CIMCYC International Doctoral Summer School: Neuroscience of Eating Behavior and Excess Weight

Date: 2-6 of June 2025
CIMCYC https://cimcyc.ugr.es/en
University of Granada, Granada, Spain

Brief description

This International Doctoral Summer School is a five-day event in which leading academics will address the most current lines of research focused on the characterisation and intervention with overweight people. Neuroscience has become an emerging area in the field of overweight and obesity for its contributions to the understanding of the processes involved in its multi-causal aetiology and intervention proposals to contain its current epidemic character. The limited effectiveness of traditional interventions has prompted the study of the cognitive mechanisms involved in overeating and unhealthy lifestyles. The summer school aims to contribute to improve the training of PhD students through recent findings from different areas (brain systems, cognition, physiology, behaviour, lifestyles, genetics and nutrition) provided from an integrative point of view to extend research on overweight towards new interventions based on multidisciplinary collaborations. The theme of this Summer School is of interest to PhD students from diverse backgrounds, covering Psychology, Medicine, Sports Science, Nutrition, Biology and Computer Science. This interdisciplinary approach enriches the learning experience and fosters a comprehensive understanding of the field. In addition, candidates will be offered unique opportunities for professional and personal development, primarily because of the integrative nature of the topics covered.

A series of lectures by leading experts in the field will lay the foundation for understanding and critically examining various findings in the neuroscience of excess weight.

Keynote speakers

Keynote speech: **Antonio Verdejo-García** (University of Monash) whose research explores the cognitive and neural mechanisms underlying obesity, particularly focusing on how brain alterations influence eating behaviors and decision-making (Impaired Self-Regulation and Reward Processing, Neural Responses to Food Stimuli, Cognitive Flexibility and Impulsivity; neuroscience-informed strategies of intervention).

Oren Contreras-Rodríguez (Universidad Autónoma de Barcelona, Spain) is working on how obesity affects functional brain connectivity, particularly involving reward and decision-making regions. Her findings about changes in hypothalamic and insular networks have been implicated in impaired weight regulation and food cravings. Also, these structural and functional brain changes might relate to behavioral and cognitive challenges in weight management and have potential role in future obesity management strategies.

Luis Javier Martínez-González (Centro Pfizer-Universidad de *Granada*-Junta de Andalucía de Genómica e Investigación Oncológica, *Granada*, GENYO). His research intersects obesity with microbiota, omics, and genetics, particularly exploring the links between diet, gut microbiota composition, and metabolic health. His studies leverage advanced methodologies to understand how dietary patterns, such as ultra-processed food (UPF) consumption, influence the gut microbiome and their implications for obesity and related disorders.

María Jesús Álvarez-Cubero (Departamento de Bioquímica y Biología Molecular e Inmunología, University of Granada). She has extensive expertise in forensic genetics, biomedicine, and oncology. His field of study pays special attention to biomarkers of obesity.

Concepción Aguilera García (Department of Biochemistry and Molecular Biology at the University of Granada & Vice President of the Spanish Society of Nutrition). She conducts studies using omics analyses (genetics, epigenetics, and metabolomics) to identify new molecular mechanisms underlying metabolic disorders associated with childhood obesity.

Ana Rivas Velasco (Department of Nutrition and Bromatology, University of Granada & President of the Scientific Committee of the Spanish Agency for Food Safety and Nutrition). She investigates the different routes of human exposure to endocrine disruptors in obesity.

Cassandra Lowe (University of Exeter, UK) examines the cognitive and neural factors that increase vulnerability to overeating and dysregulated eating behaviours. Her work focuses on understanding the how the prefrontal cortex and associated cognitive processes (i.e., executive functions, reward-based decision making) help individuals regulate "junk food" consumption and the use of exercise.

Uku Vainik (University of Tartu, Estonia & Montreal Neurological Institute, Canada). His research focuses on the psychological and genetic factors contributing to obesity and overeating. His work bridges the fields of personality psychology, cognition, and genomics. Using large-scale studies, he found robust links between obesity and traits like impulsivity and poor self-control, which overlap with those observed in addiction-related behaviors.

Other speakers are PhD students & researchers from:

PNinsula research group in Neuropsychology and Psychoneuroimmunology https://www.pninsula.es
Researchers in Neurocognitive interventions within the projects *Program for the comprehensive neurocognitive treatment of obesity; Inhibitory control training and transcranial magnetic stimulation for the treatment of overweight: behavioural and brain changes; & Transcranial magnetic stimulation and inhibitory control training to reduce binge eating: behavioural and brain changes*

EXPODIET research group in Endocrine Disruptors http://expodiet.ugr.es
Researchers in *Dietary Exposure to Environmental Contaminants*

BIOMARKS research group
https://produccioncientifica.ugr.es/grupos/23295/proyectos
Researchers in *Search for molecular biomarkers associated with genetically based diseases*.

Collaborative work sessions

In addition to the lectures, a key component of this Summer School will be collaborative group work. Students will be organized into small groups to foster interdisciplinary dialogue and teamwork. Within these groups, participants will apply the concepts and methods discussed in the lectures to develop their own research ideas or projects. These projects will specifically focus on cutting-edge approaches like appropriate and valid assessment measures to understand and propose individualized interventions based on brain-behaviour relationships. This hands-on experience not only encourages practical application of theoretical knowledge but also provides a platform for students to innovate and explore new horizons in the study of excess weight. In the last networking session, students will showcase their ideas, receive feedback from peers and experts, and refine their approach to researching this complex and fascinating field.
Importantly, this summer school aims at conveying ideas and techniques to build the grounds for excellent and timely research profiles, following open science and FAIR principles. As a complement, this Summer School aims to create a diverse and friendly context where early-career researchers can interact and build networks with renowned experts. Thus, this initiative constitutes a highly stimulating learning experience with great value to the students' future careers.

Given the different backgrounds of the students and in order to maximise learning, all students will be provided in advance with the essential material that each speaker feels will help to avoid any gaps in basic knowledge on which to build.

Schedule

Social programme

At the end of each day, participants will have the opportunity to join a daily social program designed to foster meaningful connections between students and speakers. These evening outings will include group visits to some of the most iconic and culturally rich locations in the city, providing a relaxed and engaging atmosphere to network, exchange ideas, and enjoy the local surroundings. This shared leisure time will also include informal activities with attendees of the scientific symposium held at the CIMCYC on the final day of the summer school, creating a unique space for interdisciplinary dialogue and collaboration.

Registrations

Free registration https://trainep.ugr.es/cimcyc-international-summer-school/

Enrollment is limited to 20 spots, apply now

Five travel grants of 150€

Organizing committee

- Antonio Verdejo García. Turner Institute for Brain and Mental Health. University of Monash. Melbourne. Australia.
- Natalia Lawrence. Global Systems Institute. University of Exeter, United Kingdom.
- Miguel Pérez García. CIMCYC Mind, Brain and Behavior Research Center, Department of Personality, Evaluation and Psychological Treatment, Faculty of Psychology, Universidad de Granada.
- Raquel Vilar López. CIMCYC Mind, Brain and Behavior Research Center, Department of Personality, Evaluation and Psychological Treatment, Faculty of Psychology, Universidad de Granada.
- Alfonso Caracuel Romero. CIMCYC Mind, Brain and Behavior Research Center, Department of Developmental and Educational Psychology, Faculty of Psychology, Universidad de Granada
- María Jesús Álvarez Cubero. Department of Biochemistry and Molecular Biology III and Immunology, Faculty of Medicine. Universidad de Granada
- Technical Secretariat: Marta Becerra Losada, Andrea Bernat Villena, Luz Stella Algarra López y Francisco Javier Pérez Comino. CIMCYC Mind, Brain and Behavior Research Center.