

**UE 1.3. Disciplinaire thématique**

**12 ECTS**

**EC3 : Behavioral Neuroscience**

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**Résumé**

This teaching unit offers a specific training allowing the acquisition of integrative skills in behavioral neuroscience, a specialized field devoted to the analysis of biological processes that underlie cognitive and emotional components of normal and abnormal behaviors (e.g. learning, memory, motivated behaviors, sleep and behavioral rhythms, cognition, aging and emotional states).

**Objectifs pédagogiques :**

To obtain theoretical knowledge in different dimensions of behavior related to normal and pathological expressions of cognition, emotion and action. To acquire procedures in order to use stimulations, protocols and new techniques allowing to explore new components of normal behavior and to regulate behavioral disorders (mental health, addictions, etc).

**Bloc de Compétences et de Connaissances-BCC 1 : Connaitre les concepts de base en Biologie Santé**

**Compétences acquises** (directes/indirectes) :

Cet enseignement contribue à fournir les compétences pour contribuer à une activité de recherche en Biologie-Santé (BC1), en préparant les étudiants à :

- cerner les enjeux de la recherche en Biologie-Santé ;
- organiser une veille bibliographique de la littérature scientifique internationale ;
- fonder des hypothèses sur les concepts les plus récents en recherche Biologie-Santé.

This unit will give the students large and pragmatic competences needed for future work on behavioral, mental and physical health activities; competences will be related to pharmacological, neurobehavioral (deep neurostimulation, transcranial magnetic stimulation, neurofeedback) and cognitive knowledge and behavioral therapies.

**Prérequis :**

Theoretical and experimental knowledge and skills in the physiology, the neurophysiology and the pharmacology fields. To be interested by the experimental analysis of behavior and related consequences in psychiatric, neurological and behavioral disorders. In addition, students need to know how to deal with the analysis and the integration of recent scientific papers; in this frame, they also need to have good oral expression skills in order to discuss inside the class innovative data and strategies, mainly devoted to remediate behaviors associated with brain pathologies.

**Program in brief:**

Theoretical and methodological training will bring qualified information about genetics, epigenetics, neuronal, pharmacological and endocrine bases of cognitive functions and affective and motivated states. Data obtained in human and non-human animals, from brain lesions, and from neurodevelopmental and neurodegenerative states, will be analyzed in order to understand functional models of psychiatric, neurological and behavioral disorders (dementia, Parkinson's disease, clinical depression, schizophrenia, epilepsy, autism, anxiety, drug abuse, post-traumatic stress).

Teaching will be organized in six main topics: Behavior: theories and applications (6 h courses + 2 h tutorials)/ Genetics and epigenetics of behavior (2 h courses + 2 h tutorials)/ Neuroendocrine regulation of behavior (2 h courses + 2 h tutorials)/ Neurodynamics of cognition and emotion (10 h courses + 2 h tutorials)/ Psychopharmacology of behavioral addictions (6 h courses + 2 h tutorials)/ Brain disorders: from animal models to clinical applications (4 h courses).

**Contrôle des connaissances :** contrôle continu 30% - terminal écrit 70%