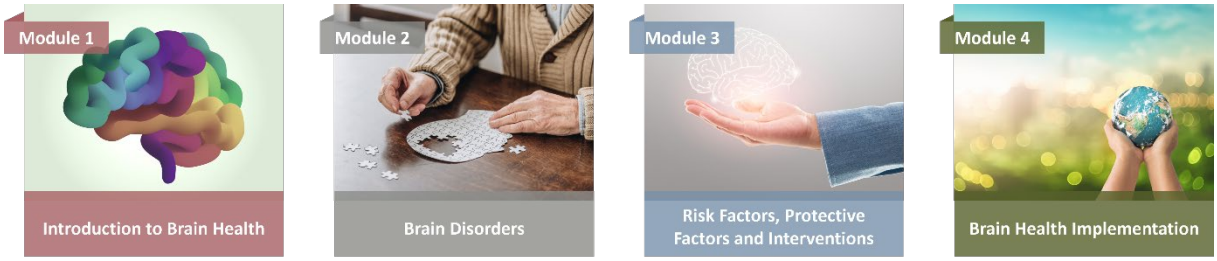
Programme overview

The Certificate of Advanced Studies in Brain Health at the University of Bern focuses on equipping professionals with advanced skills in promoting brain health at both the individual and societal level.

With more than 100 lectures across four modules, **1) Introduction to Brain Health; 2) Brain Disorders; 3) Risk Factors, Protective Factors and Interventions and 4) Brain Health Implementation**, the programme addresses neurological and mental health challenges through preventive strategies, while enhancing expertise in the healthcare sector.



Goals of the course: The participants

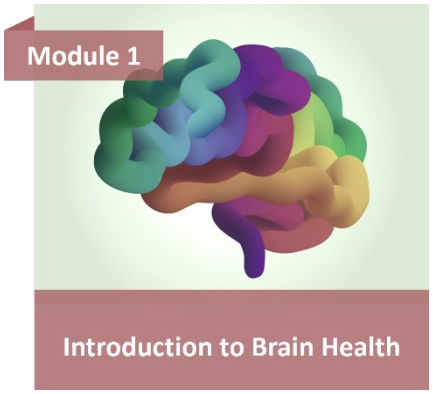
- understand the determinants of brain health, including physical, psychological and social factors, and can analyse their effects on brain function
- develop a sound knowledge of various brain diseases and disorders in order to understand and apply diagnostic, preventive and treatment strategies
- learn intervention techniques and strategies to promote brain health and can apply these to support patients' cognitive abilities and well-being
- develop individualised action plans for improving brain health based on the knowledge and skills learnt to bring about sustainable changes in quality of life

Target group

The program is open to doctors (with or without specialization), general practitioners, psychologists and neuropsychologists, sport and health scientists, nurses, therapists, healthcare providers, public health specialists, engineers, and other professionals working in health-related fields, as well as individuals with a strong interest in the topic.

Teaching structure

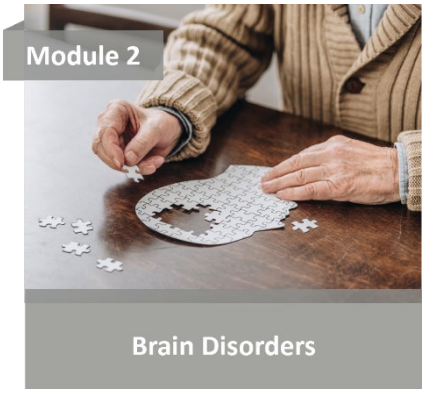
The program combines weekly live online sessions with a rich collection of recorded lectures, all accessible through a modern interactive learning platform. In addition, a two-day on-site event in Bern provides opportunities for exchange and networking. For those unable to attend in person, the event is offered in a hybrid format.



Module 1 introduces the brain, its structure, and its core functions, while presenting the concept of brain health. Students will explore key determinants of brain health and learn essential concepts of anatomy and physiology. The module highlights how the brain interacts with the body and environment, covering sleep, memory, emotion, decision-making, and cognition, as well as connections with the heart, muscles, gut, and hormones. Broader themes such as neuroplasticity, aging, genetics, environment, and One Health provide a solid foundation for the following modules.

Lecture overview

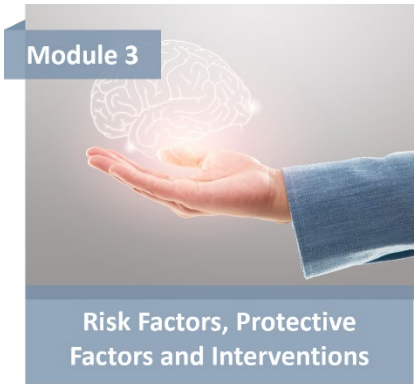
1. What is Brain Health?
2. Brain evolution from an anthropological perspective
3. Brain anatomy
4. Sleep and wakefulness
5. Learning and memory
6. Emotional system
7. Executive Functions: Decision-Making and Problem-Solving
8. Attention and Cognitive Control
9. Autonomic system
10. Brain-Heart interactions
11. Brain-Muscle interactions
12. Brain-Gut interactions
13. Brain-Hormone interactions
14. Sex and gender differences in neurological and psychiatric illnesses
15. Sensory Processing Sensitivity (SPS)
16. Neuroplasticity - use it or lose it
17. The aging brain: Plasticity and Cognitive Reserve
18. Immunosenescence
19. Genetic epidemiology
20. What is environment?
21. Developmental origin of health and disease (DOHaD)
22. Exposome
23. One Health



Module 2 focuses on major brain disorders, covering both neurological and psychiatric conditions. Students will learn about stroke, dementia, Parkinson's disease, epilepsy, traumatic brain injury, sleep disorders, and headaches, alongside mental health conditions such as depression, anxiety, bipolar and psychotic disorders, and developmental disorders. The module highlights symptoms, risk factors, and prevention, and also introduces emerging conditions like chronic traumatic encephalopathy and functional neurological disorders.

Lecture overview

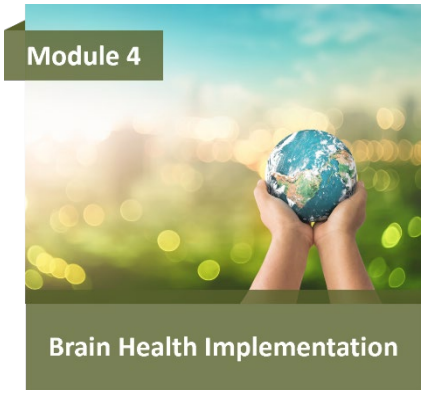
1. Traumatic brain injury (TBI)
2. Chronic traumatic encephalopathy (CTE)
3. Stroke
4. Neurodegenerative disorders
5. Epilepsy
6. Gait disorders and falling
7. Parkinson's disease
8. Autoimmune disorders
9. Neuropediatric disorders
10. Sleep disorders
11. Headache Disorders
12. Functional Neurological Disorders (FND)
13. Developmental disorders
14. Depression
15. Myalgic encephalomyelitis / Chronic fatigue syndrome
16. Bipolar disorders
17. Adjustment disorders
18. Posttraumatic stress disorder
19. Substance abuse
20. Obesity and eating disorders
21. ADHD / ADD in children and adolescents
22. Anxiety
23. Obsessive compulsive disorder (OCD)
24. Autism Spectrum disorder (ASD) and ADHD
25. Borderline Personality Disorder (BPD) & other personality disorders
26. Schizophrenia and other psychotic disorders



Module 3 focuses on risk factors, protective factors, and interventions shaping brain health at the individual level across the lifespan. Students will learn how exercise, nutrition, sleep, stress management, cognitive training, and mindfulness can strengthen resilience. The module also addresses social connectedness, education, and emotional regulation, while considering environmental influences such as pollution, infections, and climate change. Innovative approaches including neuroprotection, neurostimulation, and the use of art, music, and technology are introduced.

Lecture overview

1. Preserving prenatal health & healthy birth
2. Preserving child health
3. Preserving child mental health
4. Education and Cognitive Resilience
5. Resilience and emotional regulation
6. Humour
7. Preserving mental activity
8. Social Connectedness
9. Sexual health
10. Sleep Health
11. Stress Management
12. Physical activity & physical health
13. Physical activity & mental health
14. Brainy insights into eating and obesity
15. Healthy diet
16. Nutritional psychosomatics
17. Impact of nutrition on cognitive and academic performance
18. Smoking cessation
19. Prevention & treatment of infections
20. Prevention of environmental neurodegenerative disease
21. Air pollution
22. Water pollution
23. Noise pollution
24. Light
25. Radiofrequency electromagnetic fields
26. Climate change & neurological disorders
27. Climate change & psychiatric disorders
28. Neuroprotection Strategies
29. Pharmacological cognitive enhancers
30. Brain-Computer Interfaces: Applications
31. Neurostimulation
32. Promises of brain technology
33. Music and art therapy for mental health
34. Wearable Technology for Brain Health
35. Neurorehabilitation



Module 4 brings individual strategies such as prevention, education, and research to the societal and public health level. Students will explore national and international initiatives, including the WHO intersectoral global action plan, the EAN brain health plan, and country-specific programs. The module highlights strategies for health promotion, communication, policymaking, and early detection, while also addressing brain capital, brain economy, and ethical perspectives. Future directions for advancing brain health globally are discussed.

Lecture overview

1. Assessment of brain health
2. Public health essentials
3. Nurses' contribution to Brain Health
4. Health communication theories and models
5. Argumentation, rhetoric and persuasion
6. How to change habits for healthy lifestyle
7. The impact of different health care philosophies and cultures
8. Strategies for health education
9. Strategies for social health
10. Strategies for healthy environment: green and blue cities
11. Well-being and the physical environment
12. Strategies for work health
13. Strategies for healthy lifestyle
14. Strategies for early detection of psychiatric disorders
15. Strategies for suicide prevention
16. Strategies for mass vaccination
17. Strategies to avoid digital addiction and substance abuse
18. Strategies for influencing policymakers
19. Example of a Brain Health Programme
20. Example of a Mental Health Programme
21. Brain capital and brain economy
22. Brain health for skill-based transitions
23. Investing Strategies
24. Ethical and psychological aspects of self-responsibility for healthy lifestyle
25. Ethics and responsible innervation
26. Future Directions in Brain Health