Overview RM in Neuropsychology (NP)

Period	Research Master's in Neuropsychology (NP) Year 1 (2013-2014): Rob Markus
Period 0, 02-09-2013 - 06-09-2013	Introduction week PSY 4950 PBL training for non-UM students*
Period 1, 09-09-2013 - 25-10-2013	**Core courses: **** **PSY4407** Brain Damage (4 credits): Martin van Boxtel **PSY4408** Behavioural Disorders (4 credits): Kim Kuypers **PSY4106** Advanced Statistics I (total of 3 credits): Nick Broers *Practical training:* PSY4119 SPSS and Lisrel: Nick Broers
	Skills training: **PSY4433** Neuropsychological Assessments (2 credits): Sven Stapert
Period 2, 28-10-2013 - 20-12-2013	**Core courses:** **PSY4409** Arousal and Attention (4 credits): Annemiek Vermeeren **PSY4416** Ageing (4 credits): Arjan Blokland **PSY4106** Advanced Statistics I: Nick Broers *Practical training:* PSY4119 SPSS and Lisrel: Nick Broers
	Skills training: **PSY4434** Basic Cognitive Psychological Skills (3 credits): Eric Vuurman
Christmas break	
Period 3, 06-01-2014 - 31-01-2014	**Core course:** **PSY4411** Biopsychology (4 credits): Anke Sambeth **PSY4106** Advanced Statistics I: Nick Broers *Practical training:* PSY4119 SPSS and Lisrel: Nick Broers **PSY4107** Advanced Statistics II (total of 3 credits): Gerard van Breukelen *Practical training:* PSY4117 SPSS: Gerard van Breukelen
	Skills training: **PSY4108** Neuroanatomy (1 credit): Jos Prickaerts
	PSY4100 Colloquia **(total of 1 credit):** Milene Bonte, Arno Riedl, Jos Prickaerts, Rob Markus, Nancy Nicolson
Period 4, 03-02-2014 t/m 04-04-2014	**Core course:** **PSY4417** Stress, the Brain and Depression (3 credits): Rob Markus **PSY4413** Executive Functions and Control of Action (4 credits): Eric Vuurman **PSY4107** Advanced Statistics II: Gerard van Breukelen *Practical training:* PSY4117 SPSS: Gerard van Breukelen
	Skills training: **PSY4422** Psychophysiological Skills (1 credit): Eric Vuurman **PSY4423** Neuropsychology in Practice: From Tests Results to Report and Advice (total of 2 credits): Caroline van Heugten, Rudolf Ponds
	PSY4100 Colloquia**:** Milene Bonte, Arno Riedl, Jos Prickaerts, Rob Markus, Nancy Nicolson
Period 5, 07-04-2014 t/m 06-06-2014	**Core course:** **PSY4414** Neuropsychiatric Disorders (3 credits): Saartje Burgmans **PSY4415** Neuropsychopharmacology (total of 3 credits): Jan Ramaekers **PSY4107** Advanced Statistics II: Gerard van Breukelen *Practical training:* PSY4117 SPSS: Gerard van Breukelen

	Workshop: **PSY4110** Scientific Writing (1 credit): Alice Wellum **PSY4335** Psychopharmacology (1 credit): Arjan Blokland **PSY4372** Functional Brain Imaging (2 credits)
	Skills training: **PSY4423** Neuropsychology in Practice: From Test Results to Report and Advice: Caroline van Heugten, Rudolf Ponds **PSY4424** Neuropsychological Rehabilitation (total of 2 credit): Caroline van Heugten
	PSY4100 Colloquia**:** Milene Bonte, Arno Riedl, Jos Prickaerts, Rob Markus, Nancy Nicolson
Period 6, 10-06-2014 t/m 04-07-2014	**Core course:** **PSY4415** Neuropsychopharmacology: Jan Ramaekers
	Workshop: **PSY4112** Research Grant Writing Workshop (1 credit): Eef Theunissen **PSY4371** Psychiatric Epidemiology (1 credit): Wolfgang Viechtbauer
	Skills training: **PSY4424** Neuropsychological Rehabilitation: Caroline van Heugten
	PSY4100 Colloquia**:** Milene Bonte, Arno Riedl, Jos Prickaerts, Rob Markus, Nancy Nicolson

**Students from Erasmus Rotterdam receive an exemption for PBL training*
*** Electives: 3 credits,* throughout year 1: Vincent van de Ven

Period	**Research Master's in Neuropsychology (NP) Year 2 (2014-2015)**
Period 1, To be announced in 2014	**Core course:** **PSY5112** Research Grant Writing Course (3 credits): Eef Theunissen **PSY5411** Cognitive Development (3 credits): Petra Hurks **PSY5414** Brain, Learning and Memory (3 credits): Arjan Blokland
	Workshop: PSY5431 Neuropsychological Assessment in Children (1 credit): Peter Stiers
	Skills training: **PSY4221** ERP and EEG (Elective) (2 credits): Fren Smulders
32 weeks	PSY5107 Research Proposal,PSY5102 Research Internship & PSY5103 Master's Thesis (30 or 50 credits): Sandra Mulkens
	PSY5108 Research Proposal, PSY5104 Clinical Internship & PSY5105 Minor's Thesis (20 credits); Sandra Mulkens

Colloquia

PSY4100 Colloquia will be offered in all RM specialisations.

Title	**Colloquia**
Period	3-6
Code	PSY4100
ECTS credits	1
Organisational unit	Cognitive Neuroscience (FPN), Department of Economics (SBE), Psychiatry and Neuropsychology (FHML), Neuropsychology and Psychopharmacology (FPN)
Coordinator	Milene Bonte, Arno Riedl, Jos Prickaerts, Rob Markus, Nancy Nicolson
Descriptions	Colloquia are presented per specialisation (CN, NE, FN, NP and PP) by senior researchers from the UM faculties or visiting guest lecturers. Each colloquium focuses in depth on one of a wide range of topics, with issues transcending the courses and specialisations. Each colloquium lecture will be followed by active discussion, prepared and chaired by the lecturer (the UM host may fill this role for guest lecturers). A total of nine colloquia will be offered during the first year.
Goals	Knowledge of: Key research domains from different specialisations, interdisciplinary research, interacting with students from different specialisations.
Instruction language	EN
Prerequisites	
Recommended literature	
Teaching methods	Lecture(s)
Assessment methods	Attendance
Key words	interdisciplinary knowledge

Core Courses

Is equal to the Master's module PSY4061

Title	**Brain Damage**
Period	1
Code	PSY4407
ECTS credits	4
Organisational unit	Neuropsychology and Psychopharmacology
Coordinator	Martin van Boxtel
Descriptions	Students are introduced to the fields of Behavioural Neurology and Neuropsychology via questions such as: What do the effects of pathological conditions on brain structure and/or function tell us about the relationship between brain and behaviour? Much of what we know about cognitive processes and affective functioning comes from close observation of patients with damage to the central nervous system. This course reviews mechanisms of the relationship between brain and certain behaviours that form the basis of neuropsychological dysfunctions in people who suffer from brain damage. Students acquire knowledge about the causes and neurobiological effects of brain lesions, and become acquainted with the aetiology and taxonomy of common neurological and neuropsychological syndromes. Functional disturbances that occur after focal or diffuse lesions in different cortical areas, in connecting tracts, in limbic and other subcortical brain structures are discussed, together with the neurocognitive assessment procedures that are commonly used to identify such deficits, including disorders of memory, praxis, language, visual spatial abilities and executive function. This knowledge forms an essential basis for an understanding of the principles of neuropsychological rehabilitation, which can be used to support or even improve residual function after brain damage and can ameliorate the life quality of neurological patients.
Goals	Knowledge of: Functional brain anatomy, cerebral vascularisation, Neurophysiology of brain repair, neurological diseases, stroke, epilepsia, traumatic brain injury, alcohol-induced brain dysfunction, Korsakoff's disease, cognitive control, neuropsychological syndromes, brain plasticity, history of neurospychology, neuropsychological assessment, cognitive rehabilitation.
Instruction language	EN
Prerequisites	
Recommended literature	Journal articles, book chapters.
Teaching methods	Lecture(s) PBL Skills
Assessment methods	Attendance Written exam
Key words	neuropsychology, history of neuropsychology, brain disease, neuroanatomy, neurology, neuropsychological assessment, rehabilitation, brain plasticity

Is equal to the Master's module PSY4062

Title	**Behavioural Disorders**
Period	1
Code	PSY4408
ECTS credits	4
Organisational unit	Neuropsychology and Psychopharmacology
Coordinator	Kim Kuypers
Descriptions	The course covers the range of cognitive and behavioural problems that accompany the most common neuropsychiatric and neurological disorders (i.e. psychosis, schizophrenia, ADHD, autism and acquired brain injuries). The course provides insight into the underlying neurobiological and psychological mechanisms, and intervention possibilities from a behavioural and pharmacological perspective. Finally, the course touches on the principle of vulnerability, protective/risk factors and psychopharmacology in the aetiology of behavioural disorders.
Goals	Knowledge of: Neuropsychological assessment and- intervention, psychological mechanism, neurobiology, functional neuroanatomy, imaging, psychopharmacology, epidemiology, developmental-, psychiatric- and neurological disorders, neuropsychiatric syndromes.
Instruction language	EN
Prerequisites	
Recommended literature	Research and review articles, case studies, book chapters.
Teaching methods	Lecture(s) PBL
Assessment methods	Attendance Written exam
Key words	behavioural disorders, development, neuropsychiatry, acquired brain injury, neuropsychology, intervention, psychopharmacology

Is equal to the Master's module PSY4064

Title	**Arousal and Attention**
Period	2
Code	PSY4409
ECTS credits	4
Organisational unit	Neuropsychology and Psychopharmacology
Coordinator	Annemiek Vermeeren
Descriptions	This course familiarises students with key concepts and controversies in the study of arousal and alertness in attention and cognitive performance, with an emphasis on the role of neurotransmitters. It is known that human performance fluctuates depending on the state of alertness; when we are sleepy or tired we are less attentive to events going on around us than when we are fully awake and alert. However, people who are extremely stressed or highly aroused can also be too 'hyper' to effectively focus their attention (e.g. ADHD, anxiety disorders). The nature and mechanisms underlying the relation between arousal, attention and performance have been the subject of extensive research in psychology. Therefore this course will review current knowledge on subcortical arousal systems, attention networks and the neurotransmitters involved, in addition to a critical discussion of the classic Arousal Theory. Throughout the course, psychopharmacological studies will be presented that illustrate the role of different neurotransmitters in arousal and attention.
Goals	Knowledge of: Arousal Theory, inverted-U model, Yerkes-Dodson law, Ascending Reticular Activating System, Cognitive Energetic Model, Additive Factors Method, Posner's attentional networks, orienting attention, cueing paradigm, Corbetta's model of attentional control, alerting, sustained attention, vigilance, noradrenergic locus coeruleus activity, clonidine, Signal Detection Theory, executive attention, prefrontal dopaminergic activity, methylphenidate, Borbely's model of sleep regulation, caffeine, neurocognitive theory of insomnia, benzodiazepines, flip-flop mechanism of sleep-wake regulation, antihistamines.
Instruction language	EN
Prerequisites	
Recommended literature	Journal articles, book chapters.
Teaching methods	Lecture(s) PBL
Assessment methods	Attendance Written exam
Key words	arousal, alertness, attention networks, brainstem arousal systems, sleep-wake regulation

Title	**Biopsychology**
Period	3
Code	PSY4411
ECTS credits	4
Organisational unit	Neuropsychology and Psychopharmacology (FPN)
Coordinator	Anke Sambeth
Descriptions	This course provides an in-depth description of biopsychological concepts of brain function. It will cover elements from functional neuroanatomy, neurophysiology and psychopharmacology as they are applied to brain and behaviour research. The students will first review the macro- and microanatomy of the brain, and also neurochemical and neurobiological mechanisms related to neurotransmission. Special attention will be paid to basic cellular processes leading to disturbances in the brain. The students will discuss questions such as: How do the chemicals in our brain influence neurons? What is the specific role of second messengers in these processes? Additionally, the students will deal with the biological mechanisms of neurogenesis and cell differentiation, and how this may be linked to behaviour. Next, the students will discuss the role of hormones in behaviour and cognition and discuss questions such as how do hormones determine our gender, and why do males tend to be more aggressive than females? With respect to specific cognitive functions, descriptions will be given about processes underlying the effect of acute stress on memory. Students will discuss how the brain regulates memory and can even improve cognitive performance under stress. Finally, the students will discuss aspects associated with the physiological processes of motivation and addiction.
Goals	Knowledge of: Electrochemical processes in neurons, second messenger systems, hormones and gender differences, biology of acute stress, effects of stress on cognition, neurobiology of motivation.
Instruction language	EN
Prerequisites	
Recommended literature	Journal articles, book chapters, research reviews.
Teaching methods	Lecture(s) Paper(s) PBL Presentation(s)
Assessment methods	Attendance Final paper Presentation
Key words	action potentials, second messengers, neurotransmitters, hormones, stress-related cognition, motivation

Is equal to the Master's module PSY4067

Title	**Ageing**
Period	2
Code	PSY4416
ECTS credits	4
Organisational unit	Neuropsychology and Psychopharmacology
Coordinator	Arjan Blokland
Descriptions	This course covers a broad range of topics in the field of Cognitive Ageing. There is an initial focus on the normal ageing process since a thorough knowledge is considered essential before issues in abnormal ageing can be addressed. Important questions covered include: What is ageing? What neurobiological and cognitive mechanisms determine whether a person ages pathologically, normally, or successfully? Can the ageing process be influenced? To address these questions, students will critically reflect on influential theories, state-of-the-art research, established research methods, and clinical interventions. General themes are physical ageing, neural ageing, cognitive ageing, pathological ageing (mild cognitive impairment, Alzheimer's disease, and other types of dementia), intervention strategies, and methodological issues in ageing research.
Goals	Knowledge of: Physical ageing, evolutionary theories of ageing, neural aging, amyloid cascade hypothesis, temporal lobe dysfunction, frontal lobe dysfunction, processing-speed theory, white matter decline, decline of cognitive control, inhibitory-deficit hypothesis, sensory ageing, default-mode network dysfunction, parietal lobe dysfunction, mild cognitive impairment, Alzheimer's disease, vascular dementia, successful ageing, reserve theories, emotional ageing, fronto-temporal dementia, semantic dementia.
Instruction language	EN
Prerequisites	
Recommended literature	E-reader.
Teaching methods	Lecture(s) PBL
Assessment methods	Attendance Written exam
Key words	cognitive, neural, and physical ageing, dementias

Title	**Brain, Learning, and Memory**
Period	1
Code	PSY5414
ECTS credits	3
Organisational unit	Neuropsychology and Psychopharmacology (FPN)
Coordinator	Arjan Blokland
Descriptions	There has been a rapid increase in our understanding of the basic mechanisms underlying the consolidation of new information and its subsequent retrieval. Both data from preclinical research in animal models and in preclinical human models and neuroimaging experiments will be used in this course, together with seminal experiments in patients. Recent theories and experimental data illustrate how a multidimensional view of learning and memory can help elucidate the relevant mechanisms both in terms of neurobiology and cognition. The influences of drugs on information processing and memory are also discussed in depth.
Goals	Knowledge of: The role of the hippocampus in memory functions, the role of other limbic structures in learning and memory, the role of neurotransmitters in learning and memory. The use and critical evaluation of animal models in learning and memory research.
Instruction language	EN
Prerequisites	Basic knowledge in learning and memory.
Recommended literature	Literature will be made available on ELeUM.
Teaching methods	Assignment(s) Lecture(s) Paper(s) Presentation(s)
Assessment methods	Attendance Final paper Presentation
Key words	prefrontal cortex, hippocampus, limbic system, neurotransmitters, working memory, short-term memory, long-term memory, acquisition, consolidation, retrieval

Let op: de huidige eerstejaars RM NP, die dus zijn gestart in 2012, behouden dit als hun 1ste jaars vak in 2012-2013 (bestaande code: PSY4412, periode 4). Voor hen wijzigt er niets. In hun 2e jaar volgen zij ook gewoon Stress, the brain and Depression (bestaande code: PSY5413, periode 1). Echter, voor de starters in 2013-2014, geldt dat ze in hun eerste jaar Stress, the Brain and Depression (periode 4) volgen en in hun tweede Brain, Learning, and Memory (periode 1).

Title	Executive Functions and Control of Action
Period	4
Code	PSY4413
ECTS credits	4
Organisational unit	Neuropsychology and Psychopharmacology (FPN)
Coordinator	Eric Vuurman
Descriptions	A key element in the current understanding of behavioural organisation is cognitive control. At present, a redefinition of related concepts (such as inhibition, working memory and executive functioning) is taking place, based on insights from cognitive neuroscience. Based on data from imaging studies, the behavioural models of cognitive control are being restructured. Throughout the course, emphasis will be on mechanisms of attention, working memory, cognitive shifting, preparation for action, sensorimotor integration, behavioural planning and monitoring. Various experimental approaches are evaluated and discussed in the light of recent literature. Experts in the field of executive and motor control research will present their current work, and students will be able to discuss their own papers and topics with them.
Goals	Knowledge of: Cognitive control, motor control, executive functions, brain activation.
Instruction language	EN
Prerequisites	
Recommended literature	Journal article, book chapters.
Teaching methods	Lecture(s) Paper(s) PBL Presentation(s)
Assessment methods	Attendance Final paper Presentation
Key words	executive functions, motor control, frontal cortex

Title	**Neuropsychiatric Disorders**
Period	5
Code	PSY4414
ECTS credits	3
Organisational unit	Psychiatry and Neuropsychology (FHML)
Coordinator	Saartje Burgmans
Descriptions	This course provides basic and advanced knowledge of neuropsychiatric disorders. Several neuropsychiatric disorders will be extensively discussed from a biopsychosocial perspective. In particular, the focus will be on new knowledge and developments within the neuropsychiatry, related to both research and clinical practice. The course covers main findings, biopsychosocial theories and controversies related to several neuropsychiatric disorders, with an emphasis on brain mechanisms and behavioural and cognitive dysfunction. The course discusses disorders at the interface between neuropsychiatry and cognitive/behavioural neurology. Each tutorial meeting covers another neuropsychiatric disorder, for example late onset psychosis, Gilles de la Tourette, pediatric delirium and anxiety disorder. Specific attention is given to neuropathology related to functional and structural brain imaging, neurochemistry as well as psychosocial factors. In short, this course deals with all major aspects of a number of specific neuropsychiatric disorders , including: basic and advanced knowledge; biopsychosocial theories; neurobiological mechanisms; cognitive and behavioural implications; treatment and research. Students learn to integrate all the previously mentioned aspects of the disorders in order to increase their general knowledge of neuropsychiatry. The tutorial meetings will be led by renowned experts in the field and will provide an excellent learning experience for students who want to focus on working within neuropsychiatry.
Goals	Knowledge of: Neuropsychiatry, biopsychosocial theories of neuropsychiatric disorders, neurobiologic mechanisms, gene environment interactions, behavioural and cognitive problems, neurotransmitters, neuroimaging, scientific and clinical developments, etiology, treatment, clinical practice, late onset psychosis, Tourette, Pediatric delirium and anxiety.
Instruction language	EN
Prerequisites	
Recommended literature	Recent state-of-the-art publications and literature will be provided by the several experts.
Teaching methods	Assignment(s) Lecture(s) Paper(s) PBL Presentation(s) Work in subgroups
Assessment methods	Attendance Final paper Presentation
Key words	neuropsychiatric disorders, brain mechanisms, biological theories, psychosocial theories, research, treatment

Title	Stress, the Brain and Depression
Period	4
Code	PSY4417
ECTS credits	3
Organisational unit	Neuropsychology and Psychopharmacology (FPN)
Coordinator	Rob Markus
Descriptions	It has become increasingly clear that stress is one of the most important triggers for several cognitive-affective disorders. For instance, a tremendous amount of biological and cognitive-psychological research has been conducted on the onset and course of stress-related affective disorders like depression. Cognitively oriented psychologists have shown that the chance of developing stress-related depression is enhanced as a result of negative and dysfunctional (stress-inducing) thoughts, whereas biologically oriented psychologists and psychiatrists particularly emphasise the importance of biochemical brain dysfunction. Yet, despite intensive research over the past decades, unidirectional biological and cognitive achievements have not yet produced definitive conclusions about critical psychobiological risk factors involved in stress-related affective disorders like depression. In addition, and contrary to a one-dimensional approach, this course will concentrate on mutual interactions between stress and the human brain in explaining and defining enhanced susceptibility for stress-related psychopathology.
Goals	Knowledge of: Brain mechanisms in stress, biochemistry of depression, genes and depression, stress and psychopathology, theories of stress, gese and depression.
Instruction language	EN
Prerequisites	
Recommended literature	Journal articles and book chapters on EleUM.
Teaching methods	Lecture(s) Paper(s) Presentation(s)
Assessment methods	Final paper (research Proposal) Presentation Written exam
Key words	stress, brain, depression, psychopharmacology

Let op: de huidige eerstejaars RM NP, die dus zijn gestart in 2012, behouden dit als hun 2e jaars vak in 2013-2014. Voor hen wijzigt er niks. Code blijft ook gelijk.

Title	Stress, the Brain and Depression
Period	1
Code	PSY5413
ECTS credits	3
Organisational unit	Neuropsychology and Psychopharmacology (FPN)
Coordinator	Rob Markus

Title	**Neuropsychopharmacology**
Period	5, 6
Code	PSY4415
ECTS credits	3
Organisational unit	Neuropsychology and Psychopharmacology (FPN)
Coordinator	Jan Ramaekers
Descriptions	This course addresses the influence of drugs upon normal functioning and on disease states. Neurobiological and neurochemical mechanisms are presented with the aim to deepen insight into the various mechanisms of drug action. The course will review major classes of drugs that are used frequently in the treatment of mental disorders and neurological disease, but also other classes of drugs that have side effects on the central nervous system. Other topics in this course are behavioural toxicology, experimental designs used in treatment studies, drugs of abuse and recreational drugs.
Goals	Knowledge of: Neurobiology of drugs andmental disorders.
Instruction language	EN
Prerequisites	
Recommended literature	Journal articles, book chapters.
Teaching methods	PBL
Assessment methods	Attendance Final paper Presentation
Key words	drug action, psychopharmacology of CNS disorders, behavioural toxicity

HOME

PSY4106 Advanced Statistics I will be offered in all RM specialisations.

Title	**Advanced Statistics I**
Period	1-3
Code	PSY4106
ECTS credits	3
Organisational unit	Faculty Office (FPN)
Coordinator	Nick Broers
Descriptions	The course consists of six units. In the first four units, participants will be given an in-depth training in the following standard statistical methods: factorial ANOVA for between-subject designs, analysis of covariance (ANCOVA), multivariate ANOVA (MANOVA), discriminant analysis and multiple linear regression. Students are assumed to have background knowledge of balanced two-way factorial ANOVA and multiple regression. These methods will be briefly reviewed. The following advanced topics will then be covered: unbalanced factorial designs, contrast analysis, interaction, simple slope analysis, dummy coding, centring covariates, different coding schemes, collinearity and residuals checks and data transformation. The distinction between confounders and mediators in regression and ANCOVA is also discussed, forming a bridge from regression to structural equations modelling (SEM). The latter is an advanced multivariate method that is gaining importance in psychology but still requires special software (such as Lisrel, EQS, AMOS or Mplus). SEM is introduced in two units, starting with causal modelling and mediation analysis in cross-sectional research and then extending to longitudinal research and latent variables (factors). Special attention is given to identifying models, model equivalence, global and local goodness of fit indices, parsimony, model modification and cross-validation. Some concepts from matrix algebra are needed for SEM, and these will be briefly discussed without going into technical detail.
Goals	Knowledge of: Oneway analysis of variance, contrast analysis, unbalanced designs, multivariate analysis of variance, discriminant analysis, linear regression with interaction terms, linear regression with dummy variables, data transformations, simple slope analysis, analysis of covariance, path analysis, structural equation modeling, confirmatory factor analysis, structural models with latent variables.
Instruction language	EN
Prerequisites	
Recommended literature	Diamantopoulos, A. (1994). Modelling with LISREL: A guide for the uninitiated. Journal of Marketing Management, 10, 105-136; Field, A. (2009). Discovering statistics using SPSS (3rd ed.). London: Sage; Howell, D.C. (2007). Statistical methods for psychology (6th ed.). Belmont (CA): Thomson/ Wadsworth; Kleinbaum, D.G., Kupper, L.L., Muller, K.E., & Nizam, A. (1998). Applied regression analysis and other multivariable methods

	(3rd ed.). Pacific Grove (CA): Brooks/Cole.
Teaching methods	Assignment(s) Lecture(s) Skills Training(s)
Assessment methods	Attendance Written exam
Key words	univariate analysis of variance, multivariatie analysis of variance, regression analysis, structural equation modeling

The practical training associated with PSY4106 Advanced Statistics I is PSY4119. Practical training: SPSS and Lisrel will be offered in all RM specialisations.

Title	**Practical training: SPSS and Lisrel**
Period	1-3
Code	PSY4119
ECTS credits	-
Organisational unit	Faculty Office (FPN)
Coordinator	Nick Broers
Descriptions	In order to make practical use of the statistical models that form the topic of the Advanced Statistics course, researchers must make use of statistical software. This course will utilise the traditional SPSS program, but also the specialised LISREL software. LISREL is a statistical program that allows structural equations models to be tested.
Goals	Defining contrasts, building regression models, doing multivariate analyses, transforming data, testing simple slopes, creating and testing SEM models
Instruction language	EN
Prerequisites	
Recommended literature	Handouts given during practicals.
Teaching methods	Assignment(s) Training(s)
Assessment methods	Attendance
Key words	SPSS, LISREL, statistical software

HOME

PSY4107 Advanced Statistics II will be offered in all RM specialisations.

Title	**Advanced Statistics II**
Period	3-5
Code	PSY4107
ECTS credits	3
Organisational unit	Faculty Office (FPN)
Coordinator	Gerard van Breukelen
Descriptions	The course consists of seven units. The first three units cover classical repeated measures ANOVA for the one- and two-way within-subject design and the split-plot (between x within) design. Special attention is given to: a) the choice between multivariate and univariate data formats and method of analysis, and the sphericity assumption; b) the distinction between the within-subjects and between-subjects part of a split-plot ANOVA, and how to obtain both using regression analysis; c) the surprising consequences of including covariates into repeated measures ANOVA; and d) the choice between different methods of analysis for randomised versus non-randomised group comparisons. Subsequently, a further three units are devoted to mixed (multilevel) regression for nested designs and longitudinal studies. This mixed regression starts with a unit on marginal models for repeated measures as an alternative to repeated measures ANOVA in cases of missing data or within-subject covariates. Students are shown the pros and cons of various models for the correlational structure of repeated measures, such as compound symmetry and AR1. The second unit covers the random intercept model for repeated measures as a method to include individual effects in marginal models for longitudinal data (growth curves) or single trial analyses of lab data (response times, ERP, fMRI). Students learn how this can be combined with e.g. ARMA modelling to distinguish between interpersonal and intrapersonal outcome variation. The random intercept model will also be applied to a cluster randomised trial, i.e. an RCT where organisations like schools or companies instead of individuals are randomised. The third and last unit on mixed regression covers random slope models for longitudinal data (individual differences in change over time), single trial analysis (individual differences in stimulus effects) and multicentre trials (RCT within each of a number of organisations). Finally, the topic of optimal design, sample size and power calculations is introduced in a seventh unit.
Goals	Knowledge of: Repeated measures ANOVA for within-subject and split-plot (between x within) designs, including factorial designs and covariates in repeated measures ANOVA; Mixed (multilevel) linear regression with random effects and autocorrelation; Optimal design and sample size calculations for experimental and observational studies.
Instruction language	EN
Prerequisites	Good understanding of descriptive and inferential statistics at the elementary and intermediate level, including t-tests, factorial ANOVA and multiple linear regression. Skilled in the

	use of SPSS for statistical data analyses.
Recommended literature	Lecture handouts and a suitable book chapter or article.
Teaching methods	Assignment(s Lecture(s Training(s)
Assessment methods	Attendance Written exam
Key words	within-subject designs, repeated measures ANOVA, mixed (multilevel) regression, marginal versus random effects models, optimal design, sample size, power

*PSY4422 Psychophysiological Skills will be offered in NP and **PP**.*

Title	**Psychophysiological Skills**
Period	4
Code	PSY4422
ECTS credits	1
Organisational unit	Neuropsychology and Psychopharmacology (FPN)
Coordinator	Eric Vuurman
Descriptions	The goal of this skills training is to acquire basic skills in major peripheral psychophysiological measures and to study the relationship between cognitive and psychophysiological variables, such as memory load, mental effort and attention. In addition, general methodological concepts and issues, such as tonic (baseline) activity, phasic activity and the 'law of initial value' will be discussed. Training consists of four meetings. In the first meeting, an overview lecture will be given on the psychophysiological methods that are relevant to both experimental clinical psychology and neuropsychology. The second meeting is devoted to major domains in psychophysiology, such as heart rate variability, blood pressure, galvanic skin responses. During this meeting, students become acquainted with a selection of psychophysiological techniques in the laboratory. The third and fourth meetings are practical sessions, in which an existing dataset will be provided for analysis and report writing.
Goals	Knowledge of: Peripheral psychophysiology, measuring psychophysiological functions.
Instruction language	EN
Prerequisites	
Recommended literature	
Teaching methods	Assignment(s) Lecture(s) Research Skills Work in subgroups
Assessment methods	Attendance Final paper Participation
Key words	peripheral psychophysiology, methodology

The practical training associated with PSY4107 Advanced Statistics II is PSY4117. Practical training SPSS will be offered in all RM specialisations.

Title	**Practical training: SPSS**
Period	3-5
Code	PSY4117
ECTS credits	-
Organisational unit	Faculty Office (FPN)
Coordinator	Gerard van Breukelen
Descriptions	This practical training forms part of the PSY4107 Advanced Statistics II course. The practical consists of six sessions in the computer rooms in which SPSS procedures for repeated measures and multilevel data are practised. The goal is to understand how proper analyses of such data can be done using SPSS.
Goals	Knowledge of: How to run with SPSS: repeated measures ANOVA for within-subject and split-plot (between x within) designs, including factorial designs and covariates; How to run SPSS for: mixed (multilevel) linear regression with random effects and autocorrelation.
Instruction language	EN
Prerequisites	Good understanding of descriptive and inferential statistics at the elementary and intermediate level, including t-tests, factorial ANOVA and multiple linear regression. Skilled in the use of SPSS for statistical data analyses.
Recommended literature	Field A (2009). Discovering statistics with SPSS (3rd ed.). London: Sage, plus the mandatory assignments on EleUM. For the theoretical part of course PSY4107 lecture handouts and suitable book chapters and articles are used.
Teaching methods	Training(s)
Assessment methods	Attendance
Key words	within-subject designs, repeated measures ANOVA, mixed (multilevel) regression, marginal versus random effects models

PSY5112 Research Grant Writing Course will be offered in all RM specialisations.

Title	**Research Grant Writing Course**
Period	1
Code	PSY5112
ECTS credits	3
Organisational unit	Neuropsychology and Psychopharmacology (FPN)
Coordinator	Eef Theunissen
Descriptions	In this course, students will apply what they have learned during the Research Grant Writing Workshop (PSY4112). Students will work together (groups of max. 5) to write a research proposal on their selected topic, including an original research hypothesis, experimental design and methods. This proposal should promote interdisciplinarity; therefore students are encouraged to think across boundaries of different scientific fields. A senior researcher will guide students during this writing process. The students will write their proposal in 3 steps, and they will receive feedback from their mentor and peers. The resulting proposals will be presented during a symposium by way of a poster or an oral presentation.
Goals	Knowledge of how to: Review literature, formulate a research hypothesis, design a research study, write a research proposal, present the proposal at a symposium (oral or poster).
Instruction language	EN
Prerequisites	This course is a continuation of the Research Grant Writing Workshop (PSY4112).
Recommended literature	
Teaching methods	Work in subgroups
Assessment methods	Attendance Final paper Presentation
Key words	research proposal, interdisciplinary, hypothesis, design, methods, research symposium, peer review

Title	Cognitive Development
Period	1
Code	PSY5411
ECTS credits	3
Organisational unit	Neuropsychology and Psychopharmacology (FPN)
Coordinator	Petra Hurks
Descriptions	The focus of the course is on childhood and adolescence, viewed from a clinical and cognitive neuroscientific perspective. The aim is to learn more about scientific views on normal cognitive development as well as disorders in cognitive development. The influence of biological and psychosocial factors is discussed, as well as problems that scientists are frequently confronted with while studying neuropsychology. Examples of topics that are discussed during the course are clinical expressions of behaviour, affect and cognition, epidemiology, diagnostic procedures and treatment.
Goals	Knowledge of: Theoretical and methodological issues in studies of cognitive development from childhood to adolescence.
Instruction language	EN
Prerequisites	
Recommended literature	
Teaching methods	Paper(s) PBL Work in subgroups
Assessment methods	Attendance Final paper Presentation
Key words	child neuropsychology, individual differences, cognitive development

Skills training

Is almost equal to the Master's course PSY4063. In the Master's degree it is practical training; in the RM it is skills training.

Title	**Neuropsychological Assessment**
Period	1
Code	PSY4433
ECTS credits	2
Organisational unit	Neuropsychology and Psychopharmacology (FPN)
Coordinator	Sven Stapert
Descriptions	Neuropsychological assessment runs parallel to the courses Brain Damage and Behavioural Disorders. The core elements in mastering this skill involves the clinical data gathering process which results in interpreting cognitive, emotional and behavioural data in order to support neurological or neuropsychiatric diagnosis. The skills training commences with an introductory lecture covering the principles and interpretation of neuropsychological assessment. During a 7-week period, students are trained in neuropsychological history taking, observing patient behaviour, cognitive testing and interpreting cognitive and behavioural data. Finally, each student writes a comprehensive neuropsychological report based on a simulated clinical case.
Goals	Knowledge of: Students obtain the basic skills of neuropsychological assessment, i.e. observing, interviewing, neuropsychological testing, combining and interpreting behavioural and cognitive data and neuropsychological report writing.
Instruction language	EN
Prerequisites	introductory knowledge on psychodiagnostics and related psychometrics
Recommended literature	Lezak. M.D. , Howieson, M.D., Bigler, E.D., & Tranel, D. (2012). Neuropsychological Assessment. New York: Oxford University Press; R.D. Vanderploeg (2000). Clinician's Guide to Neuropsychological Assessment. New Jersey: Lawrence Erlbaum Associates.
Teaching methods	Assignment(s) Lecture(s) Paper(s) Patient contact Skills Training(s) Work in subgroups
Assessment methods	Attendance Final paper Participation
Key words	neuropsychological assessment, cognitive disorders, brain disease, brain injury, test taking, interviewing, observations, psychometry

Is almost equal to the Master's course PSY4066:

1. *in the Master's degree it is practical training; in the RM it is skills training*
2. *in the Master it's 2 ECTS credits; in the RM 3 ECTS credits.*

Title	**Basic Cognitive Psychological Skills**
Period	2
Code	PSY4434
ECTS credits	3
Organisational unit	Neuropsychology and Psychopharmacology (FPN)
Coordinator	Eric Vuurman
Descriptions	This course focuses on the acquisition and training of basic skills needed in cognitive performance research. The course is centred around a psychological experiment in which students study the detrimental effects of arousal manipulation (environmental noise) on cognitive processing. Students will learn how to perform a field experiment and how to go through the various stages necessary to acquire and analyse the data and report the results. Students will be required to recruit a small number of subjects and administer the test battery according to a pre-defined protocol. The test battery consists of paper and pencil tests that will have been presented and discussed in previous courses. After data acquisition, a number of interactive sessions are planned in which students learn to explore and analyse their data with SPSS and to interpret the results. Students conclude the course by writing a paper in APA format describing the experiment. Furthermore, an overview of techniques and tests will be given; these are currently used to evaluate performance in a number of cognitive domains, such as language, perception, attention and executive functions.
Goals	Knowledge of: Psychological testing, data preparation, data analysis, report writing.
Instruction language	EN
Prerequisites	
Recommended literature	Field, A. (2009). Discovering statistics using SPSS (3rd ed.). London: Sage.
Teaching methods	Assignment(s) Lecture(s) PBL
Assessment methods	Attendance Final paper
Key words	field experiment, applied behavioural testing, data reduction and analysis techniques, report writing

*PSY4108 Neuroanatomy will be offered in CN, NE, **NP** and PP.*

Title	**Neuroanatomy**
Period	3
Code	PSY4108
ECTS credits	1
Organisational unit	Psychiatry and Neuropsychology (FHML)
Coordinator	Jos Prickaerts
Descriptions	The aim of this practical training is to become acquainted with the neuroanatomical terminology and to gain insight into the spatial and functional organisation of the brain. It is essential to have a basic knowledge of the brain anatomy when working in the field of neuropsychology or neurobiology. Many specific brain areas can be linked to particular functions. Thus, knowledge of the brain anatomy and its main functions allows direct linkage of specific neurological or psychiatric disorders to particular brain areas. After a short theoretical introduction, students will study whole brains and brain material of mammals at both macroscopical (visual inspection) and microscopical level. The emphasis will be on major brain systems, including the basal ganglia and limbic system.
Goals	Knowledge of: Limbic system, basal ganglia, plastinated human brains, brain dissection, microscopical slices.
Instruction language	EN
Prerequisites	
Recommended literature	Papers from scientific journals and book chapters from books are provided.
Teaching methods	Lecture(s) Skills Work in subgroups
Assessment methods	Attendance Written exam
Key words	neuroanatomy, limbic system, basal ganglia

Title	**Neuropsychology in Practice: From Test Results to Report and Advice**
Period	4, 5
Code	PSY4423
ECTS credits	2
Organisational unit	Neuropsychology and Psychopharmacology (FPN), Psychiatry and Neuropsychology (FHML)
Coordinator	Caroline van Heugten, Rudolf Ponds
Descriptions	The aim of this skills training is to learn to integrate several aspects of a neuropsychological examination. This kind of examination can be used both in clinical settings and in clinical research and contains the following aspects: interview, clinical impression, test results, rating scales, questionnaires, etc. Learning to interpret and integrate the different aspects will result in a coherent neuropsychological report and conclusion. Tests and theoretical and practical knowledge will be presented in the current skills training to help students achieve the course goals. Note that the major focus of this skills training is not to test a patient or a subject participating in a study, but to interpret the data. The skills training consists of eight meetings. In the first two meetings, an overview will be presented of the skills needed to form a conclusion about the data acquired by testing a patient or research subject. Furthermore, students will practise performing and interpreting tests, rating scales and questionnaires. The use of normative data, the concept of validity and what to do when a subject's performance is lower, or otherwise deviant from what would be expected, will also be addressed. Meetings three to eight will be led by clinical experts. Video segments of different patients with a neuropsychological or psychiatric problem (e.g. patients from the departments of psychiatry, neurology and geriatrics) will form the basis of a group discussion and presentations, in which the emphasis will be on the interpretation of patient material.
Goals	Knowledge of: Clinical neuropsychology, assessment, diagnostic techniques, test results, cognitive dysfunctioning, neuropsychiatric disorders, acquired brain injury, Alzheimers disease, dementia, stroke, emotional consequences, behavioural disorders.
Instruction language	EN
Prerequisites	
Recommended literature	Journal articles, book chapters.
Teaching methods	Assignment(s) Lecture(s) Paper(s) Presentation(s) Skills
Assessment methods	Attendance Presentation
Key words	clinical neuropsychology, assessment, cognitive dysfunctioning, emotional problems, behavioural problems

Skills training
1.PSY4221 EEG and ERP is equal to the Master's module PSY4034 EEG and ERP (DP & CN)
2.PSY4221 EEG and ERP (in CN, NE, FN, **NP**. In NP it will be offered as an Elective).

Title	**EEG and ERP**
Period	1
Code	PSY4221
ECTS credits	2
Organisational unit	Cognitive Neuroscience
Coordinator	Fren Smulders
Descriptions	Electroencephalography (EEG) and Event Related Potentials (ERP) offer a combination of precise measurements for the time course of brain processes. These are low cost, non-invasive measurements and are widely available. For these reasons they make a unique contribution to cognitive neuroscience. Scientific interest in EEG and ERP is growing, and results have been increasingly integrated with other neuro-imaging techniques during the last few decades. Lectures and basic literature provide an introduction for students to the basics of EEG and ERP research, EEG and ERP terminology and the possibilities and limitations within EEG and ERP. One topic that students will learn is how to set up an experimental paradigm that is suitable for EEG and ERP measurements. Students also study practical measurement issues, such as electrode placement and types of artefacts. Finally, students must interpret the resulting data. Successful measurement requires an understanding of the basics of EEG and ERP signal analysis techniques, such as artefact management, spectral analysis, filtering, ERP averaging, time-frequency analysis etc. Students also receive hands-on training in smaller groups in running an ERP experiment, including electrode application, minimising artefacts, and health and safety in the lab. A number of simple experimental paradigms will be utilised; these provide interesting and reliable results. Data processing will include a number of common EEG analyses, e.g. analyses in the time and frequency domain.
Goals	Knowledge of: Basic EEG/ERP paradigms, EEG recording systems, measurement settings, electrode application, data quality verification, analogue-digital conversion, basic EEG / ERP components, interpreting topographical plots, neural origins of EEG, time domain analysis, frequency domain analysis, time-frequency analysis, filtering, ocular artefact control, muscle artefact control, choice of reference, re-referencing.
Instruction language	EN
Prerequisites	
Recommended literature	Journal articles, handbooks.
Teaching methods	Lecture(s) Paper(s) Skills Training(s) Work in subgroups
Assessment methods	Attendance Final paper
Key words	Electroencephalography (EEG), Event-related potentials (ERP), electrophysiology, measurement, analysis of brain

	potentials.

Title	**Neuropsychological Rehabilitation**
Period	5, 6
Code	PSY4424
ECTS credits	2
Organisational unit	Neuropsychology and Psychopharmacology (FPN)
Coordinator	Caroline van Heugten
Descriptions	The course will address the content of neuropsychological interventions as well as the procedures and designs that can be used for the execution of evidence-based research. Throughout the meetings, the basic premises and 'pitfalls' in this type of research will be elaborated and the possibilities to circumvent these problems by proper choice of approach and design will be discussed. Various research designs will be compared in terms of their strengths and weaknesses (e.g. experimental studies, quasi-experimental designs, intention-to-treat, single case designs, challenge-studies, depletion studies). Various forms of neuropsychological treatments will be discussed and students will receive practical training in rehabilitation principles. Skills will be developed that can be applied in cognitive training and psycho-education. Forms of complex behavioural treatment will also be discussed.
Goals	Knowledge of: Clinical neuropsychology, treatment, rehabilitation, cognitive dysfunctioning, emotional problems, behavioural disorders, acquired brain injury, Alzheimers disease, neuropsychiatric disorders, randomised clinical trials, treatment effects, outcome measurement.
Instruction language	EN
Prerequisites	
Recommended literature	Jounral articles, book chapters.
Teaching methods	Assignment(s) Lecture(s) Presentation(s) Skills
Assessment methods	Attendance Final paper
Key words	rehabilitation, treatment, acquired brain damage, effectiveness

Methodological and technical workshops

PSY4112 Research Grant Writing Workshop will be offered in all RM specialisations.

Title	**Research Grant Writing Workshop**
Period	6
Code	PSY4112
ECTS credits	1
Organisational unit	Neuropsychology and Psychopharmacology (FPN)
Coordinator	Eef Theunissen
Descriptions	During this workshop students will learn why and how to apply for research grants. The need for acquiring funding for research, the opportunities for, and availability of grant application funding will be discussed. Several researchers who have experience in applying for different types of grants will provide students with first-hand knowledge and tips. Students will learn fundamentals of good grant writing, general preparation of the grant application and how to deal with reviewer comments. These skills will be practiced during the workshop. Students will subsequently choose a topic (provided by senior researchers) on which they will write a research proposal during the second-year Research Grant Writing Course (see description of PSY5112).
Goals	Knowledge of: Opportunities for funding, how grants can be acquired, grant writing skills.
Instruction language	EN
Prerequisites	
Recommended literature	
Teaching methods	Assignments Lecture(s)
Assessment methods	Attendance Final paper
Key words	funding possibilities, grant applications, proposal writing

PSY4110 Scientific Writing will be offered in all RM specialisations. Offering times vary according to RM specialisation:
CN: Period 5
NE: Period 5
NP: Period 5
FN: Period 1
PP: Period 1

Title	**Scientific Writing**
Period	5
Code	PSY4110
ECTS credits	1
Organisational unit	Maastricht University Language Centre
Coordinator	Alice Wellum
Descriptions	The course is delivered in a series of three lectures, interspersed with three tutorials, during which students produce and revise a short research proposal or research article. The lectures aim to cover the broader principles of scientific writing (including clarity/readability, structure and coherence). It also covers the ethical issues surrounding the production of scientific texts (for example, plagiarism and non-biased writing). Lectures are interactive; students are assigned with analysis and discussion tasks to complete. In tutorials students apply the principles in the linguistic sense and discover how these apply to their own writing. In particular, the 'doors and windows' (abstracts, introductions, hypotheses and discussions) of scientific papers are analysed for their linguistic and stylistic content. In the tutorials, students develop the language awareness and critical skills required to review their own work as well as that of their peers. Individualised feedback on parallel block assignments is given at the end of the course by the instructor.
Goals	Knowledge of: Principles of scientific writing, conventions in scientific writing, the structure of scientific texts, ethics in scientific writing, plagiarism, editing skills, language in scientific writing, academic writing style, coherence in scientific writing, reporting sources.
Instruction language	EN
Prerequisites	
Recommended literature	Literature is provided in the course materials.
Teaching methods	Assignment(s) Lecture(s) Paper(s) PBL Research Skills Training(s) Work in subgroups
Assessment methods	Attendance Final paper
Key words	scientific writing, research proposal, empirical research article, literature review, peer review, language awareness.

*PSY4371 Psychiatric Epidemiology will be offered in FN, **NP** and PP.*

Title	**Psychiatric Epidemiology**
Period	6
Code	PSY4371
ECTS credits	1
Organisational unit	Psychiatry and Psychology (FHML)
Coordinator	Wolfgang Viechtbauer
Descriptions	The course will provide an introduction to the methodologies and analytical strategies of epidemiology as applied to mental health outcomes. The principles and practice of various study types (cohort, case-control, RCT, ecological) will be taught, with emphasis on interpreting associations and possible causality thereof. Consideration will be given to such issues as confounding, bias, and moderation. Further topics to be covered include the use and interpretation of diagnostic studies, the basic principles of analysing dichotomous and time-to-event outcomes, and the use of systematic reviews and meta-analysis for building cumulative knowledge.
Goals	Knowledge of: Different epidemiological study types, including their purpose, advantages, and disadvantages; calculation and interpretation of effect size and outcome measures for dichotomous and time-to-event outcomes; principles of analysing epidemiological studies; the basic steps of conducting a systematic review and meta-analysis.
Instruction language	EN
Prerequisites	
Recommended literature	Rothman, K. J., & Greenland, S. (1998). Modern epidemiology (2nd ed.). Philadelphia, PA: Lippincott-Raven Publishers.
Teaching methods	Assignment(s) Lecture(s) PBL Skills Training(s) Work in subgroups
Assessment methods	Attendance Final paper
Key words	epidemiology, methodology, statistics, experimental studies, observational studies, diagnostic studies, systematic reviews, meta-analysis

*PSY4372 Functional Brain Imaging will be offered in FN**, NP** and PP.*

Title	**Functional Brain Imaging**
Period	6
Code	PSY4372
ECTS credits	2
Organisational unit	Cognitive Neuroscience (CN)
Coordinator	Vincent van de Ven
Descriptions	This workshop is aimed at introducing basic knowledge and principles of functional brain imaging techniques, and at discussing novel advances in relevant fields, such as clinical, animal and cognitive research. The workshop comprises two versions that are tailored to two *a priori* levels of background that may exist within the Research Master cohort. Version 1 introduces the basic principles of neuroimaging (intro to imaging methods, experimental design & analysis, fMRI signal, etc.) and some applications to clinical research, neuroeconomics, social neuroscience and similar fields. Version 2 introduces a number of technical and methodological advances (multimodal imaging techniques, connectivity analyses, mental chronometry and other matters), and assumes that participants possess *a priori* knowledge of items discussed in version 1. Assignment to a workshop version is via allocation on an individual basis; participants must follow at least one version. Participants can opt to follow both versions, but will receive no extra credits. General description: The investigation of human brain anatomy and functions using a range of imaging methods represents the most influential development in psychology in the last few years. This workshop reviews essential facts about contemporary major structural and functional brain mapping techniques, but the focus will be on functional Magnetic Resonance Imaging (fMRI). Also, the workshop discusses strengths and weaknesses of neuroimaging methods and on the description of relevant applications in the normal and pathological brain. These topics will be investigated through lectures, paper and group discussions, and a final skills session in which fMRI data is analysed. The final assessment is via a paper assignment.
Goals	Knowledge of: Functional brain imaging techniques and principles, pros and pitfalls of functional brain imaging, data analysis, experimental design for brain imaging research, hands-on data analysis and visualisation experience.
Instruction language	EN
Prerequisites	Basic knowledge of Brain anatomy, experimental design and statistics.
Recommended literature	Journal articles.
Teaching methods	Lecture(s) Paper(s) Skills
Assessment methods	Attendance Final paper
Key words	Magnetic Resonance Imaging (MRI), functional MRI, structural MRI, positron emission tomography (PET),

	neuroimaging, data analysis, brain activity

*PSY4335 will be offered in **NP** and PP.*

Title	**Psychopharmacology**
Period	5
Code	PSY4335
ECTS credits	1
Organisational unit	Neuropsychology and Psychopharmacology (FPN)
Coordinator	Arjan Blokland
Descriptions	Students will become acquainted with current topics in psychopharmacology, i.e. how current knowledge of neuropsychiatric disease processes relates to existing medicinal drugs and research and development of new medicinal drugs. Topics will also include testing new drugs in animal models and the use of healthy volunteers and patients in new drug studies, in order to cover the cycle of new medicine development from bench to bedside.
Goals	Knowledge of: Examples of psychopharmacological studies; present/prepare a presentation on a topic of psychopharmacology.
Instruction language	EN
Prerequisites	
Recommended literature	
Teaching methods	Lecture(s) Presentation(s)
Assessment methods	Attendance Presentation
Key words	psychopharmacology

Title	**Neuropsychological Assessment in Children**
Period	1
Code	PSY5431
ECTS credits	1
Organisational unit	Neuropsychology and Psychopharmacology (FPN)
Coordinator	Peter Stiers
Descriptions	The aim of this workshop is to acquaint students with neuropsychological testing in children and with the interpretation of clinical data in relation to a conceptual model of brain-behaviour relationships. The constructs and assessment of cognitive functions in children will be discussed, with special attention given to methodological aspects of assessment. A number of cognitive tests for children will be presented during the workshop. Models of cognitive psychology will be considered in the context of developmental disorders, including memory, attention, language, information processing and intelligence. The focus is on test paradigms from the field of child neuropsychology used to probe domain-specific functions, with an emphasis on the need to integrate information from different sources: medical history, neurological disorders, radiology, interview, test results, scientific literature, etc.
Goals	Knowledge of: Multiple disability, mental retardation, specific impairments, assessing differential deficits, congenital brain disorders, developmental amnesia, cerebral visual impairment, attention, clinical report writing.
Instruction language	EN
Prerequisites	
Recommended literature	
Teaching methods	Assignment(s) Lecture(s) Paper(s) PBL Presentation(s) Skills Work in subgroups
Assessment methods	Attendance Final paper
Key words	multiple disability, neuropediatrics, specific impairment, neuropsychological methods, congenital disorders, magnetic resonance imaging

Electives

The following electives will be offered in all RM specialisations.

Title	**Elective: Course**
Period	throughout
Code	PSY4156
ECTS credits	Variable
Organisational unit	Cognitive Neuroscience (FPN)
Coordinator	Vincent van de Ven
Descriptions	Students can attend a course offered by an RM specialisation or a course from a regular master's programme at Maastricht University (local courses) or a course that is organised at a different university in The Netherlands or abroad (external courses). The content, format and organisation of local courses are described in this catalogue or in the course descriptions of other UM master's programmes. The content, format and organisation of external courses are determined by the host university. Elective courses do not overlap with required RM courses, but instead offer new knowledge and insights. Enrollment in an elective course is subject to approval by the Course Instructor as well as the RM Electives Coordinator. There is no limit to the number of electives courses that may be taken, but elective courses do not substitute for mandatory courses.
Goals	Knowledge of: Extracurricular interests, broadening academic scope, taking specialised courses.
Instruction language	EN
Prerequisites	
Recommended literature	
Teaching methods	Assignment(s) Lecture(s) Paper(s) PBL Presentation(s) Skills Training(s)
Assessment methods	Attendance Computer test Final paper Observation Oral exam Participation Portfolio Presentation Take home exam Written exam
Key words	electives, external courses, external workshops

Title	Elective: Review
Period	throughout
Code	PSY4157
ECTS credits	3
Organisational unit	Cognitive Neuroscience (FPN)
Coordinator	Vincent van de Ven
Descriptions	Students write a critical literature review based on a specialised topic, under the supervision of a member of the scientific staff of Maastricht University. Students take the initiative to locate and arrange a supervisor for the review. The review topic, content and format will be determined by mutual agreement between student and supervisor. The review topic is also subject to approval by the RM Electives Coordinator. Students are expected to devote 84 hours to the Elective: Review. Each student may complete maximally one Elective: Review course The Elective: Review course must be completed and assessed prior to the start of the internship.
Goals	Knowledge of: Extracurricular interests, specialisation on topic of interest, supervised scientific writing, literature review.
Instruction language	EN
Prerequisites	
Recommended literature	
Teaching methods	Paper(s)
Assessment methods	Final paper
Key words	elective, review paper, paper assignment, literature review, writing assignment

Title	**Elective: Research**
Period	throughout
Code	PSY4158
ECTS credits	3
Organisational unit	Cognitive Neuroscience (FPN)
Coordinator	Vincent van de Ven
Descriptions	Students can participate in (parts of) an empirical research project that is conducted and supervised by a member of the FPN or FHML scientific staff. Students can apply for an available project from the list of project descriptions; available on the 'RM Electives' section on EleUM, which is published and updated in December of each year. The application procedure is also described on the 'RM Electives' section on EleUM. Students who are selected to participate in a research elective may assist in designing the experiment or observational study, acquire empirical data, be trained in using measurement equipment, analyse empirical data, or take part in other parts of the research project. Students must write a short research report of maximally 5 pages about the practical experience obtained. Students are expected to spend 84 hours on the Elective: Research course, which includes time spent on practical work and the research report. The principal investigator of the project will supervise the practical work and grade the research report. Each student may complete maximally one Elective: Research course. The Elective: Research course must be completed and graded before the start of the internship.
Goals	Knowledge of: Planning or designing empirical research, empirical data analysis, writing research report, quantitative methods, conducting research, skill learning of data acquisition techniques, functioning in a research team.
Instruction language	EN
Prerequisites	
Recommended literature	
Teaching methods	Assignment(s) Lecture(s) Paper(s) Patient contact PBL Presentation(s) Research Skills Training(s) Work in subgroups
Assessment methods	Final paper Participation
Key words	elective, practical research, empirical research

Internships

1. *PSY5107 Research Proposal, PSY5102 Research Internship and PSY5103 Master's Thesis -> for [CN, NE, FN->50 credits] and [NP and PP->30 credits]*. *Internship coordinators are different per specialisation.*

50 credits apply to: CN, NE and FN and for the NP student that only chooses a research internship (not including the clinical part)

The NP student that chooses the combined internship (Research + Clinical) will obtain 30 credits for the Research Proposal + Research Internship + Master's Thesis + 20 credits for Clinical Internship, Research Proposal and Minor's Thesis. The combined version is compulsory to PP students.

2. Clinical Internship, Research Proposal and Minor's Thesis PSY5104, PSY5108, and PSY5105 Are the same for NP and PP. *Only the internship coordinators differ from each other.*

Title	**Research Proposal, Research Internship and Master's Thesis**
Period	2-6
Code	PSY5107, PSY5102, and PSY5103
ECTS credits	**30** ECTS (1, 19, and 10, respectively) for RM PP students and for RM NP students who choose to conduct both a research and a clinical internship (plus minor's thesis). The total research internship will be assigned 30 credits: 20 credits for the research activities, including the research proposal (1 credit; graded pass/fail) and the practical execution of the internship (19 credits; graded assessment), and 10 credits (graded assessment) for the master's thesis. **50 (1, 35, and 14, respectively)** for RM CN, NE, FN, NP students who do *not* complete a clinical internship and minor's thesis. The total research internship will be assigned 50 credits: 36 credits for the research activities, including the research proposal (1 credit; graded pass/fail), and the practical execution of the internship (35 credits; graded assessment) and 14 credits (graded assessment) for the master's thesis.
Organisational unit	Clinical Psychological Science (FPN)
Coordinator	Sandra Mulkens
Descriptions	The second part of the second year of the research master's programme is devoted to conducting a research internship. As a result of the many international research contacts that faculty members have established, a substantial number of students will conduct their research internship abroad. Students start their internship with the writing of a research proposal. Students finish the master's programme by writing a thesis based on their internship research project. The internship can be undertaken at Maastricht University or at external research institutes. In all cases, a student's research proposal and master's thesis will be evaluated by two assessors. At least one of these assessors must be a member of the Faculty of Psychology and Neuroscience (FPN)

	or the Faculty of Health, Medicine and Life Sciences (FHML). The other assessor might be a (senior) researcher at, for example, the institute where a student collected the data. A detailed guide on research internships and the master's thesis can be found on EleUM > Students Research Master Faculty of Psychology and Neuroscience > internships. - RM Cognitive Neuroscience Internships Coordinator: Amanda Kaas, Cognitive Neuroscience (FPN), Phone: (0)43 38 82172, 55 Oxfordlaan, Room 2.019, Email: a.kaas@maastrichtuniversity.nl - RM Neuroeconomics Internships Coordinator: Amanda Kaas, Cognitive Neuroscience (FPN), Phone: (0)43 38 82172, 55 Oxfordlaan, Room 2.019, Email: a.kaas@maastrichtuniversity.nl - RM Fundamental Neuroscience Internships Coordinator: Pilar Martinez, Psychiatry and Neuropsychology (FHML), Phone: (0)43 38 81042, 40 Universiteitssingel West, Room 2.574, Email: p.martinez@maastrichtuniversity.nl - RM Neuropsychology Internships Coordinator: Caroline van Heugten, Neuropsychology and Psychopharmacology (FPN), Phone (043) 38 84213, 40 Universiteitssingel East, Room 2.736, Email: caroline.vanheugten@maastrichtuniversity.nl - RM Psychopathology Internships Coordinator: Nicole Geschwind, Clinical Psychological Science (FPN), Phone (043) 38 81608, 40 Universiteitssingel East, Room 2.767, Email: Nicole.geschwind@maastrichtuniversity.nl
Goals	Knowledge of: Conducting a (supervised) empirical research project and summarising the research and findings in the form of a master's thesis.
Instruction language	EN
Prerequisites	
Recommended literature	
Teaching methods	Assignment(s) Paper(s) Patient contact Research Skills Working visit(s)
Assessment methods	Attendance Final paper Observation Participation
Key words	internship, research, master's thesis

Title	**Clinical Internship, Research Proposal and Minor's Thesis**
Period	2-6
Code	PSY5104, PSY5108, and PSY5105
ECTS credits	**20** (15, 1, and 4, respectively)
Organisational unit	Clinical Psychological Science (FPN)
Coordinator	Sandra Mulkens
Descriptions	Students specialising in psychopathology are required to, and students specialising in neuropsychology may choose to, conduct a 13-week clinical internship in an approved setting. The clinical internship can be conducted in conjunction with the research internship or separately. Students are required to submit an additional research proposal and scientific report (the minor's thesis) based on client/patient-based investigations performed during the clinical internship. The aims of the clinical internship are twofold. Firstly, the internship is meant to provide experience in conducting research in a clinical setting; a small-scale research project culminates in the minor's thesis. Secondly, the internship provides an introduction to the organisation and practice of mental health care, as well as basic experience in clinical diagnosis and therapeutic interventions. For neuropsychology students who choose to undertake a clinical internship, the internship and minor's thesis will be assigned 20 credits, and the research internship and thesis will be assigned 30 credits. A detailed guide on clinical internships and the minor's thesis can be found on EleUM > FPN Research Master Students > Internships. Although it is not a requirement of the research master's programme, students who wish to meet Dutch requirements for admission to advanced clinical training programmes are advised to extend their clinical internship by at least two weeks. - RM Psychopathology Internships Coordinator: Nicole Geschwind, Clinical Psychological Science (FPN), Phone (043) 38 81608, 40 Universiteitssingel East, Room 2.767, Email: Nicole.geschwind@maastrichtuniversity.nl - RM Neuropsychology Internships Coordinator: Caroline van Heugten, Neuropsychology and Psychopharmacology (FPN), Phone (043) 38 84213, 40 Universiteitssingel East, Room 2.736, Email: caroline.vanheugten@maastrichtuniversity.nl
Goals	Knowledge of: The work environment of the clinical psychologist. This internship gives students the opportunity to practise clinical skills in a real-life setting and to design and conduct a small-scale clinical research project.
Instruction language	EN
Prerequisites	
Recommended literature	
Teaching methods	Assignment(s) Paper(s) Patient contact Research Skills Training(s) Working visit(s)

Assessment methods	Attendance Final paper Observation Participation
Key words	clinical research, clinical practice, clinical training, psychodiagnostics, patient contact