	6	2	Practical lab work with methods in (molecular) physiology
70656	Food Quality Management	L	5	2	The course tackles: Introduction to food quality management; Continuous improvement cycles; Process modelling; Statistical process control; Lean management; Risk management; HACCP and GMP
70657	Food Quality Management	E	5	2	The course tackles: Introduction to food quality management; Continuous improvement cycles; Process modelling; Statistical process control; Lean management; Risk management; HACCP and GMP
70658	Food Metabolome and Toxicology	PT	6	2	Profound knowledge in food chemistry, including macro and minor components, minerals, trace elements, vitamins and phytochemicals; Basic knowledge about residues and contaminants; Toxicological effects, critical values including supporting examples; Basic principles of the metabolism of xenobiotics (ADME - Absorption, Distribution, Metabolismus und Elimination)Seminar and lab work; Basic knowledge analysis of the food metabolome; Basic principles for testing procedures
70660	Food Metabolome and Toxicology	S	6	2	
70663	Food, Health and Climate Communication	S	5	2	Climate change communication research: theories, strategies, approaches; factors that influence public understanding of climate change; food, nutrition, and health in the context of climate change; innovative climate change communication approaches and strategies
70695	Seminar in Big Data for Healthcare	S	3	2	This seminar course is designed to provide students with an advanced understanding of big data and its application in healthcare. This course will cover both, theoretical and practical aspects of big data analysis, including data management, data mining, machine learning and visualizatiin techniques. Students will explore various healthcare datasets and learn how to extract meaningful insights from them.
70699	Research Seminar for Digital Health & Data Science	S	3	2	This course is designed to provide students with an advanced understanding of digital health and data science research. The course will cover the latest research trends in digital health and data science, including wearable devices, mobile health applications, machine learning, and big data analytics. The course will cover the state-of-the-art methods in the field beyond code snippets and formal mathematical analysis, and expand the focus beyond learning of textbooks such as of journals and academic conferences. Students will learn how to critically evaluate and conduct research in digital health and data science by reviewing and discussing relevant research papers, presenting their own research ideas, and participating in group discussions. The course will also provide opportunities for students to interact with leading researchers and practitioners in the field.
70719	Food Metabolome and Toxicology	L	6	2	Profound knowledge in food chemistry, including macro and minor components, minerals, trace elements, vitamins and phytochemicals • Basic knowledge about residues and contaminants • Toxicological effects, critical values including supporting examples • Basic principles of the metabolism of xenobiotics (ADME – Absorption, Distribution, Metabolismus und Elimination)
70746	Components and Production of Plant and Animal Foods	L	5	2	
70747	Components and Production of Plant and Animal Foods	S	5	2	

Faculty of Life Sciences: Food, Nutrition and Health

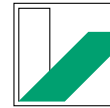| Number	Course Title	Type	ECTS / Credits	Duration	Module Description
70768	Human Interfacing and Healthcare Robotics	L		2	**Week 1: Introduction to human interfacing and healthcare robotics** Overview of human interfacing and applications, Historical and current perspectives on healthcare robotics **Week 2-3: Sensing and perceptions for healthcare robotics** Biosensors and sensing modalities (Motion capture, IMU, EMG, EEG); Time series analysis and forecasting; Fourier analysis and digital signal processing **Week 4: Filtering techniques for biosignals** Time and Frequency domain of filters; Linear continuous-time filters, Wiener filter, Kalman filter **Week 5-6: Human Anatomy and Physiology** Anatomy and physiology of the human body; Sensorimotor control and motor learning; Neural interfaces and brain-computer interfaces **Week 7-8: Kinematic Manipulations of surgical robots** Kinematic Design and Modeling for Robotic Surgery (Minimal Invasive Surgery); Remote Centre-of-Motion Mechanism for Laparoscopic Surgery; Optimum Path Planning and Obstacle avoidance in robotic surgery **Week 9: Control and vision of surgical robots** Dynamic analysis and control for robotic surgery; Image segmentation, clustering, and classification techniques; Stereovision and 3D reconstruction **Week 10: Kinematic and Dynamic analysis for Rehabilitation Robots** Kinematic design of upper and lower limb rehabilitation robots; Dynamic Manipulations for upper and lower limb rehabilitation robots **Week 11-12: Human-Robot Cooperative Control for Movement Restoration** Gait trajectory tracking control; Human-in-the-loop impednace and admittance control **Week 13: Robot Learning and Adaptation** Introduction to robot learning and adaptation; Robot reinforcement learning; Robot imitation learning **Week 14: Ethics and safety in human-robot interaction** Overview of ethical considerations in human-robot interaction; Safety concerns and standards in human-robot interaction; Design considerations for ensuring safe and ethical human-robot interaction This lecture series will be complemented with hands-on lab sessions and project assignments to give students practical experience in designing and implementing human-robot interfaces.
70770	Wearable Technology for Health and Wellbeing	S		2	Big data represent one of the cornerstones of the current Digital Revolution era. The ability to store and analyse highly complex and large data led to many marvellous advancements in many fields, including Healthcare, Life Science and Transportation.
70776	Method Seminar for Bachelor and Master Students	S	3	2	
70783	2nd Year: Exercise re. Big Data (LV-No. 70394)	E		2	
70694	Seminar for Bachelor and Master Students in Brain-Computer Interfaces	S	3	2	This seminar course will provide students with a comprehensive introduction to the field of Brain-Computer Interfaces (BCIs). BCIs are an emerging technology that allow for communication between the human brain and a computer or other digital devices. BCIs have a wide range of potential applications, including assistive technology for people with disabilities, neuroprosthetics, and even human augmentation. The course will cover a variety of topics related to BCIs, including the underlying neurophysiology of the brain, the different types of BCIs and their technical specifications, novel algorithms applied in the field, as well as the ethical and social implications of this technology. Additionally, students will have the opportunity to explore the current state of the art in BCI research, including the latest developments in neural decoding, signal processing, and machine learning. Students are expected to lead at least one seminar in the area of BCIs. They should explain the methods and results of a research article in detail and present the background and discussion of a research article as appropriate for the seminar discussion. The presenter will receive feedback from their peers and the lecturer. Moreover, it is expected that all students actively participate in the discussions by asking questions to the speakers. The seminar provides a safe environment for students to practice communication skills, critical thinking, and collaboration

Key/Abbreviations:

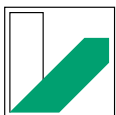|			
Cq	Colloquium	PT	Practical Training
E	Exercise	S	Seminar
ECTS	Credit Points	Tu	Tutorial
L	Lecture		

Please check availability of your chosen subject/course by contacting the respective faculty.

You can find contact details at **www.uni-bayreuth.de/en/study**

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