

Core Courses:

PHI2002: Medical Ethics – Moral health care dilemmas from a European and comparative perspective

Full course description

Those who are working in the medical professions are often confronted with decision making procedures that go far beyond the mere technological aspects that are involved in the cases under investigation. Doctors and nurses are aware of the fact that their fields of operation are characterized by moral parameters as well and they know that ethical reflection has to come in where scientific deliberation is no longer able to answer all the questions that are connected to the medical problems they have to deal with. This means that quite frequently a medical assessment needs the help of an ethical evaluation to cover completely the appraisal of a particular health situation and that doctors and nurses should be conscious of the moral status and implications of the conclusions they draw.

The aim of this course is to give an introductory investigation of the question if, when and how ethical considerations can or must play a role in the practice of the medical professions. It wants to make students aware of the fact that the health sciences are not operating in a moral vacuum and that a good knowledge of both the older and recent ethical debate in this particular field is of the greatest significance.

Besides this it wants to make clear that the European concept of a medical ethics as such is strongly related to typically western assumptions regarding the essence and status of a human being, which indicates that it could be made visible as well that a non-western philosophical anthropology and morality will give rise to a medical ethics that is or can be rather different from its European counterpart. This intercultural way of work serves to yield a clear cut picture of the idea that, indeed, the European medical ethics is a very 'western' one.

This course consists of three parts.

The first part of the course will give an introduction into some fundamental European philosophical ideas of what it means to be a human being. This introduction will be accompanied by an introduction into the most important ethical theories of the West.

The second part of the course will find an introduction into a variety of the most important non-western philosophical ideas of what it means to be a human being. Some major ethical theories of the East will be explained.

The third part of the course wants to discuss some of the most important and well-known ethical problems that can be found within the medical field. They will be approached from a cross cultural perspective: both the western and eastern points of view will be analyzed and compared.

There will be lectures, discussions and the study of cases that reflect the most important problems and topics that make up the moral challenges of the medical discipline of today.

The course includes a field trip.

This course consists of 32 class hours divided over 7-8 weeks. Students earn 6 ECTS credits when they obtain a passing grade. Students who need more credits can sign up for the extended course format, which includes an Independent Study Project (ISP) worth an additional 3 ECTS. The maximum number of credits that can be obtained is 9 ECTS.

This class is a Core Course for students in the Public Health & Medicine in Europe programme and for students in the Psychology & Neuroscience in Europe programme.

Course objectives

By the end of this course students will have gained in-depth knowledge of the following subjects:

- The concept of a human being in European/western thought.
- The background, importance, concepts and ideas of medical ethics as such.
- The most important ethical theories that could, should or do play a role in the medical field.
- Classic cases that invited and shaped the development of ethical thought in the medical fields.
- The concept of a human being as it can be found in Confucian, Taoist, Hindu, Jain and Buddhist philosophies: its relation to some fundamental ideas of medical ethics in these systems of thought.
- Students will also be able to present an ethical discussion of a medical case for which a purely instrumental and technical approach must remain unsatisfactory. They will be able to offer a sound ethical analysis of this case and they will be able to present the outcome of the analysis in a clear, intercultural and philosophically correct way.

Prerequisites

None. A minimum number of 8 students is required for the course to take place.

Recommended reading

We will use the following books in this course:

- G. Pence, 'Medical Ethics: Accounts of Ground-Breaking Cases, McGraw-Hill, New York, 2014
- G. Pence, 'Classic Works in Medical Ethics: Core Philosophical Readings, McGraw-Hill, New York, 1997
- J.M. Koller, 'Asian Philosophies', New York, 2012

CES students receive their books on loan from CES.

<https://www.maastrichtuniversity.nl/meta/326463/medical-ethics-moral-health-care-dilemmas-european-and-comparative-perspective?print=1>

PNE2005: Developmental Neuropsychology

Full course description

In this course, students will be introduced to the innovative and 'mind-blowing' field of developmental neuropsychology.

The anatomy of the brain and relevant brain functions will be introduced at the beginning of the module. Through case studies students will explore the fundamental research and the most recent advances in the field. Students will endeavour to find solutions to the questions presented by researching various articles and group discussion. For example, why is there a change in the ability to discriminate between human faces and monkey faces in babies of 12 months? And why is this difference not present at 6 months?

Cognitive development is typically measured by changes or improvements in cognitive processes. In this course, processes such as language, reasoning and memory etc. will be explored in terms of their developmental trajectory and how this trajectory relates to changes in the maturing brain. We will examine how these developmental changes can be measured by various neurological methods (e.g. fMRI and EEG).

The field trip included in the course focuses on the importance of neuroscientific research methods and forms a unique and practical insight into the subject matter. Midway through the course the students will construct a research proposal regarding developmental neuropsychology in subgroups and present this proposal. To conclude the course, students will sit a written exam.

Course objectives

By the end of the course students will have developed a deeper understanding of:

- The general development of the human brain (prenatal/postnatal development until young adulthood)
- Different brain areas relevant for the development of e.g. language or executive functions
- The influence of experience on the perceptual narrowing of the brain regarding face processing and language (nature/nurture debate)
- Differences in the development of the brain regarding language (dyslexia) and mathematics (dyscalculia)
- The adolescent brain and implications for the development of social cognition

Students will also have become familiar with developmental research and neuroscientific methods.

Prerequisites

At least one 200-level Psychology course. It is recommended that the students have an interest in the development of the human brain and cognitive development. An interest in scientific research and methods is also recommended.

Recommended reading

Various articles will be used to address the different topics of this course. One of the first tasks will cover overall brain development. A subsequent task discusses the adolescent brain and the link between the adolescent brain and the development of social cognition. The literature lists for these tasks is included hereby. The comprehensive literature list is currently under construction.

1. General brain development

Casey, B. J., Tottenham, N., Liston, C., & Durston, S. (2005). Imaging the developing brain: what have we learned about cognitive development?. *Trends in cognitive sciences*, 9(3), 104-110.

Giedd, J. N. et al. (1999). Brain development during childhood and adolescence: a longitudinal MRI study. *Nature neuroscience*, 2(10), 861-863.

Dean, D. C. et al. (2015). Characterizing longitudinal white matter development during early childhood. *Brain Structure and Function*, 220(4), 1921-1933.

2. The adolescent brain

Casey, B. J., Jones, R. M., & Hare, T. A. (2008). The adolescent brain. *Annals of the New York Academy of Sciences*, 1124(1), 111-126.

Kilford, E. J., Garrett, E., & Blakemore, S. J. (2016). The development of social cognition in adolescence: An integrated perspective. *Neuroscience & Biobehavioral Reviews*, 70, 106-120.

<https://www.maastrichtuniversity.nl/meta/329245/developmental-neuropsychology?print=1>

Additional Courses:

PSY3012: Action

Full course description

The central topic of this course is meaningful behaviour. Behaviour means acting in the world with the intention to change it to our benefit. Behaviour therefore always requires in one way or other a motor action. But it always also involves a goal that it was aimed at. Students will investigate how the brain is organised to produce such meaningful behaviour. Students will focus primarily on voluntary actions. Such actions involve a motivational component, but also cognitive considerations, attention choices and motor options. And, for each of these components decisions have to be made. Students will see that different parts of the brain are involved in these decisions, in close collaboration with subcortical structures such as basal ganglia.

Students will discuss the hierarchical organisation of the motor system -- the apparatus to generate actions that influence the environment. Then the students will focus on the cognitive system. It is responsible for steering action choices by taking into account the options provided by a situation. In this it is guided by the regularities learned previously about this and other situations. Next the students will investigate how choice of options is influenced by the expected rewards of the options and by how much we like them. Lastly, after having decided which option we want, we still need to work out how we are going to get it. And this requires monitoring any errors in obtaining it, to learn to do better next time. The students will further investigate how the emotional and social aspects of the situation influence the option choices.

This tour will make clear that meaningful behaviour engages the whole brain. Exemplary chosen studies on animals and humans will make clear the differential contributions of subsystems of the brain, while discussion of diseases (Parkinson's disease, obsessive-compulsive disorder, depression, apathy) and clinical lesions affecting these subsystems will demonstrate their relevance for human behaviour.

Course objectives

Students are able:

- to describe the role of (sub-)cortical structures for movement and action selection (incl. prefrontal cortex);
- to explain the relation between movement and cognition , and translate this knowledge to motor/cognitive impairment in patients with Parkinson's disease;
- to distinguish between choosing an option based on expected reward and choosing an action to bring closer the chosen option. To relate actions and decisions to the moral and social context (i.e. social cognition, moral decisions, altruistic, and cooperative behaviour).

Recommended reading

motor system, executive functions, social cognition, decision making, prefrontal cortex, basal ganglia

PSY3013: Motivation and Emotion

Full course description

Motivation and emotion are two central concepts in psychology. Motivation is a process that affects the direction, persistence and strength of goal-oriented behaviour. Emotions are feelings or affective experiences that are shaped by a pattern of cognitive, physiological and behavioural responses to specific stimuli. Motivation and emotion are closely related: emotions are the result of situations in which our motives and goals are satisfied, threatened or frustrated. Both concepts are studied from different perceptions within psychology and the ultimate goal is to understand their role in explaining human behaviour. The module starts with the classic theories of motivation and emotion, continues with the cognitive aspects of expectancies and rewards, their impact on intrinsic and extrinsic motivation, and the disorder apathy. Students will focus on the role of motivation in social behaviour, with particular attention paid to processes of subconscious goal activation and pursuing goals. They will discuss meta-cognitions on the role of motivation in personal development with special focus on satisfying basal needs and Maslow's hierarchy of motivation. Emotions will be discussed according to a functional approach, as discussed by emeritus faculty Nico Frijda. The module also focuses on the (evolutionary) functions of emotions and the fundamental motives that (still) play a role in the behaviour of the modern human. Finally, students discuss risk perception and the link between burn-out, well-being, emotions and recovery.

Course objectives

Students are able:

- to explain the relation between motivation, emotion and behaviour from different theories/approaches;
- to explain neural, cognitive and social processes in relation to motivation and emotion;
- to compare and criticize different theories related to motivation and emotion;
- to apply the theoretical perspectives, by recognising and exemplifying relevant concepts in a situation.

IPN1028: Learning and Memory

Full course description

We learn throughout our lives. At school, we learn to read and do sums. We also learn to cycle and later how to drive a car. Besides this, we can recall specific events, such as our first driving lesson, or our first day in high school. For some, high school may elicit happy memories, for others simply recalling walking on the schoolyard is sufficient to elicit anxiety. Our memory can also fail. It may happen that you go to the supermarket with a list in your head of what you certainly need to buy, to come home with several items lacking. And maybe your sibling will have a very different memory of a past event, calling into question the truth-value of memories.

The above-elicited questions will be studied through behavioural research in humans and derived cognitive models, but also via biological research in animals, so that behavioural data and theoretical insights can be better linked to the brain function. This biologically oriented course gives students an introduction about generally applicable stages in learning and memory, namely encoding, storage, and retrieval. In addition, students will be exposed to the different brain areas and structures that contribute to the different types of memory, and to the contribution of individual neurons to forming short- and long-term memory traces. This course aims to significantly deepen the students' concepts of working memory, episodic memory, different forms of conditioning and skill learning, emotional learning, and learning by example.

Insights into how memory works may help enhancing memory and learning in many daily activities, in educational contexts, and in clinical contexts that involve revalidation after physical or emotional trauma, or neurological disease, brain lesions or ageing. The course will stimulate students to make the link between theoretical insights and applications.

Course objectives

Students will be able:

- to name and explain different types of memory and related theoretical models;
- to name the most important anatomical structures of different types of learning and memory, and to explain lesion effects;
- to explain neuronal processes and their changes during learning and memory (as explained in the present course);
- to understand the selected primary research articles, and to integrate them into the overall body of study materials;
- to understand research methods sufficiently (at the described introductory level) as to understand and explain findings in the discussed studies;
- to apply knowledge on learning and memory mechanisms to gain deeper insight in examples from clinical or other domains (e.g., study behaviour, social media, ADHD, depression, Alzheimer, autism, addiction, phobia's).

This course includes three practical courses:

IPN1125: Measuring Cognitive Functions I

IPN1126: Measuring Cognitive Functions II

IPN1127: Cognitive Disorders in Practice

Full course description

The practical courses IPN1125 to IPN1127 focus on developing diagnostic skills such as administering, scoring and interpreting instruments frequently used to express experimental and clinical paradigms (or function domains) in terms of size and number. The key function domains for this course are Memory, Executive Functions and Attention. The information provided during this practical course will explain the experimental possibilities and clinical applications of each instrument. The students will then practice using these instruments on each other and experience first-hand the rules, successes and frustrations each instrument brings with it. After practicing these tests individually, students will be presented with a complex verbal and visual case study. A client with cognitive complaints must undergo a neuropsychological exam. The students will be asked whether these complaints can be categorised as “functioning normally” (everyone forgets things at some point) or whether an underlying disorder may be the cause.

Course objectives

Students:

- can describe the diagnostic cycle and know the role of the neuropsychological tests;
- administered and scored neuropsychological tests assessing memory and executive functions and learned how to interpret the results;
- can explain how behaviour of people can be systematically observed during test administration;
- can generate hypotheses regarding the well-being of a person based on observations and test results.

<https://www.maastrichtuniversity.nl/meta/325877/learning-and-memory?print=1>

NEU1002: Cognitive Neurosciences: Biological Foundations of Behaviour

Full Course Description

Why do some people develop into a male and some into a female? Why are we hungry in the morning? Why do people become addicted to drugs? Is our brain active during sleep? How do mood disorders originate? These and other questions will be addressed in this course. The most important part of our body to explain behaviour is our brain. This course will provide basic knowledge of neuroanatomy (how certain parts of the brain are connected) and neurophysiology (how neurons operate to communicate) in order to understand several themes of behaviour (e.g. eating, addiction, sleep) and disorders.

Course Objectives

- Students will have a basic understanding of biological foundations of behaviour, such as sleep/wake behaviour, language, memory, attention and emotion.
- Comprehension of chemical control (neurotransmission and hormones) by the brain and dysfunctional control (e.g. addiction or anxiety disorders)
- A basic understanding of how to test the biological foundations of behavior

Prerequisites

None

Required literature

Neuroscience: Exploring the Brain – Bear, 4th edition.

Additional literature

A couple of journal articles will be used and several biological psychology books can be used in addition (Breedlove 2013 – Biological psychology; Pinel 2013: Biopsychology or Carlson 2013: Physiology of Behavior)

NEU2002: Neuropsychopharmacology

Full Course Description

In the first part of the course the focus will be on the molecular and cellular biology of the nervous system. Focus will be the neurotransmission process, in particular the role of neurotransmitter receptors as a basis for understanding the mode of action of CNS drugs. The second part of the course will give an overview of the major classes of a number of CNS drugs: the hypnotics and sedatives, the anxiolytics, and the drugs used to treat CNS degenerative disorders. The pharmacology of these drugs will be put in the perspective of their clinical use. The final part of the course will be devoted to illicit drugs, their acute and long term effects, and their potential as medicines.

Course Objectives

- To know the basic principles of neurotransmission & the basic mechanism of drug-receptor interaction
- To understand the mechanism of action of the major groups of drugs acting in the central nervous system
- To understand the major neurotransmitter systems in the brain and their role in cognitive and affective disorders and functions
- To understand the pharmacotherapy of anxiety disorders, CNS degenerative disorders, ADHD
- To understand the acute and long term effects of drugs of abuse

Prerequisites

INT1002 Basic Principles of Pharmacology

Literature

Journal articles, book(s) chapter(s).

SSC2004: Clinical Psychology

Full course description

The course Clinical Psychology is concerned with mental disorders. It is aimed at understanding mental and behavioural distress and/ or dysfunction and thereby learning about how to promote subjective well-being and personal adaptation. On the basis of case descriptions, important clinical pictures of a.o. different anxiety disorders, eating disorders, addictions, mood disorders, psychotic disorders, and personality disorders are examined. Questions that are raised continually during the course are: What is the clinical picture of...? Where is the boundary between no need for care and need for care? What causes such a disorder? And what can be done about the disorder? At the end it will be clear that there is a gap between theory and practice, between scientific thinking and clinical treatment. A number of different theoretical schools will also be examined, and these schools explain/treat psychiatric disorders in keeping with their favorite theory. The choice of theory/treatment in most cases is thus based on ideology and not empirical findings, and the question is whether this situation is so desirable.

Course objectives

To make students familiar with the most common psychiatric disorders; their clinical pictures, diagnostic criteria, the etiological theories and the empirical findings that either support or refute the theories, current ways of treatment, and the effectiveness of the therapies.

To give students a basic idea of what clinical interviews are and what it feels like to 'have' a psychiatric disorder by writing a patient role and playing that role.

To learn basic clinical interview techniques.

Prerequisites

One of the 1000 or 2000 level psychology courses offered at UCM. Introduction to Psychology

Recommended reading

Various textbooks on clinical psychology (can be found in UM library and UCM Reading Room).

E-readers.

<https://www.maastrichtuniversity.nl/meta/325585/clinical-psychology?print=1>

SCI3046: Cognitive Neuroscience

Full course description

Cognitive neuroscience is an entirely new research field that originally emerged from a combination of traditional sciences such as philosophy, psychology, medicine and biology that all investigate the principles of perception, behaviour and cognition from different perspectives.

As technical developments of different methods and tools in the field of cognitive neuroscience came forth, and as theoretical application of different mathematical and computer science-based models were used to explain neuronal functioning, additional disciplines, such as physics, mathematics, bioengineering and computer science materialized as an important part of this research field.

Subsequently, an effective research project in cognitive neuroscience requires an interdisciplinary cooperation, in which each scientific discipline contributes its respective genuine theories, models, techniques and tools for the mutual investigation of the neuronal principles of perception, attention, and cognition.

But can we really watch the brain at work? Are there ways to identify where exactly, and when exactly activation in the brain is necessary to perform a specific mental process? This course will help to give some answers on the basic principles of brain research and it will show relevant applications of these techniques in different areas of cognitive psychology.

Course objectives

To give an introduction into the new field of cognitive neuroscience.

To learn which methods a brain researcher can use to investigate the neuronal bases of different mental processes.

Prerequisites

SCI2034 Brain and Action and elementary knowledge of electricity and magnetism as stated under SCI-P(p. vi-viii).

Recommended

SCI1009 Introduction to Biology or SCI2038 Physics (or SCI1030 Physics I) or SSC1005 Introduction to Psychology or SSC2025 Memory.

Recommended reading

E-Reader

<https://www.maastrichtuniversity.nl/meta/327275/cognitive-neuroscience?print=1>

SSC2050: Psychology and Law

Full course description

Most of this course pertains to neurocognitive processes of criminal offenders. Contextual factors, such as the history and current state of neuropsychology and psychiatry will be discussed to give students the desired background knowledge of this topic. A considerable part of the course is devoted to neuropsychological abnormalities in offenders who are affected by a psychiatric disorder. Another substantial part of the course pertains to offenders with acquired brain injury. The connection between neural abnormalities and criminal offences will be critically evaluated for each psychiatric or neurological disorder. A completely different side of neuropsychology and law, the effect of neurocognitive disorders in victims/witnesses of crimes on their eyewitness testimony, will also be dealt with.

Course objectives

Knowledge of: Brain structure and function, psychiatric and neurological disorders that predispose to criminal offences, witnesses with brain disorders.

<https://www.maastrichtuniversity.nl/meta/328149/neuropsychology-and-law?print=1>

SSC2063: Psychology of Individual Differences: Personality and Intelligence

Full course description

The first part of the course will provide an overview of the most important theories, techniques and methods used by psychologists in the context of personality and intelligence research. Can you measure personality with questionnaires? How many personality traits are there? Does intelligence have more than one dimension? During the second part, we will look at explanations for these individual differences. Why are there differences between humans? What role does biology and heredity play? What is the role of evolution in the development of individual differences? During the third part, we will provide a first impression of the role of personality and intelligence in the prediction of life events. How important is intelligence for your career? Do compliant people earn more or less money? Do personality traits predict the duration of a marriage? We will also focus on the reverse question: Do characteristics such as conscientiousness or extraversion change due to certain life events? In the fourth part of the course we will take a look at practical applications of the knowledge on personality and intelligence from the perspective of a clinician and an HR professional. What happens when persons are bothered by their personality in such a way that it is a matter of a personality disorder? How can organizations select the right personalities for a specific job?

Today, personality psychology and research into other differences between humans, such as intelligence, forms an important fundamental basis for the daily practice of psychologists. Psychologists select people for jobs in corporate life based on personality and intelligence research. If psychologists treat psychological disorders, they often first collect the personality and intelligence information of a patient. Personality psychology and intelligence research are therefore an important basis for every student who wants to work in such diverse fields as clinical research, forensic psychology or human resource management.

Course objectives

Gain insight into the two key subdivisions in the study of human individual differences: personality and intelligence.

Prerequisites

SSC1005 Introduction to Psychology.

Recommended reading

Ashton, M. C. (2013). Individual differences and personality (2nd ed.). Burlington, MA: Elsevier Academic Press.

Larsen, R. J., Buss, D. M., & Wismeijer, A. (2013). Personality Psychology: Domains of knowledge about human nature. Berkshire, UK: McGraw Hill Higher Education..

E-reader.

<https://www.maastrichtuniversity.nl/meta/326565/psychology-individual-differences-personality-and-intelligence?print=1>