# Specialist module with workshop: Cognitive and neurocognitive enhancement for well-being in sports

## Prof. Laura Angioletti

***COURSE AIMS AND INTENDED LEARNING OUTCOMES***

*Course aims*

The course aims to offer a theoretical overview and an occasion to experiment the main techniques and protocols for cognitive and neurocognitive enhancement, as well as the promotion of well-being in the field of sports.

Beside an in-depth analysis of the theoretical knowledge necessary to design intervention protocols in the field of sports, the course will provide experiential learning opportunities based on the exemplification of *case studies*,and practical activities focused on the use of cognitive strategies, mind-body intervention techniques, and tools belonging to the field of cognitive neuroscience.

*Intended Learning Outcomes*

At the end of the course, students will be able to

* know the general principles at the basis of this method and the main cognitive and neurocognitive techniques for enhancement in sports,
* carry out a critical reflection on the potential and the limits of the different techniques,
* select the most functional intervention plan for a given context of application and for a specific target population,
* implement in a person-oriented working plan the techniques they have selected, starting from a phase of assessment and definition of the functional and cognitive-emotional profile of the athlete,
* structure a project idea and put it into practice through an innovative intervention proposal.

***COURSE CONTENT***

The course content will be divided into the two following modules.

Module 1 – Foundations

Module 1 will carry out an in-depth analysis of the neural basis and the neurocognitive mechanisms related to the *anticipation*, *observation*, and *execution of motor action in sports*, (physical and observational) *motor learning*, and the role of *higher cognitive functions* in sports. In addition, it will offer an overview of the application of the neuroscientific tools applied *on-the-Playing-Field* in sports.

Module 2 – Applications

Module 2 will be specifically focused on the cognitive strategies for the enhancement of motor performances through the *observation of the action*, *motor imagery*, *respiration*, and *psych up* techniques. Furthermore, it will explore the use of neuroscientific *wearable devices* (such as biofeedback and neurofeedback) applied in the field of sports, in both the assessment and intervention phase. Finally, it will analyse the planning of physical activity for the promotion of well-being aimed at the cognitive enhancement of specific clinical populations.

***READING LIST***

Carlstedt, R. A., Balconi M. (2018). *Handbook of Sport Neuroscience and Psychophysiology.* Routledge Handbooks Online. ISBN: 9781138852181

The chapters for an in-depth analysis of the topics explained during the workshop will be indicated in class.

***TEACHING METHOD***

The acquisition of the intended learning outcomes for this course will be promoted through frontal lectures, group discussions, and practical activities focused on cognitive techniques and neuroscientific tools for neurocognitive enhancement. In particular, the course will be focused on experiential learning and practical activities.

***ASSESSMENT METHOD AND CRITERIA***

The assessment of the achievement of the theoretical and practical learning outcomes will be based on the individual writing of a paper focused on an intervention project idea aimed at the promotion of well-being in the field of sports. At the end of the course, students will be asked to make an oral presentation to explain and discuss, from a critical perspective, their intervention project.

The final mark (approved/not approved) will be based on the students’ ability to create a structured and coherent argumentation for their project, the feasibility of their proposal, the appropriate use of specific terminology, the relevance of the cognitive and neurocognitive techniques they have selected, and the ability to present their project idea in a clear and concise way.

***NOTES AND PREREQUISITES***

*Prerequisites*

 Students should have a basic knowledge of the models and tools of cognitive neuroscience and well-being. Furthermore, they will be allowed to contact the lecturer in order to get further information on the reading list, according to their needs.

In case the current Covid-19 health emergency does not allow frontal teaching, remote teaching will be carried out following procedures that will be promptly notified to students.

Further information can be found on the lecturer's webpage at http://docenti.unicatt.it/web/searchByName.do?language=ENG or on the Faculty notice board.