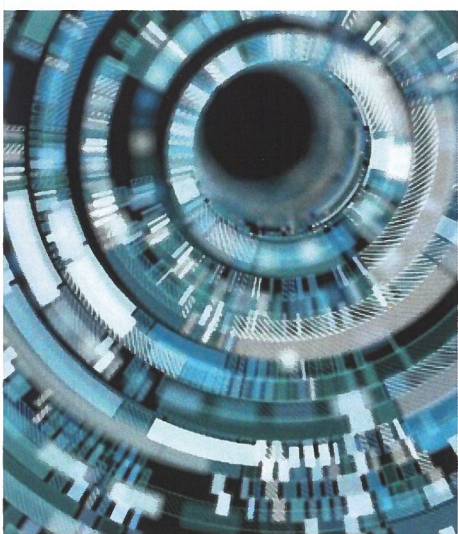# MINOR
INTRODUCTION TO NEUROSCIENCE FOR BUSINESS AND SOCIETY

This minor is a response to the evolving opportunities and unlocking the power of neuroscience for business and society. Whether you aspire to be a psychologist, an engineer, a healthcare manager or simply curious about the brain's power, we invite you to explore these fascinating issues with us in this minor module!

Neuroscience is stepping beyond its medical roots and offering **new solutions to social issues** (e.g., mental well-being). There is an increasing interest, particularly among those outside the field, in using neuroscientific insights for problems other than biomedicine and discussions about neuroscience's future applications in different fields. Journalists, policymakers, and experts in various fields, from sociology to philosophy, are all weighing in. They are not just talking about today's applications but also imagining how neuroscience might **shape our world in the future**. Forward-thinking neuroscience applications for business and societal challenges promise to revolutionise our understanding of human cognitive functions and behaviours across diverse contexts. This is exemplified in several domains, such as analysing consumer behaviour to improve marketing strategies (e.g. testing the efficacy of advertising), boosting citizens' well-being (e.g., mindfulness), facilitating communication between humans and machines (e.g., using brain-computer interfaces) and augmenting cognitive abilities to elevate employee training and learning experiences.

The minor "Introduction to Neuroscience for Business and Society" allows you to dive into our human brain and the central nervous system. Our objective is to enable you to understand how the brain works to address societal challenges and business issues by thoroughly examining neuroscience methodologies and tools. This minor promises **to challenge, inspire, and transform your understanding of neuroscience** to fit current and relevant challenges.

This minor is a 15 EC English-taught course with content divided into three areas.

Foundation of Neuroscience (5 EC)
contact: dr. R. van der Lubbe (r.h.j. vanderlubbe@utwente.nl).

In the first study unit of this minor, we will address the fundamental **anatomy and physiology of the human brain**. In class, the different structures and functions of the human brain will be discussed. Other topics covered in this study unit include the History of Neuroscience and cognitive function (e.g., Attention, Cognitive Control,

UNIVERSITY OF TWENTE.
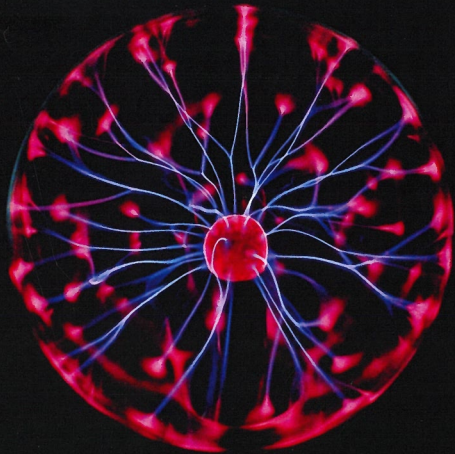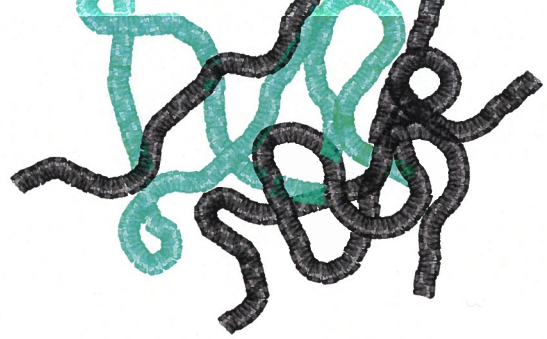
"Breaking Boundaries: Leveraging Neuroscience for the Avancement of Society".

Perception, Attention, Memory, Development and Emotion, Consciousness and Social Cognition).

Neuroscience Data Analysis: Methodological Perspectives and Approaches (5 EC)
Contact: dr. J.W.J.R. van 't Klooster (j.vantklooster@utwente.nl)

The second study unit of the minor is designed to provide an extensive overview of diverse theories, methods, and techniques essential for collecting and analysing neuroscience data, covering both imaging/recording and data analysis. You will focus on the **practical application** of these techniques and their limitations, ensuring you gain a balanced and real-world perspective. You will learn to analyse data from different neuroscience tools (**fNIRS, TCS, EEG**) and learn programming languages like Python.

Neuroscience: Selected Topics and Project (5 EC)
Contact: dr. L. Alvino (l.alvino@utwente.nl).

In the project, your main objective is to discover the most effective methods for secondary data analysis, offering insightful interpretations and explanations of your findings. We offer a variety of themes which you can choose from the project, ranging from mindfulness and communication to motor skills and marketing. This is your chance to **tailor your learning experience** to your interests. You will analyse the provided data in-depth using the knowledge and skills from the study unit Foundations of Neuroscience and Neuroscience Data Analysis. As part of the project, you will conduct desk research and collect external and internal data. The use of relevant research papers, white papers, statistics, and data is necessary and will be explained in the second study unit of this minor.

In order to apply for the minor, students must have:
• Basic Statistical Knowledge (e.g., regression analysis).
• Ability to use R.
• Willingness to code scripts in Python or Matlab

(preferred but not compulsory).

Is the "Minor Introduction to Neuroscience" Right for you?
Yes, if you wish to:
• Uncover the mysteries of what occurs in our minds and brains
• learn what influences the way humans think, decide and act
• apply knowledge about the brain and cognition to societal and business challenges
• work on a multidisciplinary project.

Which topics are NOT covered in the "Minor Introduction to Neuroscience?
In this minor, we do not include aspects related to:
• The mechanisms of diseases and disorders of the brain and central nervous system, such as clinical neuroscience.
• Develop technologies for understanding and treating the brain, such as neuroengineering.

Our team looks forward to welcoming you to our **Introduction to Neuroscience for Business and Society minor**. Join us as we journey into the future of brain exploration!

MORE INFORMATION
Minor coordinator:
dr. L. Alvino
Ravelijn
T: 053 489 1866
E: l.alvino@utwente.nl

For more information about this minor and for general information about minors:
www.utwente.nl/minor