

## 2 The first year

### 2.1 GENERAL

The first year of the study programme (the propedeuse) has an orientational, selective and referential function. For that purpose it provides both a representative overview of psychology and its basic disciplines as well as a perspective on the specific character of Maastricht psychology programme.

The propedeuse begins with a five-week introductory module, consisting of an initial introduction to psychology, followed by six regular modules.

The themes of the first three modules are "Social Behaviour", "Development and Growth" and "Body and Behaviour". The third module will be completed before the Christmas break. The "Social Behaviour" module provides an introduction to social psychology and gives students the opportunity to practise working with the problem-based learning method. In the "Development and Growth" module, development will be studied from both a cognitive and a biological perspective. The "Body and Behaviour" module explains how biological mechanisms determine and influence behaviour.

In module 1.4, "Differences Between People", the factors underlying differences between people will be examined. In module 1.5, "Human Cognition", the viewpoint of cognitive psychology is central. Module 1.6, "Perception", provides an introduction to the psychology of perception. The propedeuse concludes with module 1.7, "History and Theory of Psychology", which places psychology in its historical context.

Parallel to each module, practical training courses are offered in which students learn various skills, generally correlated with the subject matter in the current module. The objectives and contents of the practical training will be described in section 2.2. More detailed information will be found in the module books. Each module is concluded with an assessment.

For each module, there are two tutorial group meetings per week, each lasting two hours. The number of practical training meetings is variable. The times at which practical training meetings and lectures are to be held during each term will be found in the schedule.

The parallel programme during the first year focuses on research methods, statistics and computer skills. Instruction in writing skills will also be given throughout the year.

**Core texts**

A number of books are essential for students following the propedaeuse. Unless students acquire their own copies of these books, it will be difficult for them to participate in the tutorial groups and get the most out of the course. The core texts for the first year are as follows:

1. Gleitman, H. (1995). *Psychology*. (4th ed.). New York: W.W. Norton & Company.
  2. Butenko, D. and Daehler, M. (1995). *Child Development. A Thematic Approach*. Houghton Mifflin, Boston.
  3. Kalat, J.W. (1995). *Biological Psychology*. (5th ed.). New York: Brooks/Cole Publishing Company.
  4. Sternberg, R.J. (1996). *Cognitive Psychology*. Fort Worth: Harcourt Brace College Publishers.
  5. Goldstein, E.B. (1996). *Sensation and Perception*. (4th ed.). Pacific Grove, CA: Bruce/Cole.
  6. Boon, L. (1982). *Geschiedenis van de psychologie*. Meppel: Boom.
  7. Goodwin, C. (1995). *Research in Psychology, Methods and Design*. New York: Wiley.
  8. Chalmers, A. (1981). *Wat heet wetenschap*. Meppel: Boom.
  9. Boertjens, K.R. (1995). *PC Combicursus Microsoft Office 95*. (UK version). Schoonhoven: Academic service.
  10. Brink, W.P. van den and Koele, P. (1985/1994). *Statistiek deel 1, 2, 3 en 4*. Meppel: Boom.
- Usually, the reading material for a module includes a set of photocopies of articles and chapters from books (in this prospectus referred to as 'collection of articles') which is distributed to the students by the tutors. In addition, many modules will refer to additional publications available in the learning resources centre. To follow a course effectively, it is important to consult such sources regularly.

**2.2 OVERVIEW OF FIRST YEAR PROGRAMME**

Module	Training	Parallel programme
1.1 Social Behaviour	Observation	PC use Research Methods Ia
1.2 Development	Observation	E-mail/Internet
1.3 Body and Behaviour	Brain anatomy	Word / CD-ROM Statistics Ia
1.4 Differences between people	Questionnaires	Statistics Ia/ End-note
1.5 Human Cognition	Experiments	Statistics Ib
1.6 Perception	Ergonomics	Statistics Ib/ Essay
	Perception of odour	
1.7 History and Theory	Essay	Statistics Ib Research Methods Ib

**2.2.1 Description of the modules****Module 1.1 Social Behaviour**

Coordinator: Louis Boon, Psychology, tel.: 3881885, Dr Tanslaan 10, rm 4.002

**Objectives**

This module has a dual objective. Students will be provided with an introduction to social psychology and will practice the skills necessary to function in the problem-based learning system.

**Description**

Education in Maastricht is based on the method of problem-based learning. To function effectively within this non-traditional system, it is essential for students to acquire some knowledge of its background and central elements and be trained in a number of basic skills. This module starts with training the skills needed to work in the tutorial group meetings. Topics utilized in this training are taken from social psychology, the central theme of this module. Halfway through this first week, training meetings will be replaced by regular tutorial group meetings. To a great extent, human behaviour is geared to and determined by interaction with other people. This module will deal with both the biological roots of social behaviour as well as typically human aspects of social behaviour.

The module deals with a number of classical themes from social psychology: conformism, attitudes and changes in attitudes, cognitive dissonance and the manner in which people deal with cognitive conflicts. Subsequently, the manner in which facial expressions, emotions and behaviour affect each other will be examined. In the final part of the module, the focus will be on ethology, illustrated with phenomena such as sexuality and cooperation.

**Essential reading**

- Gleitman, H. (1995). *Psychology*. (4th ed.). New York: W.W. Norton & Company. Part 4 in particular.
- Collection of articles.

**Practical training**

Coordinator: Wijnand Raaijmakers, Psychology, tel.: 3881880, Dr Tanslaan 10, rm 3.002a.

**Objective:** To acquaint students with methods utilized for the observation of animal behaviour. The training makes use of video taped ethological material, which is to observe and score.

**Teaching method**

14 tutorial group meetings, 5 lectures, 2 practical training meetings.

**Assessment**

Open questions.

## Module 1.2 Development and Growth

Coordinator: Anita Jansen, Psychology, tel.: 3881910, Dr Tanslaan 10, rm 3.017.

### Objectives

During this module, students will learn how children and adolescents develop psychologically. Following a short introduction covering prenatal development in the central nervous system (CNS), students will examine the ways in which thought, language, sexual identity and emotions develop over the years. Considerable attention will be devoted to learning processes, such as habituation, classical conditioning, operant conditioning and social learning. A number of developmental disorders, such as autism and ADHD (Attention Deficit Hyperactivity Disorder) will also be studied.

### Description

The subject of this module is the development and change of psychological structures from conception to adolescence. Since biological maturation and development are closely related to the development of psychological structures, the module begins with an examination of the prenatal growth of the CNS. Subsequently, learning processes and the development of cognitive and emotional faculties, language and sexual identity in children and adolescents will be studied. How do we learn to think and talk? How do we form attachments and what influence does this have on our later emotional development? What are the effects of reward and punishment? How do we learn to evaluate good and evil? When we do we know that we are girls or boys and begin to behave accordingly? How does this process take place? When is a noisy, animated little boy normal and when do we say that he has an attention disorder? Questions such as these will be considered in the course of this module.

### Essential reading

- Gleitman, H. (1995). *Psychology*. (4th ed.). New York: W.W. Norton & Company. Chapters 4, 13 and 14.
- Bukatko, D. and Daehler, M. (1995). *Child Development: A Thematic Approach*. Houghton Mifflin, Boston.
- Collection of articles.

### Practical training

Coordinator: Peter Muris, Psychology, tel.: 3881980, Dr Tanslaan 10, rm 3.013.  
 Objectives: There are two practical training meetings. A session on conditioning will be given at the beginning of the module. The second session covers observational techniques. During the practical trainings, students will learn to observe and to determine the validity of their observations. Both healthy children and children with behavioural disorders (autism) will be observed. To develop scientific writing skills, a report in the form of a scientific article is to be written on the basis of the practical training.

### Teaching method

12 tutorial group meetings, 6 lectures, 2 practical training meetings.

### Assessment

Open questions.

## Module 1.3 Body and Behaviour

Coordinator: Jelle Jolles, Psychology, tel.: 3881912, Dr Tanslaan 10, rm 3.002.

### Objectives

This course provides an introduction to important topics in biological psychology and gives students insight into the biological bases of psychological phenomena. Sleep, wakefulness and dreams have a profound influence on human functioning. The same is true of eating, drinking and sexuality. Biological processes are interrelated with psychological processes and social influences. They determine behaviour and perception, thought, consciousness and emotions. Module 1.3 aims at providing examples and insight related to the connection between somatic processes and behaviour. Briefly summarized, its objectives are as follows:

- to help students acquire knowledge about somatic processes which play a role in behaviour and perception;
- to create insight into psychological processes which, to a significant extent, are (partly) determined by biological mechanisms;
- to teach students to recognize biological processes which influence behaviour and perception along with psychological and social factors.

### Description

The following topics will be covered: the biological clock; sleep and dream; breathing and temperature regulation; eating and drinking; emotion and aggression; drugs and behaviour; hormones and behaviour; sexuality. In addition to case studies, practical training will have an important place. The introduction to the case histories will make use of a collection of newspaper clippings along with the module book. Seminars to present in-depth information on the cases will also be held. Practical training will focus on deepening insight into brain-behaviour relations. There will be a close relationship between the subject matter presented in the practical training meetings and the contents of the lectures and problems.

### Essential reading

- Gleitman, H. (1995). *Psychology*. (4th ed.). New York: W.W. Norton & Company.
- Kalat, J.W. (1995). *Biological Psychology*. (5th ed.). New York: Brooks/Cole Publishing Company.
- Collection of articles.
- Clipping collection.

### Practical training

Coordinators: Harry Steinbusch, Psychiatry and Neuropsychology, tel.: 3881021, Universiteitsingel 50, rm 1.101a and Wim Riedel, Psychiatry and Neuropsychology, tel.: 3881027, Universiteitsingel 50, rm 1.106.

Objectives: To provide insight into the relationship between brain structure and brain function and knowledge about the anatomy of the brain.  
 The practical training is divided into two sections. The first section will provide

practical experience in neuroanatomy. Microscopic examination of sheep brains will enable students to acquire insight into the structure of brain cells and the microscopic anatomy of the brain. The second section will deal with psychophysiology. By tracing the activity of the brain and the heart, students will learn more about the relationship between mental exertion and biological mechanisms.

#### *Teaching method*

12 tutorial group meetings, 6 lectures, 4 practical training meetings.

#### *Assessment*

Open questions.

### **Module 1.4 Differences Between People**

Coordinator: Henk Schmidt, Psychology, tel.: 3881904, Dr Tanslaan 10, rm 4.066.

#### *Objectives*

The aim of this module is to familiarize students with psychologically interesting differences between people. The module will also attempt to explain how these differences originate.

#### *Description*

Although people differ with respect to a large number of characteristics (for example, values, preferences, physical features and sex), which each have their psychological ramifications, this module concentrates primarily on differences in intelligence and personality. Based on increasing knowledge about the nature of these characteristics and their causal determinants, four central problems of psychology will be considered:

- To what extent can human behaviour be predicted?
- How stable or variable is human behaviour?
- What role do genetic and other biological factors play in the development of (differences in) behaviour?
- What is the influence of the environment, upbringing and culture?

#### *Essential reading*

- Gleitman, H. (1995). *Psychology*. (4th ed.). New York: W.W. Norton & Company. Part 5 in particular.

#### *Practical training*

Coordinator: Peter Muris, Psychology, tel.: 3881980, Dr Tanslaan 10, rm 3.013.

**Objectives:** To give students initial experience in constructing, administering, processing and interpreting questionnaires; to familiarize students with methods of psychological "assessment". Students will construct and subsequently interpret (parts of) tests and questionnaires which are dealt with in the module (including intelligence tests). In addition, they will construct a questionnaire. In this respect, the reliability and validity of measurements will be considered. Finally, they will become acquainted with the various modalities within which psychological research (in the sense of client studies) into personal characteristics is carried out.

#### *Teaching method*

12 tutorial group meetings, 6 lectures, 4 practical training meetings.

#### *Assessment*

Open questions, also on the practical training.

### **Module 1.5 Human Cognition**

Coordinator: Henk Schmidt, Psychology, tel.: 3881904, Dr Tanslaan 10, rm 4.066.

#### *Objectives*

This module offers an introduction to the central cognitive processes: comprehension, acquisition and representation of knowledge, memory, thought, problem-solving. Students will become acquainted with the classical model of the information processing system which underlies these processes.

#### *Description*

In the third module, the emphasis is on the "peripheral" aspects of human cognition. In this fifth module, attention will be focused on more central aspects. Human cognition can be considered as a "fast track" by means of which we adapt ourselves to changing conditions in our environment, in addition to the "slower" methods of genetic mutation and (operant) learning. The following themes will be examined:

- attention: early versus late selection; filter versus capacity theory;
- memory: distinction between short-term ("work") and long-term memory; distinction between episodic and semantic memory;
- semantic memory: the Collins/Quillian/Loftus model; spreading activation;
- schemata and scripts;
- retrieval mechanisms;
- neurocognition: amnesia;
- judging and reasoning;
- problem-solving.

#### *Essential reading*

- Sternberg, R.J. (1996). *Cognitive Psychology*. Fort Worth: Harcourt Brace College Publishers.

- Collection of articles.

#### *Practical Training*

Coordinator: Peter Houx, Psychology, tel.: 3881902, Dr Tanslaan 10, rm 3.001.

**Objectives:** Two forms of practical training will be given during the module: "Experimental paradigms for complex cognition" and "Applications of cognitive psychology". The objective of the first training is to provide support for the reading to be done in this module by acquainting students with the various experimental paradigms which are common in the field of complex cognition. Attention during this experimental training will be devoted to:

- paired association tasks;
- recall tasks;
- decision tasks;

- chronometric analysis of responses;

- printing tasks.  
In the training on "Applications of cognitive psychology", students will become acquainted with the skills utilized by cognitive psychologists in solving practical problems which arise in traffic, industry, education and health care.

#### *Teaching method*

12 tutorial group meetings, 6 lectures, 6 practical training meetings.

#### *Assessment*

Open questions, also regarding the practical training.

### **Module 1.6 Perception**

Coordinator: Herco Fonteijn, Psychology, tel.: 3881907, Dr Tanslaan 10, rm 4.066a.

#### *Objectives*

To introduce students to the psychology of perception and acquaint them with its applications.

#### *Description*

The psychology of perception is probably the best-developed branch of psychology and behavioural studies, neuroscientific research and progress in artificial intelligence and robotics contribute to its further development all the time. The biological substratum of (visual) perception, the perception of colour, contrast and depth, illusions, (perceptual) attention, perceptual development and perception in animals are some of the issues which will be dealt with in the tutorial group. In addition, students will become acquainted with our chemical senses in the course of a practical training.

Knowledge of the capacities and limitations of the human observer can help us to organize the world more effectively. Attention will be paid to this theme, which is central in cognitive ergonomics, in a number of assignments and in a second practical training.

#### *Essential reading*

- Gleitman, H. (194). Psychology. New York: Norton. Chapters 5, 6 and 7.
- Goldstein, E.B. (1996). Sensation and Perception. 4th ed. Pacific Grove, CA: Bruce/Cole.

#### *Practical Training*

Coordinator I: Fred Paas, Psychology, tel.: 3881911, Dr Tanslaan 10, rm 4.059.

Objectives: Practical training in cognitive ergonomics: study of the way in which insights from the psychology of perception are applied to the design of pictograms.

Coordinator II: Paul Ganzevles, Psychiatry and Neuropsychology, tel.: 3685319, Vijverdalweg 1, rm S.17.

Objectives: Odour: penetrating practical acquaintance with the perception of odour.

#### *Teaching method*

12 tutorial group meetings, 4 lectures, 1 seminar, audiovisual materials, 2 practical training meetings.

#### *Assessment*

20 short open-end questions. Practical training: working assignments.

### **Module 1.7 History and Theory of Psychology**

Coordinator: Rob de Vries, Psychology, tel.: 3881894, Dr Tanslaan 10, rm 4.001.

#### *Objectives*

Students will learn about the origins of modern psychology and the manner in which it has developed in terms of both ideas and theories and institutional practice.

#### *Description*

Many modern psychological ideas and institutions can be seen as successful solutions to pre-existing problems. However, there are a number of unsolved problems which have occupied psychology right from the very beginning. The history of both types of problems will be analyzed in this module, but with an emphasis on the latter type. While these problems have indeed remained unsolvable up to now, they have been sources of inspiration for much psychological research.

- Topics include:
- the social and institutional causes of the scientific revolution;
  - the rise of psychology as a consequence of the rise of the natural sciences during the scientific revolution;
  - the mind-body problem as arising from the scientific revolution;
  - the development and role of experiment and laboratory in psychology;
  - continuity between human and animal behaviour;
  - the nature and role of human consciousness in human life and in psychology;
  - what is (cognitive) psychology?

#### *Essential reading*

- Boon, L. (1982). Geschiedenis van de psychologie. Meppel: Boom.
- Collection of articles.

#### *Practical Training*

Coordinator: Rob de Vries, Psychology, tel.: 3881894, Dr Tanslaan 10, rm 4.001.

Objectives: Development of writing skills. As part of the training, students are to write two essays of no more than four pages on topics related to the history and foundations of psychology. Topics are to be selected from within the field dealt with in the module, presented in the module. Students have the tendency to be vague when writing about historical and philosophical problems. The most important aim of this training will be to teach students to describe and explain problems in the field of psychology in a clear and articulate manner.

*Teaching method*

12 tutorial group meetings, 6 lectures, 4 practical training meetings.

*Assessment*

Open questions. Practical training: two essays of no more than four pages.

**2.2.2 Parallel programme in year 1**

The parallel programme consists of components which are followed apart from the modules. Although every effort is made to effect maximum integration between the parallel programme and the subject matter and themes in the modules, this is not always possible due to the nature of the topics covered in this programme. The parallel programme in the first year includes the following components: computer skills I, writing skills I, research methods Ia and Ib and statistics Ia and Ib.

**2.2.2.1 Computer Skills I**

Coordinator: Louis Boon, Psychology, tel.: 3881885, Dr Tanslaan 10, rm 4.002.

*Objectives*

In computer skills I, students will acquire basic knowledge of computer hardware and learn to work with the Windows 95 operating system and a number of frequently used computer programs.

*Description*

The following topics will be covered:

- Computer hardware
- Windows 95 operating system
- Networks
- Word (word processing program)
- E-mail
- Internet
- University library bibliographical system and CD-ROM
- Electronic card-index program

*Essential reading*

- Boertjens, K.R. (1995). PC Combicursus Microsoft Office 95. (UK version), Schoonhoven: Academic service.

*Teaching method*

Instruction will take place in the Psychology learning resources centre/computer room and the university library.

*Assessment*

Components will be registered separately.

**2.2.2.2 Statistics Ia and Ib**

Coordinator: Nick Broers, Methodology and Statistics, tel.: 3882277, P. Debyeplein 1, rm 2.070 / Psychology, tel.: 3881929, Dr Tanslaan 10, rm 4.013.

*Objectives*

In the first year, students will be introduced to psychological research in diverse forms. Psychologists accept or reject all kinds of theories on the basis of their research results. They justify their decisions by referring to the data which they have compiled and which they have generally processed statistically. A good grasp of statistics is thus essential for evaluating the claims of psychologists.

*Description*

Training in statistics in the first year is primarily conceptual and concentrates on helping students to evaluate research results. Calculation is less important than insight. The emphasis is on introducing a number of different topics.

- Section Ia consists of the following components:
- descriptive statistics;
  - elementary probability calculation;
  - statistical relationships;
  - regression analysis.
- Section Ib concentrates on:
- testing and assessment;
  - variance analysis;
  - sampling distributions;
  - t-test and non-parametric tests.
- In addition, students will receive a brief introduction to the most frequently used statistical computer program, SPSS, the Statistical Package for the Social Sciences, followed by practical exercises with this program.
- For students who find statistics difficult, the CAE (computer-aided education) program "Dr Stat" is available.

*Essential reading*

- Brink, W.P. van den and Koole, P. (1985/1994). Statistiek deel 1, 2, 3 and 4. Meppel: Boom.

*Teaching method*

17 lectures, 2 tutorial group meetings supported by a lecture. Practical training focused on the use of SPSS (Windows).

*Assessment*

Sections Ia and Ib will be tested separately. Each tests consists of three sub-tests which will be taken in modules 1.2 through 1.7.

**2.2.2.3 Research Methods Ia**

Coordinator: Henk Schmidt, Psychology, tel.: 3881904, Dr Tanslaan 10, rm 4.066.

*Objectives*

When carrying out research, psychologists make use of certain methods, such as experiments, field observations and questionnaires. In the first year, students will become acquainted with some of the most important research methods used by psychologists. These methods are primarily introduced in order to give students a

better grasp of the psychological knowledge they already possess. Students in the first year are thus not expected to be able to actively apply these methods in research.

#### *Description*

In the first year, the following topics will be presented:

- the experiment;
- control problems in experimental research;
- correlational research;
- quasi-experimental approaches;
- direct observation studies;
- using tests and questionnaires;
- archive research;
- interviews.

#### *Essential reading*

- Goodwin, C.J. (1995). *Research in Psychology, Methods and Design*. New York: Wiley.

- Collection of articles.

#### *Teaching method*

These topics will be studied on the basis of six problems in a separate course during the first half of the year. The tutorial group meetings will be flanked by lectures.

#### *Assessment*

Open questions.

### **2.2.2.4 Research Methods Ib**

Coordinator: Rob de Vries, Psychology, tel.: 3881894, Dr Tanslaan 10, rm 4.001.

#### *Objectives*

Scientists construct theories to comprehend and explain events. Predictions are made with the help of these theories and the theories are applied in practice. The questions to be considered in this course include: What are scientific theories? How does science distinguish itself from non-science? What does scientific progress consist of and are there criteria for scientific progress? How does scientific reduction take place?

The aim is to acquaint students with such problems and introduce them to a number of concepts relevant to these issues.

#### *Description*

The following concepts will be analyzed: inductivism; falsificationism; Kuhn's paradigm; Lakatos' research programme; reductionism.

#### *Essential reading*

- Chalmers, A. (1981). *Wat heet wetenschap*. Meppel: Boom.
- Collection of articles

#### *Teaching method*

Tutorial group meetings and some lectures.

#### *Assessment*

Open questions.

### **2.2.2.5 Writing Skills I: reports and essays**

Coordinator: Peter Vermeer, Psychology; tel.: 3881895, Dr Tanslaan 10, rm 4.005.

#### *Objectives*

Writing skills are essential for psychologists in scientific, psychological and social practice and students must acquire them as soon as possible. With this in mind, students have been provided with a number of opportunities to practice writing skills throughout the year.

#### *Description*

In the first half of the year, there are two training sessions and an accompanying assignment. The first session, library training, will familiarize students with the library, the source of the material which will form the subject matter or references for their writing. The second session, which forms part of the training in computer skills, will introduce students to the use of CD-ROM. The content of most journals which are important to the field of psychology are available in bibliographic ROMs. Students will learn search procedures utilizing two of these bibliographic databases, "psychlit" and "medicine". The training assignment will require students to search for a number of references and display them according to APA standards. In the second half of the year, students will write an essay on a general psychological subject. The essay will discuss a small number of relatively recent publications on that subject. The aim here is to enable students to integrate the skills learned in the first two training sessions into the writing process. In addition, the papers written by the students are to be discussed by the students in groups. Students will choose one paper to be the subject of a report in which they will briefly relate the contents of the paper (the problem it formulates, the conclusion and how the conclusion is arrived at) and formulate a number of questions regarding the paper.

## 3 The Second Year

### 3.1 GENERAL

The second year falls into two distinct periods. The first six modules provide a deepening and expansion of the knowledge acquired in the first year. The final module offers students to prepare for their area of specialization or their 'major'. In the first year, students were given a survey of the various disciplines within psychology: social psychology, developmental psychology, differential psychology and experimental psychology. In the first six modules of the second year, a number of broad themes will be presented, most of which will build upon knowledge acquired in the first year. These themes have been selected in such a manner that both the cognitive and the biological psychological perspectives are essential for their study.

Module 2.1 will focus on the phylogenetic origins and evolutionary function of human behaviour patterns (and their underlying cognitive and biopsychological mechanisms). Module 2.2 will examine the extent to which the knowledge acquired in the first year can be used to explain and perhaps remedy behavioural and experiential disorders. Module 2.3 will be devoted to theories of human memory which do not consider memory as a separate, isolated function and in which all higher cognitive functions (such as learning, thinking, understanding, reasoning, judging and imagining) are integrated. This is also true for the theories derived from artificial intelligence which will be presented in module 2.5. First, though, module 2.4 will examine the structure, function and evolution of one of the most important resources for communication and mental functioning: human language. Module 2.6 will concentrate on human consciousness, an object of study of both cognitive and biological psychology. In module 2.7, students will be offered two elective courses in which they can orient themselves towards a particular specialization.

The parallel programme for this year includes two statistics programmes. The first (IIa) will be given during the September-December period, the second (IIb) will run parallel to modules 2.6 and 2.7 (April-June). Furthermore, the writing skills training in the first year will be followed up with a programme related to the English skills training course starting in the module 2.4 term, in which training in written and spoken English will be provided. Finally, computer skills II will be offered, a course in Pascal programming which runs parallel to modules 2.4 and 2.5.

### Core texts

As in the first year, the curriculum committee for the second year has prepared a list of core texts which students must acquire.

The core texts for the second year are:

1. Rosenhan, D.L. and Seligman, M.E.P. (1995). *Abnormal Psychology* (3rd ed.). New York: Norton & Company.
2. Baddeley, A.D. (1997). *Human Memory: Theory and Practice* (revised 2nd ed.). Hove, UK: Psychology Press.
3. Atchinson, J. (1995). *The Articulate Mammal: An Introduction to Psycholinguistics*. London: Routledge.
5. Thagard, P. (1996). *Mind*. Cambridge, MA: MIT Press.
6. Norman, D.A. (1990). *Dictatuur van het design*. Utrecht: A.W. Brunna uitgeverij B.V. This book is available only via the "Luna-tik" student association (discount books).
7. Springer, S.P. and Deutsch, G. (1989). *Left Brain, Right Brain*. New York: Freeman.
8. Kleinbaum, D.G., Kupper, L.L. and Muller, K.E. (1988). *Applied Regression Analysis and Other Multivariable Methods*. Belmont: Duxbury Press.
9. Crocker, L. and Algina, J. (1986). *Introduction to Classical and Modern Test Theory*. Fort Worth: Harcourt Brace Jovanovich College Publishers.
10. Beeklaar, R. (1993). *Schoolboek Pascal en Turbo Pascal 7.0*. Soest: Sybex.

### 3.2 OVERVIEW OF THE SECOND YEAR PROGRAMME

Module	Training	Parallel programme
2.1 Evolution and Behaviour	Research proposal	Presentation Statistics IIa
2.2 Psychopathology	Interviews	Statistics IIa
2.3 Memory	Memory-related skills	Statistics IIa
2.4 Language	Language research	Essay Programming English
2.5 Arithmetic	Computation models	Programming English
2.6 Consciousness	Power point	Statistics IIb English
2.7 Design of Daily Life	Product evaluation	Statistics IIb Presentation
2.8 Cerebral Asymmetry	Questionnaires	Statistics IIb Presentation



### 3.2.1 Description of the modules

#### Module 2.1 Evolution and Behaviour

Coordinator: Harry Smit, Medical Ethics and Philosophy, tel.: 3881130, Uns 50, rm 5.126.

##### Objectives

- acquisition of basic knowledge of evolutionary theory;
- acquisition of basic knowledge of the genetic mechanisms which underlie the operation of natural selection;
- learning how to think about behaviour and psychological functions in evolutionary terms;
- becoming acquainted with the most important ideas regarding the evolution of behaviour and cognition.

##### Description

In psychology and the neurosciences, attention is primarily given to the question of how behaviour and brain processes are generated. However, one can also ask about the function of behaviour. How did it, from a historical point of view, develop in relation to the evolution of the species?

The following topics will be covered in problems, lectures and practical training meetings:

- Darwin's theory of evolution through natural selection;
  - basic principles of population genetics; genetic variability;
  - evolutionary explanations for aspects of social behaviour such as altruism; game-theoretic explanations, such as "it for it";
  - evolutionary explanations for sexuality and gender differences in behaviour and cognition;
  - the evolution of the brain and cognition;
  - evolutionary explanations for the phenomenon of ageing;
  - evolution and health;
  - inappropriate use of evolutionary explanations.
- In addition, to brush up students' skills in this regard, extra attention will be given in this module to the process of working in groups and the role of the chairman.

##### Essential reading

- Collection of articles.

##### Practical Training

Coordinator: Peter Vermeer, Psychology, tel.: 3881895, Dr Tanslaan 10, rm 4.005.

Objectives: Students will write a research proposal based on a case history.

##### Teaching method

10 tutorial group meetings, 5 lectures, 2 practical training meetings.

*Assessment*  
Open questions.

#### Module 2.2 Psychopathology

Coordinator: Anita Jansen, Psychology, tel.: 3881910, Dr Tanslaan 10, rm 3.017.

##### Objectives

In the course of the module, students will become acquainted with the most common behavioural disorders; their clinical picture and diagnostic criteria, etiological theories and the empirical findings which support or contradict these theories, current treatment methods and the effectiveness of these therapies.

##### Description

The psychopathology module concentrates on disturbed behaviour. Based on case descriptions, clinical pictures will be studied, such as various anxiety disorders, eating disorders, addictions, mood disorders, psychotic and psycho-organic disorders.

Issues which will arise during the module include: What does the clinical picture look like? Where is the border between normal and abnormal? How is a disorder produced and what can be done about it? In the process, students will be struck by the fact that not only is there a sizeable gap between theory and practice, between clinical treatment and scientific thought, but that there also appear to be various theoretical "schools" which explain/treat behavioural disorders according to their favourite theories. In so doing, they base themselves on ideology rather than empirical findings. Students will confront the question as to whether this situation is desirable.

##### Essential reading

- Rosenhan, D.L. and Seligman, M.E.P. (1995). *Abnormal Psychology* (3rd ed.). New York: Norton & Company.
- collection of articles.

##### Practical Training

Coordinator: Geke Blok, Educational Development and Educational Research, tel.: 3881121/3881135, Uns 50, rm 5.127.

Objectives: During the practical training meetings, students will learn to record case histories of complaints. Interview techniques will be practised by means of role-playing and students will have the opportunity to apply the techniques they have learned to simulated patients with various psychological disorders.

##### Teaching method

12 tutorial group meetings, 2 lectures per week, 6 practical training meetings lasting 3 to 4 hours.

##### Assessment

Open questions.

### Module 2.3 Memory: Cognition and Neurobiology

Coordinator: Peter Houx, Psychology, tel.: 3881902, Dr Tanslaan 10, rm 3.001.

#### Objectives

This module will provide students with insight into an integral and essential component of any information processing system. How does memory work? A number of qualitatively different forms of memory are needed to make possible the range of cognitive functions which we continually and effortlessly execute. A childhood memory places different demands on a cognitive system than the process of remembering where you left your bicycle or finding the right word in conversation. In this module, emphasis will be placed on the role of memory in information processing. Attention will be divided equally between both cognitive and neurobiological theories of (cognitive) learning and memory. In addition, we will examine the cognitive processes which play a significant role in normally functioning memory: attention, planning, (re)construction.

#### Description

In related assignments, students will examine the extent to which theories about brain functioning provide insight and plausibility with respect to cognitive models of memory. Where necessary (for example if a topic was not covered in the "Human Cognition" module), the initial assignment will be devoted to a comprehensive examination of one or more important models. In a subsequent assignment, these models will be tested against evidence from cognitive neuroscience. The dynamic organization of the human brain forms the basis and demarcation of cognitive systems. Upon which neurobiological mechanisms is this plasticity founded? Which cognitive theories describe learning, memory and forgetting in terms appropriate to these neurobiological insights? Theoretical concepts will be illustrated with examples from psychopathology and neuropsychology only in so far as abnormalities reveal something about the normal functioning of cognitive processes.

#### Essential reading

- Baddeley, A.D. (1997). *Human Memory: Theory and Practice* (revised 2nd ed.). Hove, UK: Psychology Press.
- collection of articles.

#### Practical Training

Coordinator: Peter Houx, Psychology, tel.: 3881902, Dr Tanslaan 10, rm 3.001.

**Objectives:** The aim of the practical training meetings is to familiarize students with the most important paradigms in the psychology of memory and teach them to conduct standard memory tests. Students will acquire knowledge and practical skills with respect to the measurement of memory-related processes. In the first part of the training, students will become acquainted with prominent methods for measuring memory and memory-related processes. They will learn how to conduct a complete study into memory-related processes utilizing experimental and clinical/neurocognitive tests. Students will then apply this knowledge to the study of three individuals (young adult, middle-aged and elderly).

#### Teaching method

12 tutorial group meetings, 6 lectures, 2 practical training meetings.

#### Assessment

Open questions.

### Module 2.4 Language

Coordinator: Rob de Vries, Psychology, tel.: 3881894, Dr Tanslaan 10, rm 4.001.

#### Objectives

To introduce students to linguistic research into the structure, psychological research into the function and dysfunction and biological research into the evolution of human linguistic ability and its place within the cognitive system. Introduction to the perspective of linguists and psycholinguists on the nature of the cognitive system.

#### Description

The capacity to use language is one of the most important conditions for human social and cognitive functioning. Topics to be covered include:

- Linguistic structure. The linguistic descriptions of the structure of our language competence; the language acquisition device (LAD); the modular structure of our linguistic capacity (phonological, syntactic and semantic conceptual modules); the difference between grammar as etiquette and grammar as the description of our linguistic knowledge system.
- Language acquisition. Language learning versus parameter setting: facility of learning; the jump from Pidgin to Creole languages as argument for a specifically linguistic bioprogram for language learning.
- Language processing.
- Language production.
- Impaired and defective linguistic ability. Genetic defects as cause of a particular linguistic disorder; selective influence of brain damage on the various language modules.
- Modules. Can the human language acquisition model serve for modules in other areas? Is there such a thing as a social module? Do autistic people lack such a capacity? Are there specific modules to help people acquire knowledge of fauna and flora?

#### Essential reading

- Aitchinson, J. (1995). *Linguistics: An Introduction*. London: Hodder & Stoughton.
- Aitchinson, J. (1995). *The Articulate Mammal: An Introduction to Psycholinguistics*. London: Routledge.

#### Practical Training

Coordinator: Leo Blomert, Psychology, tel.: 3881949, Dr Tanslaan 10, rm 4011.

**Objectives:** The practical training will focus on experimental methods of language research.

#### Teaching method

12 tutorial group meetings, 7 lectures, practical training meetings.

*Assessment*

Open questions.

**Module 2.5 Arithmetic**

Coordinator: Herco Fontein, Psychology, tel.: 3881907, Dr Tanslaan 10, rm 4066a.

*Objectives*

Introduction to cognitive science. Introduction to the use of computational models in cognitive and biological psychology.

*Description*

Psychological hypotheses are more and more frequently specified in the form of computational models. Their precision, transparency and heuristic value on the one hand and the availability of adequate computational capacity on the other contribute to the popularity of these models. In cognitive psychology, the symbolic architectures for problem-solving, reasoning and acquiring knowledge and the connectionist models for more elementary processes such as learning, categorizing, perception, memory and attention have become central in the formulation of theories. In biopsychology, theories are developed and tested with the help of models of neuron and neuron network behaviour. In addition, genetic algorithms and algorithms for machine learning, as well as developments in the field of artificial life, robotics, computer linguistics and knowledge systems, all have psychological relevance. In this module, a number of influential architectures and algorithms will be discussed in connection with the diverse (bio)psychological phenomena which have determined their form.

*Essential reading*

- Thagard, P. (1996). Mind. Cambridge, MA: MIT Press.
- collection of articles.

*Practical Training*

Coordinator: Herco Fontein, Psychology, tel.: 3881907, Dr Tanslaan 10, rm 4.066a.

*Objectives:*

- Further acquaintance with a number of influential computational models.
- Increasing programming skills.

*Teaching method*

12 tutorial group meetings, 6 lectures, supplementary mathematics classes, audiovisual materials, practical training assignments.

*Assessment*

Open questions. Practical training: working assignments.

**Module 2.6 Consciousness**

Coordinator: Louis Boon, Psychology, tel.: 3881885, Dr Tanslaan 10, rm 4.002.

*Objectives*

Getting acquainted with the latest cognitive and neuropsychological theories of consciousness. Philosophical reflection on problems related to the concept of consciousness. Consideration of the relevance of consciousness for psychological practice.

*Description*

Consciousness, conscious experience and perception were the most important subjects of nineteenth-century psychology. For two reasons, the object of psychology shifted from consciousness to behaviour. In the first place, objective research into conscious experience proved to be impossible. Secondly, consciousness could be given no place within the existing world view of natural science. Consciousness thus disappeared from the field of psychology to become a subject for philosophers. The decreased influence of behaviourism and the rise of modern cognitive psychology in the 1960s did not rehabilitate consciousness. Only in the last decade has consciousness again assumed a place in cognitive psychology and neuropsychology. Currently, consciousness is again seen as one of the most important aspects of mental life. This module will consider the evolution, structure, material basis and role of consciousness in mental life, as well as the philosophical problems around the relationship between conscious experience and the material processes which underlie these conscious processes.

*Practical Training*

Coordinator: Louis Boon, Psychology, tel.: 3881885, Dr Tanslaan 10, rm 4.002.

*Objectives:* Students will learn to prepare and give a presentation on a topic covered in this module. In the process, they will learn to utilize modern communication and educational resources.

*Essential reading*

To be announced.

*Teaching method*

12 tutorial group meetings, 6 lectures, practical training meetings.

*Assessment*

Open questions. Practical training: presentation.

**Module 2.7: choice between 2.7.A and 2.7.B****Module 2.7.A The Design of Daily Life**

Coordinator: Fred Paas, Psychology, tel.: 3881911, Dr Tanslaan 10, rm 4.059.

*Objectives*

Based on applications from cognitive psychology, students will be introduced to

topics from their degree course on cognitive psychology.

#### *Description*

In contrast to earlier instruction in cognitive psychology, which focused primarily on isolated elements of human cognition, this module will deal with the cognitive system as a whole on the basis of human cognitive functioning in daily life. Based on applications in the areas of work, propaganda, traffic, law and medicine, it will attempt to provide a broad introduction to the field of cognitive psychology. In particular, attention will also be devoted to themes from the degree course options in cognitive ergonomics and educational psychology.

The aim of cognitive ergonomics is to relate scientifically tested knowledge about human cognitive architecture to the daily inconveniences which we all experience. We are all familiar with such inconveniences. Products which are hard to use, packaging which is impossible to open, buildings where you can't find the entrance or exit, incomprehensible operating instructions. Inconveniences and impediments which seem to be part of daily life; annoyances which everyone simply learns to live with. This module will introduce students to ways in which cognitive psychology can contribute to better control over our daily life.

Educational psychology is concerned with the ways in which people change under the influence of instruction and interaction. Students will become acquainted with the cognitive and social changes experienced by children, adolescents and adults as the result of education. Among other things, this module will focus on comprehending the nature of these changes in the course of time and on technological developments in the field of education.

#### *Essential reading*

- Norman, D.A. (1991). *Dictatuur van het design*. Utrecht: A.W. Bruuna uitgeverij B.V.

- collection of articles.

#### *Practical Training*

Coordinator: Fred Paas, Psychology, tel.: 3881911, Dr Tanslaan 10, rm 4.059.

Objectives: Working in teams, students will acquire experience in conducting a product evaluation project in which an existing "implement" will be systematically evaluated. Students will report on the various phases of the project by means of a poster presentation.

#### *Teaching method*

12 tutorial group meetings, 6 lectures, 2 practical training meetings.

#### *Assessment*

Open questions, practical training report in the form of poster presentation.

### **Module 2.7.b Cerebral Asymmetry**

Coordinator: Harald Merckelbach, Psychology, tel.: 3881945, Dr Tanslaan 10, rm 3.018.

#### *Objectives*

- Knowledge of the structural differences between the left and right halves of the

brain.

- Knowledge of the psychological differences between the two halves of the brain, and psychopathology.

#### *Description*

There are both structural and functional differences between the two halves of the brain ("cerebral asymmetry"). An example of a structural difference is the fact that some neurotransmitters have a greater concentration in one hemisphere than in the other. An example of a functional difference is the fact that some emotions tend to be mediated through one hemisphere rather than the other. This module will inventory such differences. Beginning with an historic approach, it will then devote attention successively to clinical neuropsychological case studies, experimental neuropsychology and psychophysiology. Consideration will be given to the implications of various aspects for disciplines such as developmental psychology and psychopathology. The message of the module is that left-right differences in the brain provide an interesting and useful introduction to biopsychology but that the significance of these differences is frequently overestimated.

#### *Essential reading*

- Springer, S.P. and Deutsch, G. (1989). *Left Brain, Right Brain*. New York: Freeman.

- collection of articles.

#### *Practical Training*

1. Coordinators: Peter Muris, Psychology, tel.: 3881980, Dr Tanslaan 10, rm 3.013 and Peter Houx, Psychology, tel.: 3881902, Dr Tanslaan 10, rm 3.001.

Objectives: To familiarize students with questionnaires and tests which are relevant for this module (3 hours).

2. Coordinators: Fren Smulders, Psychology, tel.: 3881909, Dr Tanslaan 10, rm 3.012 and Eric Vuurman, Neuropsychology, tel.: 3881046, Universiteitsingel 50, rm 1.106.

Objectives: Brief practical training in psychophysiology (4 hours).

#### *Teaching method*

12 tutorial group meetings, 4 lectures, 2 practical training meetings.

#### *Assessment*

Open questions.

### **3.2.2 Parallel programme in the second year**

The parallel programme includes statistics IIa and IIb, writing skills IIa and English (Ib) and computer skills II. With the exception of English, all these subjects are related to the instruction which was provided in the first year. Statistics will be given in two periods, during modules 2.1 through 2.3 and modules 2.6 and 2.7. Instruction in writing skills will begin in the autumn and in part run parallel with the English course which begins in January. A training course in "Presentation" will be organized as part of the writing instruction in module 2.1. Training in computer

skills will run parallel to modules 2.4 and 2.5.

### 3.2.2.1 Computer Skills II

Coordinator: Siebren Groothuis, Medical Information Technology, tel.: 3882229, P. Debyeplein 1, rm 1.096.

#### Objectives

In the second year, computer skills training will consist of an introduction to programming. Students will learn to consider problems in terms of algorithms and data structures and will use computers to solve these problems.

#### Description

Learning to program will help students to clarify the "black box" which the computer still is for most people. Such insight is important to psychologists. Cognitive psychologists, for example, can play an important role as mediators between designers and end users and must thus learn to communicate in the language of the designer. Moreover, programming clarifies the analogy between men and computer, which has been instrumental in the formulation of psychological theories since a long time (see module 2.5, which runs during the same period with the computer skills training). Finally, programming skills will lead to a better understanding of word processors, data-base software and other applications with which all psychologists will be confronted in daily practice.

#### Essential reading

- Beekelaar, R. (1993). Schoolboek Pascal en Turbo Pascal 7.0. Soest: Sybex.

#### Teaching method

10 tutorial group meetings, lectures, practical training.

#### Assessment

Working assignments and final test with multiple choice and open questions.

### 3.2.2.2 Statistics IIA and IIB

Coordinator: Martijn Berger, Methodology and Statistics, tel.: 3882258/3882395, P. Debyeplein 1, rm 2.063.

#### Objectives

In the second year, students will be given further training in more complex statistical methods of data processing and psychometrics.

#### Description

The material for the second year consists of two sections. In the first section (IIa), regression and variance analysis will be studied. The second section (IIB) will deal with psychometric methods.

#### Part IIA

This section will be devoted to a detailed study of general linear models, such as regression analysis and variance analysis. Topics presented include simple and

multiple regression analysis, co-variance analysis, model construction and the use of dummy variables. In addition, simple and multiple variance analysis will be comprehensively studied with multiple comparisons, fixed versus random effects and repeated measurement models.

#### Essential reading

- Kleinbaum, D.G., Kupper, L.L. and Muller, K.E. (1988). Applied Regression Analysis and Other Multivariable Methods. Belmont: Duxbury Press.

#### Teaching method

6 lectures, 6 seminars and a number of SPSS practical computer sessions.

#### Part IIB

This section provides a comprehensive introduction to classical and modern psychometric techniques. Consideration will be given to the classical test model, reliability and validity, and modern test theory, including the 1-, 2- and 3-parameter logistical models.

#### Essential reading

- Crocker, L. and Algina, J. (1986). Introduction to Classical and Modern Test Theory. Fort Worth: Harcourt Brace Javonovich College Publishers.

#### Teaching method

4 lectures and 4 seminars with exercises from the book based on the computer work.

#### Assessment

Each section will be concluded with a separate test.

### 3.2.2.3 Writing Skills IIA: Presentation and Essay

Coordinator: Peter Vermeer, Psychology, tel.: 3881895, Dr Tanslaan 10, rm 4.005.

#### Objectives

Writing instruction in the second year rests on the groundwork created in the first year. In this year two essays will have to be written.

#### Description

The essays will have general psychological topics. They will be evaluated in a standard manner. The essays are to be presented by the students to the other members of their tutorial group. Prior to this presentation, the training on "Presentation" will be given in module 2.1. This is section IIA.

The second essay is to be written in English. It is also to be presented in English. This is section IIB. Writing skills instruction will here be integrated with English instruction. Performance in the English course will be evaluated on the basis of the second essay and presentation.

### 3.2.2.4 English Skills Training Course IIB: English and Essay

Coordinator: Peter Vermeer, Psychology, tel.: 3881895, Dr Tanslaan 10, rm 4.005.

*Aim of the course*

1. to develop the students' academic writing skills in English, by training them to write short texts including summaries;
2. to extend the students' abilities in speaking English, focusing on presenting and discussion.

Writing objectives are concerned with five aspects:

- clear writing (readership, clear aim, logical structure of argument, concise support, satisfying conclusion);
  - language accuracy (grammatical accuracy, especially the main problem areas: sentence structure, tenses, adjective/adverb, prepositions);
  - mechanics (punctuation);
  - readability aspects (key words, topic-comment structure and topic chaining, focusing structures, active-passive choices, demonymalization), and
  - techniques of revision and editing.
- Speaking objectives are concerned with:
- giving presentations, and
  - leading and participating in discussions.

The focus would be on presenting and discussing psychological issues in a popular science context, such that they might have to be explained to non-specialists, or the general public.

The issues would not necessarily be directly related to the topics being treated in the parallel blocks. The aim would be to develop the students' fluency in speaking relatively formally, accurate use of language, appropriate use of vocabulary. Students should show an ability to handle appropriate rhetorical and signalling expressions to promote the understanding of the presentation or the conduct of the discussion.

*Description of the course*

Students should write four short papers during the course, designed for several different purposes, and give one individual (or joint) presentation and lead one discussion. In writing, the purpose is to train the students in the skills required to write full-scale academic papers.

For this reason the structure of the course includes extensive opportunities for feedback, revision and development. The course will lead up to the second-year paper and will provide guidance and feedback on that. Feedback will be provided in small groups sessions every three weeks.

As for presentation and discussions, each student should give one presentation and lead one discussion during the course. The presentations may be done in pairs, while the discussion will be led by two or three students. The discussion topics will be 'partially' set so that all students could prepare (e.g. by reading relevant background material) and will be in the form of semi-formal and formal meetings. The 'oral' sessions will also include techniques in presenting (language aspects), language feedback, and language development tasks (e.g. vocabulary or expression expansion). In general there will be successively one session devoted to writing skills followed by one on speaking skills followed by the small group feedback session.

*Number of training sessions*

10 sessions of two hours each, plus every third week a feedback session (30 minutes).

*Assessment*

Students would be evaluated on a continuous assessment basis. The ultimate assessment of each student's progress will come in the final second paper, which will be presented as well.

## 4 The Third Year

### 4.1 GENERAL: THE DEGREE COURSES / SPECIALIZATIONS

In the third year, students select one of two specializations, i.e. biological or cognitive psychology. Within these programmes, students can specialize further by narrowing down their program on a specific field. The third year is structured in such a way that students will be presented with specialized aspects of their specialization during the first three modules (September through December). The remaining four modules will be devoted to one of two options. For cognitive psychology, the options are cognitive ergonomics and educational psychology. Within the biological psychological specialization, one may select options in neuropsychology or developmental psychology. In addition, once they have completed the cognitive or biological psychology specialization, it is possible for students to follow the psychopathology specialization of the "Mental Health Sciences" programme of the Faculty of Health Sciences.

During the first three modules of the third year, all students will be given the same parallel programme: computer skills III and statistics III. Thereafter, specific skills will be trained in relation to the modules. Students will also be expected to write a third-year thesis in the course of this year.

### 4.2 THE COGNITIVE PSYCHOLOGY DEGREE COURSE

During the first three modules, students will successively be confronted with three specialized areas of human activity which have been intensively studied by cognitive psychologists: "Work", "Propaganda" and "Law". These areas have been selected so that the emphasis in each module will be placed on one or more of the mental faculties which characterize human cognition. In the "Propaganda" module, for example, perception, attention and emotion are central. In addition, there is ample space for a multidisciplinary approach: aspects of clinical psychology will be dealt with in the context of "Law", organizational psychology will be considered during the "Work" module, and so forth. This will all be presented, of course, against the background of a primary cognitive approach. These basic modules in cognitive psychology will be followed by an introduction to two related degree options: cognitive ergonomics and educational psychology.

#### 4.2.1 Programme in Cognitive Psychology

In a large number of modules during the first two years of the psychology programme, students were introduced to the science of cognition in general and cognitive psychology in particular. The knowledge which students have acquired regarding the various psychological disciplines will be deepened and applied during the third-year cognitive psychology course.

The "Work" module examines the role which the cognitive psychologist can play in companies and organizations. Elements will also be considered from related fields such as systems theory, industrial and organizational psychology and psychophysiology.

The "Propaganda" module will call on acquired knowledge of perception, attention and emotion. In addition, topics taken from communication science, social cognition and psychophysiology (attitude measurement) will be considered as part of the "Advertising" theme and the related themes on influence and information. "Law" builds on the knowledge which students have acquired about the operation of memory. Additional themes from cognitive psychology to be considered in the module include decision-making, reasoning and the reliability of the cognitive system. This module will also aid students in deepening their insight into clinical psychology and the legal system.

#### 4.2.1.1 Overview of the Modules

##### Module 3.1.a Work

Coordinator: Jette Hoonhout, Psychology, tel.: 3881954, Dr Tanslaan 10, rm 4.061.

##### Objectives

- Introduction to a number of important themes from industrial and organizational psychology.
- Insight into the contributions which cognitive psychologists can make in adjusting the working environment (in the broadest sense of the term) to the possibilities and limitations of human beings.

##### Description

The relationship between man and work is an important theme in psychology. Under this heading, highly diverse aspects such as mental load, group behaviour, training, etc., are studied. On the one hand the aim is to optimize job performance; on the other it is to promote the health and welfare of the worker. From the point of view of an industrial organization, it is important that the work be carried out efficiently. Both the organization of the work and the production process as well as the possibilities and limitations of the labour force are important factors in this respect. Important points from the employees' point of view include the nature of the work and the circumstances under which it must be performed. The above aspects will be examined from the vantage points of cognitive, industrial and organizational psychology. Topics to be considered include organizational dynamics and structure, systems theory, job distribution and distributed cognition, safety,

job analysis, effects of working conditions on job performance and stress.

*Essential reading*

- Collection of articles.

*Practical Training*

Coordinator: Jettie Hoonhout, Psychology, tel.: 3881954, Dr Tanslaan 10, rm 4.061.

**Objectives:** The practical sides of a number of themes from the module will be examined during the practical training meetings.

*Teaching method*

10 tutorial group meetings, 5 lectures, 3 practical training meetings.

*Assessment*

Open questions.

### Module 3.2.a Propaganda

Coordinator: Herco Fonteijn, Psychology, tel.: 3881907, Dr Tanslaan 10, rm 4.066a.

*Objectives*

To introduce students to theories regarding influence and behavioural and attitude changes while enabling them to apply and deepen their knowledge of cognitive psychology.

*Description*

Human communication may serve many ends. It can entertain, inform and influence. In this module, students will study forms of individual and mass communication which are focused on influencing human behaviour by means of, for example, advertising messages, information campaigns, psychotherapy or educational material. Students will concentrate particularly on the manner in which the different messages exercise influence. This theme will be studied on various levels. The list of contributing disciplines is thus exceptionally heterogeneous and includes psychophysiology, the psychology of perception, linguistics, semiotics, marketing, social psychology and, of course, cognitive psychology. Topics to be considered include mass communication models, attitude change, deception and ambiguity in advertising texts, paralinguistics and rhetoric, semiotics and visual influence, colour and emotion, aesthetics, form and composition, attention and pop-out effects and the influence of modality of perception.

*Practical Training*

Coordinator: Fren Smulders, Psychology, tel.: 3881909, Dr Tanslaan 10, rm 3.012.

**Objectives:** Practical Training 1. Further introduction to (visual) search procedures and so-called pop-out effects via reaction time research. Practical Training 2. Research into the effectiveness of bus advertising, involving simulation of the circumstances under which the average person in traffic perceives bus advertising. With the help of questionnaires, the extent to which advertising on the sides of

buses has the desired effect will be determined.

*Essential reading*

- Collection of articles.

*Teaching method*

12 tutorial group meetings, 4 lectures, practical training, audiovisual material.

*Assessment*

20 short open-end questions.

### Module 3.3.a Law

Coordinator: Harald Merckelbach, Psychology, tel.: 3881945, Dr Tanslaan 10, rm 3.018.

*Objectives*

- Knowledge of cognitive psychological applications in the administration of justice.

- Knowledge of important paradigms in empirical research in this field.

*Description*

In America, and to an increasing extent in the Netherlands as well, judges, prosecutors and lawyers are calling on the expertise of psychologists in connection with topics such as personal identification, the validity of testimony, the effect of certain interrogation techniques and the diagnostic value of instruments such as the lie detector. These topics will be examined during this module, with the emphasis on investigating criminal law cases from a psychological standpoint. Technical legal questions will receive considerably less attention.

*Essential reading*

- Koppert van, P.J., Hessing, D. and Crombag, H. (1997). *Het hart van de zaak: Psychologie van het recht*. Deventer: Gouda/Quint.

- Collection of articles.

*Practical Training*

Coordinator: Eric Rassin, Psychology, tel.: 3881944, Dr Tanslaan 10, rm 3.011.

**Objectives:** To familiarize students with a number of methods for evaluating testimony. Topics: suggestibility, criteria-based content analysis (CBCA) and lie detection.

*Teaching method*

12 tutorial group meetings, 4 lectures, 3 practical training meetings.

*Assessment*

Open questions.



#### 4.2.2 Degree Course Option: Cognitive Ergonomics

The aim of ergonomics is to design implements, technical systems and tasks in such a manner that human safety, health, comfort and efficient performance is promoted. It will be obvious from this description that ergonomics focuses on practice, i.e. that ergonomists attempt to translate scientifically validated knowledge about human possibilities and limitations into practical guidelines and recommendations. The provision of this knowledge is not restricted to a single discipline but can in principle take place on the basis of any relevant area of science. Due to the interdisciplinary character of ergonomics, ergonomists are often psychologists, doctors or engineers. Cognitive ergonomics can be considered as the branch of ergonomics which is concerned with adapting tasks, systems and implements to the human cognitive system. In practice, such adaptation rarely appears to be based on (cognitive) theory but primarily on common sense and tradition. Faulty adaptation not only results in poor performance but also involves significant risks to health and safety. The cognitive ergonomist attempts to design "user-friendly" tasks and systems which are optimally adapted to the manner in which people perceive, decide, reason, learn and solve problems.

In the proposed degree course option in cognitive ergonomics, students will acquire knowledge and skills which will enable them to analyze, design and evaluate tasks, systems and implements. The course builds on the knowledge of work and organizations acquired in module 3.1.a and assumes advanced knowledge of perception and attention (including psychophysiology) as provided in module 3.2.a. In "Learning and Education" (module 3.4.1), learning and the acquisition of knowledge are central, two themes which were presented only summarily in the first two years but which are essential for the rest of the modules in this degree course option. Subsequently, two modules will devote attention to interaction with technical (the computer, for example) and classical (manuals and instructions for use, etc.) means of information and knowledge transfer (modules 3.5.1 and 3.7.1). A recent development in the transfer of knowledge is the process of addressing various sensory modalities by means of different media. In the third module in the degree course option, extensive attention will be devoted to the cognitive ergonomic aspects of multimedia knowledge transfer (3.6.1).

#### Core texts

The following core texts have been selected for the degree course option in cognitive ergonomics:

- Resnick, L.B. (ed.): 1989). *Knowing, Learning and Instruction*. Hillsdale, NJ: Lawrence Erlbaum.
- Preece, J., Rogers, Y., Sharp, II., Benyon, D., Holland, S. & Carey, T. (1994). *Human-Computer Interaction*. Wokingham, England: Addison-Wesley.

#### 4.2.2.1 Overview of the Modules

##### Module 3.4.1 Learning and Education

Coordinator: Henk Schmidt, Psychology, tel.: 3881905, Dr Tanslaan 10, rm 4.066.

#### Objectives

- What are the characteristics of learning by means of instruction and what requirements are specific to such learning?
- What are the existing forms of instruction?
- In particular, what are the characteristics of problem-based learning?

#### Description

Our knowledge about how people learn was until recently based primarily on laboratory experiments in which test subjects processed elementary materials such as lists of words under strictly controlled conditions. But how does someone learn to understand the history of Europe? Or interview techniques? This module will be concerned with questions such as these. The accent in this respect will be mainly on the instruction methods which have been developed in recent years, based on our continually growing knowledge of human cognition. In the process, social and biological aspects will also be considered. Topics:

- learning as the construction of mental models of reality;
- the creation and maintenance of misconceptions, in particular in the natural sciences;
- connectionist views of learning;
- cognitive load;
- intrinsic versus extrinsic motivation: computer games;
- learning from texts;
- learning from examples;
- learning from peers;
- learning to think and solve problems;
- transfer of knowledge;
- "cognitive apprenticeship".

#### Essential reading

- Resnick, L.B. (1989). *Knowing, Learning and Instruction*. Hillsdale, NJ: Lawrence Erlbaum.
- Collection of articles.

#### Practical Training

Coordinator: Jeroen van Merriënboer, Psychology, tel.: 3881953, Dr Tanslaan 10, rm 4.055.

#### Objectives:

1. Students will analyze the level of knowledge of groups of schoolchildren and prepare a lesson for them which they will then present themselves.
2. Students will construct assignments for a problem-based curriculum.
3. Students will analyze the cognitive and social processes which can be perceived in a group of children working together.

#### Teaching method

12 tutorial group meetings, 6 lectures, 6 practical training meetings.

#### Assessment

Open questions. The practical training will be concluded with a report.

### Module 3.5.1 Manuals and Instructions for Use

Coordinator: Jettie Hoonhout, Psychology, tel.: 3881954, Dr Tanslaan 10, rm 4.061.

#### Objectives

- Introduction to insights and findings in the field of "Information Design".
- Introduction to research methods for evaluating and developing information design products such as instructions for use, warnings, forms and pictograms.

#### Description

Information design is an interdisciplinary field in which cognitive psychologists, ergonomists, experts in applied linguistics and graphic designers are involved in the process of developing adequate graphic communication aids such as manuals, pictograms, etc. Following a theoretical introduction, the possibilities and limitations of language, text, figures and symbols as means of communication will be examined on the basis of numerous examples. Some examples will be given detailed attention: instructions for use, manuals for (complex) equipment, warnings, medicinal instructions and pictograms. Consideration will also be given to instructional material for special target groups, such as children, the elderly and the handicapped. Students will acquire the knowledge and skills required to evaluate and optimize the effectiveness of the above information carriers.

#### Essential reading

- Collection of articles.

#### Practical Training

Coordinator: Robert van Doorn, Psychology, tel.: 3881926, Dr Tanslaan 10, rm 4.066a.

Objectives: Students will receive practical training in various methods of testing the effectiveness of diverse information carriers.

#### Teaching method

12 tutorial group meetings, 6 lectures, 2 practical training meetings.

#### Assessment

Open questions.

### Module 3.6.1 Multimedia

Coordinator: Fred Paas, Psychology, tel.: 3881911, Dr Tanslaan 10, rm 4.059.

#### Objectives

- Knowledge of theories from cognitive psychology which are relevant to multimedia information transfer.
- Knowledge of multimedia applications in education and communication.
- Knowledge of technological possibilities in relation to multimedia.

#### Description

The central question in this module has to do with the manner in which, from the

standpoint of cognitive ergonomics, knowledge of technology and applications is to be utilized to construct a multimedia product which is optimally adapted to the possibilities and limitations of the user's cognitive system. To answer this question, consideration will first be given to the human cognitive aspects of multimedia. Basic psychological knowledge of the possibilities and limitations of the cognitive system will be discussed within the context of multimedia information processing. The technological aspects of multimedia will then be examined. Students will be introduced to technological possibilities for multimedia presentation of information. Special attention will be devoted to multimedia applications for knowledge transfer in learning situations (Internet, CD-ROM, simulations, virtual reality, etc.) and for communication purposes (telebanking, teleshopping, video-telephone, video conferencing, etc.). Classical information carriers which involve multisensorial interaction with the user, such as a figure with accompanying text, will also be examined. Finally, detailed consideration will be given to a systematic approach to multimedia applications (analysis, (re)design, evaluation).

#### Essential reading

- Collection of articles.

#### Practical Training

Coordinator: Fred Paas, Psychology, tel.: 3881911, Dr Tanslaan 10, rm 4.059.

Objectives: In the practical training, students will evaluate an existing multimedia application or develop a new one on the basis of cognitive psychology. For this purpose, a systematic approach to the problem will be followed, with central importance given to the analysis, (re)design and evaluation of the multimedia application.

#### Teaching method

12 tutorial group meetings, 6 lectures, 2 practical training meetings.

#### Assessment

Open questions.

### Module 3.7.1 Human-Computer Interaction

Coordinator: Robert van Doorn, Psychology, tel.: 3881926, Dr Tanslaan 10, rm 4.066a.

#### Objectives

- Which human characteristics, and characteristics of human organizations, must the interface developer take into account?
- Which different types of interface are available?
- What are the strong and weak points of interfaces in the light of our knowledge of human functioning?

#### Description

Human-computer interaction forms an important new multidisciplinary area of work for cognitive psychology. It is concerned with the application of scientific knowledge and skills related to cognition in a technological environment. By

combining knowledge of human cognitive characteristics with knowledge of technology, it is attempted to design user-friendly systems which are optimally adapted to the ways in which people perceive, decide, reason, learn and solve problems. It is known that tasks which are not well-adapted to human physical and cognitive capacities generate significant health and safety risks (disability, stress, fatal errors, etc.). To adapt tasks and implements to the cognitive system, the cognitive ergonomist must have knowledge of human behaviour and its underlying processes, of technology, and of the relationship between the two. To teach students to evaluate whether a system is easy to use or learn, this module will first provide insight into the human characteristics required for these purposes. In the process, we will examine not only the characteristics of the cognitive system but also the user's social and organizational context. Subsequently, the technological aspects will be dealt with, such as input and output devices and interaction styles. Finally, extensive attention will be given to the design of human-computer interaction (methods and techniques, support and evaluation).

#### *Essential reading*

- Preece, J., Rogers, Y., Sharp, H., Benyon, D., Holland, S. & Carey, T. (1994). *Human-Computer Interaction*. Wokingham, England: Addison-Wesley.

#### *Practical Training*

Coordinator: Fred Paas, Psychology, tel.: 3881911, Dr Tanslaan 10, rm 4.059.

Objectives: In the practical training, students will compare interfaces designed according to various principles (menu structure, window structure, etc.) and evaluate a software package.

#### *Teaching method*

12 tutorial group meetings, 6 lectures, 6 practical training meetings.

#### *Assessment*

Open questions. The practical training will be concluded with a report.

### 4.2.3 Degree Course Option: Educational Psychology

Education is an attempt to create an environment for people which stimulates development. Development of what they know, what they can do and what they feel. Educational psychology studies these changes, giving particular emphasis to the effects of instruction on them. The Maasricht approach is highly constructivist, which means that learning is regarded as a process of constructing knowledge. It concentrates on learning in adequate contexts and emphasises the social character of learning. This is in line with the points of departure which characterize problem-based learning itself and about which psychology students thus have a good deal of experience and knowledge.

The first module, "Learning and Education", is identical to module 3.4.1 in the cognitive ergonomics course. The second module (3.5.2) will be devoted to the normal social and intellectual development of children and adolescents. While the first module concentrates primarily on the process of acquiring declarative knowledge, the third module focuses on the learning of procedural knowledge or skills and the role of educational technology in this process. The fourth module

concerns the evaluation of learning performance, with particular attention given to the testing of complex knowledge and skills in realistic settings. A closely related theme is the role of the psychologist in the study of school suitability and career preferences in children and the accompanying supervisory tasks.

#### *Core texts*

The following core texts have been selected for the degree course option in educational psychology:

- Resnick, L.B. (ed.; 1989). *Knowing, Learning and Instruction*. Hillsdale, NJ: Lawrence Erlbaum.

- Carey, S. (1985). *Conceptual Change in Childhood*. Cambridge, MA: MIT Press.

### 4.2.3.1 Overview of the Modules

#### **Module 3.4.2 Learning and Education**

Coordinator: Henk Schmidt, Psychology, tel.: 3881905, Dr Tanslaan 10, rm 4.066.

#### *Objectives*

- What are the characteristics of learning by means of instruction and which requirements are specific to such learning?
- What are the existing forms of instruction?
- In particular, what are the characteristics of problem-based learning?

#### *Description*

Our knowledge about how people learn was until recently based primarily on laboratory experiments in which test subjects processed elementary materials such as lists of words under strictly controlled conditions. But how does someone learn to understand the history of Europe? Or interview techniques? This module will be concerned with questions such as these. The accent in this respect will be mainly on the instruction methods which have been developed in recent years, based on our continually growing knowledge of human cognition. In the process, social and biological aspects will also be considered. Topics:

- learning as the construction of mental models of reality;
- the creation and maintenance of misconceptions, in particular in the natural sciences;
- connectionist views of learning;
- cognitive load;
- intrinsic versus extrinsic motivation: computer games;
- learning from texts;
- learning from examples;
- learning from peers;
- learning to think and solve problems;
- transfer of knowledge;
- "cognitive apprenticeship".

#### *Essential reading*

- Resnick, L.B. (1989). *Knowing, Learning and Instruction*. Hillsdale, NJ: Lawrence Erlbaum.

- Collection of articles.

#### *Practical Training*

Coordinator: Jeroen van Merriënboer, Psychology, tel.: 3881953, Dr Tanslaan 10, rm 4.055.

#### *Objectives:*

- Students will analyze the level of knowledge of groups of schoolchildren and prepare a lesson for them which they will then present themselves.
- Students will construct assignments for a problem-based curriculum.
- Students will analyze the cognitive and social processes which can be perceived in a group of children working together.

#### *Teaching method*

12 tutorial group meetings, 6 lectures, 6 practical training meetings.

#### *Assessment*

Open questions. The practical training will be concluded with a report.

### **Module 3.5.2 Intellectual and Social Development**

Coordinator: Peter Muiris, Psychology, tel.: 3881980, Dr Tanslaan 10, rm 3.013.

#### *Objectives*

- How does instruction influence the cognitive development of children?
- Which cognitive processes underlie this development?
- What is the role of the school in the social development of children?

#### *Description*

Between the ages of four and eighteen, children spend approximately 15,000 hours in school. During this period, enormous changes take place in their understanding of themselves and their world and in what they are able to do. This module documents these changes, with the emphasis on the cognitive and social developments which take place during this period and the manner in which education can intervene in these processes to optimize them. Piaget's theory of development will be used as the starting point, with the accent on the implications of this theory for the design of instruction: child-centred versus teacher-centred. Special attention will be devoted to the theoretical basis and practical consequences of cognitive spurts, with consideration given to the biological evidence as well. The crucial role of language will be examined. Authors who place great emphasis on the social character of learning, such as Vygotski, will also be presented. Finally, the module will devote attention to development as the result of experience, elucidated on the basis of the development of expertise in diverse fields. Additional topics: language development; development of memory capacity; development of learning strategies; metacognition, "theory of mind" in children; development of social competence; faltering development; mentally handicapped children ahead of their time; gifted children.

#### *Essential reading*

- Carey, S. (1985). *Conceptual Change in Childhood*. Cambridge, MA: MIT Press.

- Collection of articles.

#### *Practical Training*

Coordinator: Hedwig van Bakel, Psychology, tel.: 3881956, Dr Tanslaan 10, rm 3.005.

#### *Objectives:*

- Students will make a detailed analysis of the development of language in children aged four to six.
- Students will interview children of various ages to obtain an impression of the manner in which metacognitive ideas develop.

#### *Teaching method*

12 tutorial group meetings, 6 lectures, 6 practical training meetings.

#### *Assessment*

Open questions. The practical training will be concluded with a report.

### **Module 3.6.2 Skills, Technology**

Coordinator: Jeroen van Merriënboer, Psychology, tel.: 3881953, Dr Tanslaan 10, rm 4.055.

#### *Objectives*

- How do people acquire skills?
- What are the different types of skills?
- How can technology support the acquisition of skills?

#### *Description*

Education is not focused exclusively on the acquisition of knowledge. The acquisition of skills has an equally important place. This module will examine the manner in which skills are learned. It will not be restricted to the "classical" skills (reading, writing, arithmetic) but will also devote considerable attention to manual skills, such as those required to construct a wooden cupboard or palpate an ankle, and interpersonal skills, such as chairing a meeting, making a presentation or interviewing a client. In the examination of cognitive skills, the module will lean heavily on Anderson's ACT-R theory, which students will have encountered earlier in the curriculum. Behavioural skills will be dealt with in the context of behaviouristic learning theories, including Bandura's social learning theory. Finally, considerable attention will be devoted to the possibilities and limitations of technological multimedia resources (computer, videodisc, video and audio) which can be used to help acquire skills in a given field. Additional topics:

- Learning to solve problems in mathematics and the natural sciences.
- Learning to write reports.
- Learning to make presentations.
- Learning to program.

#### *Essential reading*

- Collection of articles.

*Practical Training*

Coordinator: Willem de Grave, Educational Development & Research, tel.: 3881117, Universiteitsingel 50, rm 5.109.

*Objectives:*

- Students will design a course in "reflecting feelings" for a psychotherapy training programme.
- Students will develop a multimedia programme to support training in leading group discussions.
- With the help of the ACT Programming Tutor, students will carry out a number of exercises to help them learn to program in PASCAL.
- Students will design a training course in study skills.

*Teaching method*

12 tutorial group meetings, 6 lectures, 6 practical training meetings.

*Assessment*

Open questions. The practical training will be concluded with a report.

**Module 3.7.2 Assessment, Testing, Supervision**

Coordinator: Jeroen van Merriënboer, Psychology, tel.: 3881953, Dr Tanslaan 10, rm 4.055.

*Objectives*

- How can capacities which have been acquired through education be assessed?
- What forms of assessment are there and what are their advantages and disadvantages?
- How can information obtained from tests and quizzes be used to help learners overcome specific problems?

*Description*

The tasks of the educational psychologist include the development of theory and practice with regard to the design of instruments for measuring study performance and the accompanying problem of assessment. This module will investigate the various fields in which study performance must be determined and the different types of instruments which have been or are being developed for this purpose. Special attention will be devoted to two relatively recent themes: "authentic assessment" and computerized assessment of products produced by students. The first has to do with attempts to assess criterion behaviour in a realistic environment, in particular by means of simulations (both computerized and "live"). An example of this is formed by the simulation stations used to test skills in medical education. The second theme focuses on methods which can be used in connection with computerized assessment of essay questions and research reports. A closely related theme has to do with the role of the psychologist in the assessment of school suitability and career choice. Students will become acquainted with the most frequently used tests in this field. In this connection, the problem of student supervision will also be examined. Some children have learning difficulties or have fallen behind in their studies. One of the important tasks of the educational

psychologist is to work out plans to remedy such problems.

*Essential reading*

- Collection of articles.

*Practical Training*

Coordinator: Henk van Berckel, Educational Development & Research, tel.: 3881116, Universiteitsingel 50, rm 5.108.

*Objectives:*

- Students will analyze and report on raw test results.
- Students will design a series of stations for the assessment of careers advisors in training.
- Students will develop a thesaurus for the purpose of checking an essential reading review written by first-year psychology students.
- Students will administer tests to primary school children.
- Students will prepare a supervision plan based on a diagnosis of learning problems.

*Teaching method*

12 tutorial group meetings, 6 lectures, 6 practical training meetings.

*Assessment*

Open questions. The practical training will be concluded with a report.

**4.3 THE BIOLOGICAL PSYCHOLOGY DEGREE COURSE**

Like the cognitive revolution, the biological revolution has been of decisive importance for the contemporary "persona" of psychology. Central to this approach is the concept of the human being as an "information processing system", a system which selects and processes stimuli from the outside world and subsequently makes a conscious or unconscious choice from a range of action strategies. The biological psychology programme is based on this concept. It concentrates on the study of aspects of psychological and cognitive functioning which can be better understood when biological factors are taken into consideration as well. Thus, the manner in which we perceive, remember, speak and move is determined by the structure and function of the nervous system. Our cognitive skills depend on the phase of development or aging of the brain. For this reason, babies, toddlers, children, adolescents, young adults and old people all function differently. Disorders in our functioning and in the manner with which we deal with limitations are also determined by the integrity of the brain.

The programme begins with an introduction to specialized topics in biological psychology. The emphasis here will be on acquiring basic knowledge regarding the relationship between somatic processes and behaviour. Based on these introductory modules, the student may choose between the degree course option in neuropsychology, which focuses on the study of brain-behaviour relationships and the application of this knowledge to problems related to health, sickness and cognitive functioning, and the developmental psychology option, which utilizes

knowledge about brain-behaviour relationships to obtain a better understanding of the development of children, young people and the elderly.

#### 4.3.1 Basic Programme in Biological Psychology

The three introductory modules in biological psychology form a continuum, building on the basic knowledge acquired in the first two years. The first module, "Neurocognition", examines psychological processes on the border between normal and subnormal functioning and the role of somatic processes in this connection. The second module, "Headaches", will intensify the student's basic knowledge of disorders in brain-behaviour relationships. In this module, the medical terminology and knowledge of syndromes required for the two degree course options will be presented. The third module, "Brainstorms", will examine elementary behavioural and cognitive functions, psychophysiological processes and the development of the nervous system.

To summarize: the three introductory modules will examine normal psychological functioning, functional disorders and brain disorders. At the end of these three modules, students will have acquired the basic information which will enable them to decide how to deepen or broaden their knowledge.

##### Core texts

The following books will be used as core texts in the three introductory biological psychology modules:

- Posner, M.I. and Raichle, M.E. (1994). *Images of Mind*. Scientific American Library.
- Oosterhuis, H. (1997). *Klinische neurologie* (13th revised edition). Utrecht/Antwerp: Bohn, Scheltema & Holkema.

#### 4.3.1.1 Overview of the Modules

##### Module 3.1.b Neurocognition

Coordinator: Jelle Jolles, *Psychology*, tel.: 3881912, Dr Tanslaan 10, rm 3.002.

##### Objectives

The aim of this module is to provide knowledge and insight regarding the elementary cognitive functions and skills and their interrelationships as well as the biological and psychosocial processes which determine neurocognitive functioning. An introduction to "cognitive neuroscience" will also be given.

##### Description

This module deals with the functioning of the brain, which will be discussed on the basis of recent insights in the "cognitive neurosciences". Brain imaging and the process approach in cognitive neuropsychology will be examined in this connection. Special emphasis will be placed on the role of attention processes. In addition, consideration will be given to the biological and environmental factors which determine optimum or subnormal functioning.

Finally, a meeting will be devoted to information processing in the elderly and in

children with attention disorders. The border area between neurocognitive functioning in "normal" people and in individuals with brain function disorders will also be discussed.

##### Essential reading

- Posner, M.I. and Raichle, M.E. (1994). *Images of Mind*. Scientific American Library.
- Collection of articles.

##### Practical Training

Coordinator: Heldwig van Bakel, *Psychology*, tel.: 3881956, Dr Tanslaan 10, rm 3.005.

Objectives: Experimental and applied neurocognitive research. Training practical skills in the execution of experimental research into "brain and cognition" and the analysis of research data on the "functional imaging" of the brain.

##### Teaching method

10 tutorial group meetings, 5 lectures.

##### Assessment

Open questions.

##### Module 3.2.b Headaches

Coordinator: Martin van Boxtel, *Psychiatry and Neuropsychology*, tel.: 3881028, Universiteitsring 50, rm 1.108.

##### Objectives

The aim of this module is to provide knowledge and insight regarding cerebral diseases and brain function disorders which psychologists may be confronted with as well as to present a survey of the state of affairs in the health-care sector.

##### Description

The module focuses on behavioural, cognitive and perceptual disorders in patients with damaged nervous systems. The major brain diseases will be discussed, such as cerebrovascular disorders, Alzheimer's disease, Parkinson's disease, epilepsy, traumatic brain damage and whiplash. Medical and neurological research will be studied, along with auxiliary medical examinations such as blood testing. Attention will also be given to other causal brain mechanisms and modern brain imaging methods. Medical terminology will be discussed in so far as it is relevant to psychologists and attention will be given to the most frequently used classification systems, such as ICD - 10 (International Classification of Diseases). A certain emphasis will be placed on disorders of the higher cognitive and cerebral functions, such as apraxia, agnosia, amnesia and related problems, and the therapies which are used to treat them. Pharmacology will be discussed in relation to the drugs used in the treatment of various neurological diseases. In addition, an introduction to hospital psychology and health-care organization will be presented.

##### Essential reading

Oosterhuis, H. (1997). *Klinische neurologie* (13th revised edition). Utrecht/

Antwerp; Bohn, Scheltema & Holkema.  
- Collection of articles.

#### *Practical Training*

Coordinator: Martin van Boxel, Psychiatry and Neuropsychology, tel.: 3881028, Universiteitsingel 50, rm 1.108.

#### *Objectives:*

- Students will gain experience in evaluating neuroanatomical brain scans measured by means of brain imaging methods.
- Students will gain experience in executing clinical epidemiological research (orientation clinical epidemiology).

#### *Teaching method*

12 tutorial group meetings, 6 lectures, 4 practical training meetings.

#### *Assessment*

Open questions.

### **Module 3.3.b Brainstorms**

Coordinator: Simon Ponten, Psychology, tel.: 3881939, Dr Tanslaan 10, rm 3.005.

#### *Objectives*

The module will provide in-depth knowledge regarding the relation between the elementary building blocks of the nervous system and behavioural/emotional and cognitive functioning. Special attention will be given to fundamental processes in the areas of genetics and biochemistry in relation to the subject of brain and behaviour.

#### *Description*

The different types of brain cells, the structure and biochemistry of the neuron and the role of hormones and neurotransmitters will be discussed. Many aspects of psychological and somatic functioning will be considered on the basis of the development and aging of the brain. The various cognitive functions and skills will be examined in relation to relevant brain locations and localization theories. The fundamental genetic and biochemical processes which are of importance to psychology will receive special attention in this module. In addition to providing more in-depth knowledge of these basic aspects, the module will focus particularly on the connection between biological and psychosocial processes as well as clinical symptoms. On this basis, modern possibilities for measuring cerebral processes during the performance of psychological tasks (brain imaging) will be discussed. Biological environmental interaction will be considered in relation to the influence of education and of enriched and impoverished environments. In the process, current theories such as the modern variant of the "body-mind problem" will be examined.

#### *Essential reading*

- To be announced.

#### *Practical Training*

Coordinator: Harry Steinbusch, Psychiatry and Neuropsychology, tel.: 3881021, Universiteitsingel 50, rm 1.101a.

*Objectives:* To provide more extensive knowledge of neuroanatomy; insight into the relationship between brain structure and brain function; knowledge of modern possibilities for measuring brain processes during the performance of psychological tasks.

#### *Teaching method*

12 tutorial group meetings, 6 lectures, 4 practical training meetings.

#### *Assessment*

Open questions.

### **4.3.2 Degree course option: Neuropsychology**

The specialization in neuropsychology is relevant for students interested in the relationship between body and behaviour (brain and behaviour in particular). Neuropsychologists are employed in many settings, in research (university research, laboratory research in the pharmaceutical and food industries, etc.), in regular or special education (school counselling services, institutions for the mentally handicapped, etc.), in health care (mental health care, general hospitals, rehabilitation centres, nursing homes) and in policy functions. This option will provide students with the in-depth knowledge and practical skills needed to follow higher education in this field (such as the training course for National Health Service (neuro)psychologists).

The main theme of this option is psychological functioning and its biological aspects. The modules build on the elementary knowledge acquired in the first two years and in the three introductory modules: Module 3.4.3, "Behavioural Disorders", examines disorders in behaviour and perception which can best be understood when biological as well as psychosocial mechanisms are taken into account. The primary focus of this module will be on the relationship between biological (genetic, etc.) and psychosocial factors. Module 3.5.3, "Perception, Representation and the Brain", concentrates on the intrinsic relationships between perceptions and mental representations and their neurobiological organization. Module 3.6.3, "Action", examines concept formation and its role in thinking, reasoning, solving problems and controlling one's own behaviour. In addition, the cerebral organization of the (psycho)motor system, movement and action will be considered in relation to both the (cognitive) neuroscientific and the clinical approach. Module 3.7.3, "Activation and Arousal", focuses on the psychological processes related to vitality and general well-being and their biological basis. Sleep, wakefulness and attention will be central, in relation to physiological mechanisms which are regulated by the brain stem, hormones and the immune system.

#### *Core texts*

The following basic book will be used in the neuropsychology degree course option:  
- Kosslyn, S.M. (1996). *Image and Brain*. Cambridge MA: MIT Press (paperback).

#### 4.3.2.1 Overview of the Modules

##### Module 3.4.3 Behavioural Disorders

Coordinator: Harald Merckelbach, Psychology, tel.: 3881945, Dr Tanslaan 10, rm 3.018.

##### Objectives

- Knowledge of cognitive dysfunctions in significant neuropsychiatric disorders.
- Knowledge of biological abnormalities related to these disorders.
- Knowledge of psychotherapeutic and pharmacological interventions in connection with these disorders.

##### Description

This module focuses on a number of frequently occurring disorders which have both neurological and psychiatric aspects, such as schizophrenia, obsessive symptoms, epilepsy and mood disorders. The cognitive and biological phenomena accompanying all these disorders will be inventoried. The principle of vulnerability and protective factors will be discussed. Psychopharmacology will be given intensive consideration. Other forms of treatment (including psychotherapy and cognitive rehabilitation) will also be surveyed.

##### Essential reading

- Collection of articles.

##### Practical Training

Coordinator: Eef Hogervorst, Psychiatry and Neuropsychology, tel.: 3881025, Universiteitssingel 50, rm 1.116.

Objectives: The exact contents of the practical training have yet to be announced.

##### Teaching method

12 tutorial group meetings, 4 lectures, 3 practical training meetings.

##### Assessment

Open questions.

##### Module 3.5.3 Perception, Representation and the Brain

Coordinator: Leo Blomert, Psychology, tel.: 3881949, Dr Tanslaan 10, rm 4.011.

##### Objectives

- Knowledge of:
- theories about intrinsic relationships between perceptions and mental representations;
  - theories about the neurobiological organization of perceptual and representational processes;
  - neurocognitive experimental and measurement methods.

##### Description

Imagine that someone asks you to describe your bicycle, or to describe it after it has crashed into a wall at top speed. You will not find it difficult to answer these questions in detail. Thus, you are apparently capable of generating mental representations of existent and nonexistent things which you can inspect and manipulate as if they were actually present. These representations form essential ingredients of cognitive processes and play a central role in neurocognitive research as manifestations of non-verbal thought processes.

In this module, the nature and function of mental representations will be investigated in depth. The latest theories on mental representations assume that perceptions and representations make use of the same (cerebral) mechanisms to a significant extent. The study of auditory and visual perception processes thus also provides insight into mental representations of images and sounds.

The theories to be examined regarding the generation and operation of mental representations are based on analysis of visual perceptual phenomena in particular. These theories will be tested against evidence from 1) neuropsychological studies (some perceptual disorders are accompanied by identical representational disorders as well as illusions and hallucinations); 2) experimental behavioural studies (visual scanning of both real and imaginary large surfaces takes longer than scanning of small surfaces); 3) functional brain activity studies (there is a great degree of overlap between the cerebral areas which are active in the execution of both real and imaginary tasks); and 4) neurobiological studies, which provide insight into the neurochemistry and physiology of the brain circuits concerned.

##### Essential reading

- Kosslyn, S.M. (1996). *Image and Brain*. Cambridge MA: MIT Press (paperback).
- Collection of articles.

##### Practical Training

Coordinators: Leo Blomert, Psychology, tel.: 3881949, Dr Tanslaan 10, rm 4.011 and Eric Postma, Information Science, tel.: 3883493, St. Jacobsstraat 6, rm 1.002.

Objectives: Students will conduct and participate in a visual perception and representation experiment. They will develop skills in formulating an experiment protocol and preparing an experiment report.

##### Teaching method

2 tutorial group meetings, 6 lectures, 4 practical training meetings.

##### Assessment

Open questions.

##### Module 3.6.3 Action

Coordinator: Wijnand Raaijmakers, Psychology, tel.: 3881880, Dr Tanslaan 10, rm 3.002a.

##### Objectives

The aim of the module is to enable students to acquire in-depth insight regarding



the organization and regulation of action. In addition to the organization of the motor systems, the planning and directing of behaviour will be considered.

#### *Description*

This module focuses on the study of the motor systems, movement and action. How are representations of motor activity organized in the brain? Representations of space, visual-motor functions, the regulation of body posture and eye movements will be considered. The cerebral organization of the (psycho-)motor system, movement and action will be discussed from both the neuroscientific and the psychological point of view. Various aspects will be discussed in relation to movement and action in cases of "normal" development. Disorders in this system will also be examined, as will its neurochemical organization.

#### *Essential reading*

To be announced.

#### *Practical Training*

Coordinator: Eric Vuurman, Psychiatry and Neuropsychology, tel.: 3881046, Universiteitssingel 50, rm 1.106.

Objectives: Students will acquire experience in conducting research into the measurement of movement.

#### *Teaching method*

12 tutorial group meetings, 6 lectures, 4 practical training meetings.

#### *Assessment*

Open questions.

### **Module 3.7.3 Activation and Arousal**

Coordinator: Wim Riedel, Psychiatry and Neuropsychology, tel.: 3881027, Universiteitssingel 50, rm 1.106.

#### *Objectives*

The aim of the module is to provide in-depth knowledge and insight regarding basic behavioural and cognitive processes which regulate wakefulness and their relationship to the structure and function of subcortical cerebral structures. The focus will be on arousal, activation and effort as well as the direction of somatic processes by the brain.

#### *Description*

In psychological essential reading, many concepts have been used in the description of the human wakefulness function, such as activation, arousal, effort, vigilance, alertness, sustained attention, vitality, etc. Module 3.7.3 will examine these concepts and focus on the physiological and hormonal regulation of wakefulness and how these processes are related to the control of somatic processes such as heartbeat and breathing. An important place in this module will be given to the concepts of arousal, activation and effort as underlying physiological regulatory systems of the

state of wakefulness needed for attention and information processing. The terms "psychophysiological reactivity" and "vitality" refer to individual differences in sensitivity to disorders in physiological regulatory systems. The focus here will be on the relation between cognition and energy, i.e. what people mean when they say: "I can't concentrate, it takes so much energy". (Over) tiredness and stress also play a role in this respect. The neurochemical aspects of activation and arousal will be discussed in relation to psychoactive drugs which affect wakefulness. Attention will also be given to pharmacology in general. How do drugs behave in the body?

The module will deal partly with "normal" functioning, including "normal" tiredness, partly with pathological phenomena. In this context, the behavioural aspects of endocrinological science (psycho-endocrinology) and the science of somatic defence mechanisms (psycho-immunology) will be examined. The module will also discuss behavioural medicine and medical neuropsychology in the broad sense of the term (i.e., neuropsychological problems in connection with cardiovascular and other diseases) as well as syndromes characterized by activation and arousal disorders (such as Attention Deficit with Hyperactivity Disorder, ADHD). Neuropsychological diagnosis and treatment and the effects of information will be discussed, with the emphasis on the relation between biological and psychological processes.

#### *Essential reading*

To be announced.

#### *Practical Training*

Coordinator: Fren Smulders, Psychology, tel.: 3881909, Dr Tanstaan 10, rm 3.012. Objectives: Students will acquire experience in measuring physiological indicators of activation and arousal, utilizing both central (cortical, EEG) and peripheral (cardiovascular skin conductivity) variables.

#### *Teaching method*

12 tutorial group meetings, 6 lectures, 4 practical training meetings.

#### *Assessment*

Open questions.

### **4.3.3 Degree course option: Developmental Psychology**

The specialization in developmental psychology is relevant for students interested in working with children, adolescents and the elderly. Developmental psychologists are employed in many settings: universities, school counselling services, medical day nurseries, health-care institutions for children and adolescents (state institutions, hospitals, specialized institutions) and care of the mentally handicapped. Geriatric psychologists find analogous employment in health care or policy functions. The developmental psychology course will provide students with the in-depth knowledge and practical skills needed to follow higher education in this field (such as the training course for National Health Service child psychologists or courses in adolescent and geriatric psychology). The course places greater emphasis on the relation between psychosocial factors (family, school, social environment, etc.) and biological factors (genetics, nutrition, diseases, etc.) than do "classical" program-

mes in this field.

The course is structured in such a way that the modules form a continuum, the guiding principle of which is formed by the phases of life. The four modules will deal successively with the following periods: "From Baby to Child" (module 3.4.4), "The Child" (module 3.5.4), "The Adolescent" (module 3.6.4) and "Aging" (module 3.7.4). The first module covers psychological development from birth to approximately six years. Cognitive and emotional development will be related to the explosive cerebral development which takes place during this period. The module on "The Child" focuses generally on the primary school period, a period which is marked not only by cognitive learning at school but also by drastic changes in relationships outside the family. The third module deals generally with the entire secondary school period and young adulthood. The major physical changes in puberty, the role of hormones, and social factors will be given considerable attention in this module. The fourth module will be devoted to the process of aging, starting at the time at which physical maturity is reached in the third decade of life. This module will examine the phases of life from young adult via middle age to old and very old age, and will focus on biological and psychosocial factors in successful and pathological forms of aging.

#### 4.3.3.1 Overview of the Modules

##### Module 3.4.4 From Baby to Child

Coordinator: Hans Stauder, Psychology, tel.: 3881940, Dr Tanslaan 10, rm 3.006.

##### Objectives

The aim of the module is to provide knowledge of early child development in the period from birth to approximately six years and to examine the biological, psychosocial and neurocognitive aspects of this development.

##### Description

Between birth and the time that the child learns to read and write at school, the basis is laid for the individual's personality and his or her possible cognitive and emotional development. Hereditary factors and prenatal biological influences determine the limits to psychological development. After birth, (psychosocial and biological) environmental factors determine the extent to which the possibilities afforded by heredity are realized. The development of motor and sensory skills is particularly prominent during the first six years. In addition, this phase sees the start of cognitive and communicative (language) development, while the social interaction in the family is decisive for the subsequent development of stable interpersonal relationships. This module will examine these various aspects of development and the influence of genetic, biological and psychosocial factors. Diseases, nutritional factors and disorders in cerebral development will be considered. In addition, attention will be devoted to child-family/parent interaction

in relation to both normal and disturbed development. The important topic of "learning" will be considered in relation to cognitive learning and the teaching of skills in primary school. Mild to severe forms of developmental disorders and child psychopathology will be discussed, with attention given to autism and contact disorders, disordered motor and language development and educational problems. Due to the intensive relationship between biological and psychological processes in relation to limitations in the lives of the mentally handicapped, special attention diseases will be discussed. Finally, the most common baby and childhood

##### Essential reading

To be announced.

##### Practical Training

Coordinator: Hans Stauder, Psychology, tel.: 3881940, Dr Tanslaan 10, rm 3.006.  
Objectives: Students will acquire experience in observing the behaviour of babies and young children and in conducting behavioural ethological research.

##### Teaching method

12 tutorial group meetings, 6 lectures, 4 practical training meetings.

##### Assessment

Open questions.

#### 3.5.4 The Child

Coordinator: Hedwig van Bakel, Psychology, tel.: 3881956, Dr Tanslaan 10, rm 3.005.

##### Objectives

The aim of this module is to provide knowledge about the normal course of child development during the primary school period from approximately six to twelve years of age and the biological, psychological and social factors which influence this development. Students will also acquire insight into the most common problems and disorders during the primary school period. Students will learn to recognize specific disorders and problems and to approach them from various standpoints of developmental psychology.

##### Description

The primary school period has a very great influence on the place which the individual will eventually assume in society. After all, the child's performance at primary school will determine which form of secondary education he or she will receive. Problems at home or illnesses which prevent children from performing effectively for a certain period may thus have enormous, far-reaching effects, in the sense that they may influence the entire course of their academic careers. Attention disorders, which occur relatively often in boys aged 7 to 11, may lead to substantial school performance and consequently referral to a type of school which demands less intellectually than the child is capable of. Many children are subject to learning and concentration problems, dyslexia and other problems during this period. There are

individual patterns of development determined by diverse biological, psychosocial and cultural factors. The module on "The Child" will devote attention to all these factors and the interaction between them. Considerable attention will be given to "learning and education". Students will gain insight into the points of departure and backgrounds of various relevant educational models and into aspects of educational psychology which are of significance to developmental psychology. Individual differences in intellectual development will be considered, as well as the delays and disorders which may occur in this respect. Reading and writing disorders, learning disorders and speech and language disorders will be discussed in this connection, as well as special education and education for the mentally handicapped. Besides cognition, the primary school period is also of essential importance for psychosocial development. Social play, dealing with rules and social learning in relation to the latest theories in developmental psychology will thus be discussed as well. Here also, the relation between biological and psychosocial determinants will be examined in depth. With respect to disorders and psychopathology in children, students will obtain insight into the most common problems and their diagnosis and treatment. Anxiety disorders, depression and anti-social development will be discussed, along with neuropsychological and neuropsychiatric syndromes such as Tourette's syndrome, ADHD and dyslexia. Pharmacological therapies will be discussed in relation to the treatment of hyperactivity and attention disorders.

#### *Essential reading*

To be announced.

#### *Practical Training*

Coordinator: Hedwig van Bakel, Psychology, tel.: 3881956, Dr Tanslaan 10, rm 3.005.

Objectives: Students will acquire experience in conducting neurocognitive research in children, in particular research into intelligence and reading problems.

#### *Teaching method*

12 tutorial group meetings, 6 lectures, 4 practical training meetings.

#### *Assessment*

Open questions.

### **3.6.4 The Adolescent**

Coordinator: Hans Strauder, Psychology, tel.: 3881940, Dr Tanslaan 10, rm 3.006.

#### *Objectives*

The aim of the module is to provide knowledge of adolescent development in the period from early puberty (approx. 12 years) to adulthood and the biological, psychological and social factors which determine this development.

#### *Description*

The period which roughly corresponds to the secondary school years is characterized by major physical changes and changes in the place which the individual assumes

in society. The personality is formed in this connection. Hormonal changes lead to puberty, to accelerated physical growth and major mental changes. The adolescent begins to detach himself from the family and find his own place in life. Besides the fact that intellectual development continues to advance during this period (depending very much on the form of secondary education followed), it is also a time of intense social learning. This module will examine the biological, psychological and psychosocial processes which characterize this period. With respect to the biological level, somatic changes, sex hormones, sexual development and male/female differences will be discussed. With respect to the psychological level, identity and identity crises, self-reflection and personality will be considered. With respect to social factors, the module will examine the influence of group pressure, conformism and drop-out problems. Juvenile delinquency and addiction problems will also be discussed in this connection. Biological aspects of drug addiction and the biological mechanisms responsible will then be studied in relation to the pharmacology of the most commonly used hard and soft drugs. Besides dealing with relevant addiction problems, our discussion of juvenile psychopathology will also cover eating disorders, suicidal tendencies, psychoses and abnormal personality development. Diagnosis and classification will be studied, partly on the basis of DSM and other classification systems. Finally, we will consider aspects of development related to the last stages of maturation in young adulthood and the major psychosocial changes which occur in this connection.

#### *Essential reading*

To be announced.

#### *Practical Training*

Coordinator: Eric Vuurman, Psychiatry and Neuropsychology, tel.: 3881046, Universiteitsingel 50, rm 1.106.

Objectives: Students will acquire experience in conducting basic psychophysiological and psychopharmacological research in adolescents and young adults.

#### *Teaching method*

12 tutorial group meetings, 6 lectures, 4 practical training meetings.

#### *Assessment*

Open questions.

### **3.7.4 Aging: Cognition and Biopsychology**

Coordinator: Peter Houx, Psychology, tel.: 3881902, Dr Tanslaan 10, rm 3.001.

#### *Objectives*

The aim of the module is to provide knowledge and insight regarding the process of aging from young adulthood to very old age and the accompanying changes in biological, medical, neurocognitive and psychosocial variables.

#### *Description*

Changes in cognitive functioning can already be objectively established in the fourth decade of life. People in their thirties are somewhat slower than people in

their twenties and their information processing is less efficient. This can be seen in the performance of top athletes who have reached their peak in young adulthood. Remarkably enough, however, growth does take place in various cognitive areas, sometimes even into the sixth or seventh decade. Some language functions, for example, are more effective in healthy, well-educated people in their sixties than in young people. The module intends to provide a survey of the psychological "units" which start to deteriorate from the 25th year of life, the time of life at which this process starts and the speed with which it takes place. The emphasis in this respect will be on cognitive gerontology and the study of the connection between biological, psychological and social factors in aging. The relative contribution of these factors changes with the phases of life. The module will cover the following phases: young adulthood, middle age, old age and very old age. Physiological aging theories will be reviewed, including genetics, free radical theory and cerebral reserve theory. Cognitive theories will also be examined. Is it primarily the reduced speed which is responsible for objective and subjective deterioration or is it the deterioration of the senses? Which measurable cognitive dysfunction precedes memory problems and disorders? What is the direction of causality in this respect? Social and cultural influences will also be discussed. Individual patterns in cognitive aging will be considered: successful, normal and pathological aging. What is the role of health problems in the phases of life? This will be different for people in their forties than for people in their sixties or eighties. Nervous exhaustion and psychopathology will be studied, as well as neuropsychiatric and neurological syndromes (including dementia, Alzheimer's disease, Parkinson's disease, age-related cognitive disorders, anxiety and depression in the elderly). Biological and psychological treatments will be discussed. Diagnosis and classification will be considered in this respect. Finally, a brief survey of the various forms of care for old and very old people will be presented.

#### *Essential reading*

To be announced.

#### *Practical Training*

Coordinator: Eef Hogervorst, Psychiatry and Neuropsychology, tel.: 3881025, Universiteitsingel 50, rm 1.102.

**Objectives:** Students will acquire experience in conducting behavioural research and in preparing a neuropsychological case history. They will obtain insight into the execution of basic neuroscientific research.

#### *Teaching method*

12 tutorial group meetings, 6 lectures, 4 practical training meetings.

#### *Assessment*

Open questions.

#### **4.4 Degree course option psychopathology**

Students may follow (parts of) the core curriculum and elective modules in Mental Health Sciences (Geestelijke Gezondheidskunde or GGK) offered by the Faculty of Health Sciences. By completing this programme, psychology students will have complied with all initial requirements attached in other universities to specialization courses in clinical psychology. A graduate who has followed this programme within the psychology course will have a ticket of admission for all postgraduate education in this field.

Six modules in the GGK programme are relevant for psychology students: "Mood Disorders", "Anxiety", "Sexuality", "Psychodiagnostics", "Illusions and Delusions" and "Psychosomatic Disorders", along with the accompany practical and skills training. Only with these six modules will students be in compliance with all admission requirements for postgraduate programmes. Psychology students who follow the psychopathology specialization must take the following modules: "Mood Disorders", "Anxiety", "Sexuality" and "Psychodiagnostics". In the fourth year, students are free to take "Illusions and Delusions" and "Psychosomatic Disorders" or to select other elective modules.

#### **General Core texts**

- Bridgeman, B. (1988). *The Biology and Behavior and Mind*. New York: Wiley.
- Davidson, C.G. and Neale, J.M. (1994). *Abnormal Psychology* (6th ed.). New York: Wiley.
- Jansen, A., Merckelbach, H. and Van Hout, M. (1992). *Experimentele psychopathologie: een inleiding*. Assen: Van Gorcum.

#### **4.4.1 Overview of the Modules**

##### **Module 3.4.5 Mood Disorders**

Coordinator: Susan Bögels, Differential and Experimental Psychology, tel.: 3881609, Universiteitsingel 50, rm 1.357.

#### *Objectives*

This module deals with mood disorders (depression, mania).

#### *Description*

The theme will be approached from various perspectives (social-psychological, cognitive, pharmacological, etc.). Topics to be presented include the following:

- normal and abnormal mood fluctuations;
- epidemiology;
- diagnosis;
- biological, psychological and social explanatory models;
- treatment options.

Relevant disciplines: social and biological psychiatry, cognitive psychology.

#### *Essential reading*

To be announced.

*Practical Training*

**Coordinator:** Tessa van Mourik, Educational Development and Research, tel.: 3881125, Universiteitsingel 50, rm 5.142.

**Objectives:** A case-history interview has a precisely defined goal: the collection of information which will contribute to the formulation of a diagnosis. This training will cover the various phases of case-history interviews in connection with mental health problems. In addition, we will examine the manner in which diagnoses are formulated on the basis of interview and observation data. The training consists of six three-hour meetings and a subsequent discussion. Skills will be evaluated by means of a simulated contact.

*Practical Training*

**Coordinator:** Madelon Peters, Differential and Experimental Psychology, tel.: 3881603, Universiteitsingel 50, rm 1.344.

**Objectives:** In this short practical training, students will conduct an experiment regarding the influence of mood on performance.

*Teaching method*

12 tutorial group meetings, 6 lectures, 7 practical training meetings.

*Assessment*

Open and/or closed questions plus a written practical training report.

**3.6.5 Sexuality**

**Coordinator:** Helga Nauta, Health Information, tel.: 3882397, P. Debyeplein 1, 1.044.

*Objectives*

- Knowledge of the biological basis for both normal and deviant sexual behaviour.
- Knowledge of the psychological basis for both normal and deviant sexual behaviour.
- Knowledge of the relational context of both normal and deviant sexual behaviour, including legislation.
- Knowledge of the diagnostic criteria for sexual disorders.
- Knowledge of the various treatment options for sexual violence.
- Knowledge of preventive strategies with respect to sexuality.
- Knowledge of research methods with respect to sexuality.
- Insight into one's own attitudes with respect to sexuality.

*Description*

This module will deal with sexuality in general and with the sexological problems with which the behavioural scientist may be confronted in practice in particular. In addition to topics related to the biological bases of sexual behaviour, particular attention will be devoted to themes which are directly connected to the professional practice of the behavioural scientist: (mental) health care, research and prevention. Case histories will be approached from different frames of reference (psychodynamic,

systems theory, learning theory and feminist).

*Essential reading*

To be announced.

*Practical Training*

**Objectives:** Discussing sexuality. The training begins with the assumption that everyone has to deal with sexuality. As a social scientist, too, you stand a good chance of being confronted with sexuality in the people you encounter. However, there are so many different ideas, norms, standpoints, perceptions of sexuality that a certain perspective is required in order to approach this subject professionally. To acquire such a perspective, it is essential to examine one's own attitudes, norms, behaviour and emotions in relation to the subject matter of sexuality. The practical training will approach this subject matter with the help of role-playing, magazine articles, statements and simulations. Attention will be given to learning to designate and investigate opinions, emotions and behaviour related to sexuality. Students will also be introduced to the process of taking sexual case histories, i.e. conducting a professional interview to delineate an individual's sexual history. Training structure: five three-hour meetings. In the last meeting, the training will be concluded with student presentations of case histories.

*Teaching method*

12 lectures, 5 practical training meetings.

*Assessment*

To be announced.

**3.7.5 Psychodiagnostics**

**Coordinator:** Cor Meesters, Medical Psychology/Differential and Experimental Psychology, tel.: 3881488, Universiteitsingel 50, rm 1.324.

*Objectives*

The aim of this module is to provide students with more in-depth theoretical knowledge of psychodiagnostics.

*Description*

Beginning with the history and present position of psychodiagnostics, ethics and test theory, the module will move on to examine psychodiagnostic research in respect of intelligence, personality and functions on the basis of case studies. Psychodiagnostic research will also be illustrated with examples from the different phases of human life (childhood and youth, adulthood and old age). All students will be required to execute practical assignments involving the study of the psychometric qualities of a personality questionnaire. Relevant scientific fields include psychometrics, psychological theories of personality, neuropsychology and developmental psychology.

The importance of this module partly lies in the fact that it is a required condition for eligibility for the so-called Aanbakkende testdiagnostica, a certificate in test diagnostics verifying that the student has demonstrated both theoretical and

practical competence in psychodiagnosics. The certificate is presented along with the graduation diploma.

*Essential reading*

To be announced.

*Teaching method*

12 tutorial group meetings.

*Assessment*

To be announced.

### Module 4.1.5 Illusions and Delusions

Coordinator: Reiner Kreutzkamp, Differential and Experimental Psychology, tel.: 3881605, Universiteitsingel 50, rm 1.353.

*Objectives*

This module focuses on the "severe" psychiatric abnormalities.

*Description*

Themes to be examined include:

- psychotic symptomatology;
  - psychosis and biological substratum;
  - cognitive defects and schizophrenia;
  - psychosis and the individual;
  - psychosis, family and social network.
- Relevant disciplines: biological and social psychiatry, psychological theories of functioning, health law.

*Essential reading*

To be announced.

*Practical Training*

Coordinator: Geke Blok, Educational Development and Research, tel.: 3881135, Universiteitsingel 50, rm 5.127.

*Objectives:* In continuation of Anamnesis I, Anamnesis II provides advanced training in the conduct of case-history interviews and diagnosis of mental disorders. While the first course focuses on so-called "neurotic" disorders, Anamnesis II concentrates on disorders in thought and perception (psychotic problems). The objective is to teach students to prepare case histories and formulate (differential) diagnoses for clients suffering from psychotic disorders. The training consists of six three-hour meetings.

*Teaching method*

12 tutorial group meetings, 6 lectures, 6 practical training meetings.

*Assessment*

Open questions.

### 3.5.5. Fear

Coordinator: Merel Kindt, Differential and Experimental Psychology, tel. 3881610, Universiteitsingel 50, rm 1.359.

*Objectives*

The aim of this block is to acquire knowledge and insight into the causes, appearances, development and therapy of (pathological) fear. Among others, the following themes will be highlighted:

- prevalence/incidence and pathology;
- experimental models;
- different forms of therapy;
- relation with sexuality.

*Essential reading*

To be announced

*Practical training*

Coordinator: Geke Blok, Educational Development and Research, tel. 3881135, Universiteitsingel 50, rm 5.127.

Coordinator: Merel Kindt, Differential and Experimental Psychology, tel. 3881610, Universiteitsingel 50, rm 1.359 and Peter de Jong, Differential and Experimental Psychology, tel. 3881596, Universiteitsingel 50, rm 1.349.

*Teaching method*

12 tutorial group meetings, 6 lectures and 8 practical training meetings.

*Assessment*

Open and/or closed questions.

### Module 4.2.5 Psychosomatic Disorders

Coordinator: Madelon Peters, Differential and Experimental Psychology, tel.: 3881603, Universiteitsingel 50, rm 1.351.

*Objectives*

In this module, the concept of "psychosomatic diseases" will be discussed.

*Description*

Extensive attention will be devoted to the cybernetic approach. In the process, psychosomatic complaints will be analyzed on four levels: biological, psychological, social and societal. In addition, various theories on the relationship between psychological mechanisms and disease symptoms will be reviewed. The physiological processes which may play a mediating role in the relationship between psychological mechanisms and disease will also be discussed. Finally, ample attention will be given to the treatment and prevention of psychosomatic complaints.

*Essential reading*

To be announced.

*Practical Training*

Coordinator: Geke Blok, Educational Development and Research, tel.: 3881135, Universiteitssingel 50, rm 5.127.

*Objectives:* In this training, the ideas of systems theory and the systematic therapeutic treatment which is based on these theoretical assumptions will be central. Both diagnosis and treatment will be examined. The training will consist of six three-hour meetings, a contact simulation and subsequent discussion.

*Teaching method*

12 tutorial group meetings, 6 lectures, 8 practical training meetings.

*Assessment*

Open and/or closed questions.

**4.5 PARALLEL PROGRAM THIRD YEAR**

A common parallel program in the third year such as statistics and computer skills will only be provided during the first three modules (the introductory cognitive and biological psychology modules). In addition, students will be expected to write a third-year thesis as part of the third-year writing skills course.

**4.5.1 Computer Skills III**

Coordinator: Robert van Doorn, Psychology, tel.: 3881926, Dr Tanslaan 10, rm 4.066a.

*Objectives*

The skills acquired in Pascal programming will now be applied to learning to program in Delphi.

*Description*

Delphi is a visual programming language which has replaced Pascal. A teaching method will be developed within which students from both specializations can work together on a project requiring knowledge of cognitive and biological psychology as well as specific knowledge of Delphi. For example, a program which simulates a simple neural network could be developed. In such a project, students of cognitive psychology could concentrate on designing the interface while students of biological psychology could add to and apply their knowledge of neural circuits. Both groups would of course be involved in the specification and implementation of the software.

*Essential reading*

- Stefanski.

*Teaching method*

Tutorial group meetings (number to be announced).

*Assessment*

Working assignments.

**4.5.2 Statistics III**

Coordinator: Martijn Berger, Methodology and Statistics, tel.: 3882258 or 3882395, p. Debyeplein 1, rm 2.063.

*Objectives*

Instruction in statistics will primarily be devoted to understanding the advanced statistical techniques used in psychological research. Students will become familiar with these techniques and learn how and when they are to be used. Wherever possible, the subject matter will be related to the statistics instruction provided in the first and second years.

*Description*

The subject matter consists of three topics. First of all, factor-analytic techniques, including LISREL, will be discussed. This will be followed by the analysis of frequency tables with causal inferences, including simple logit models. Finally, repeated measurement variance analysis will be discussed, in continuation of the material presented in the second year.

*Essential reading*

- Kleinbaum, D.G., Kupper, L.L. and Muller, K.E. (1988). Applied Regression Analysis and Other Multivariable Methods. Belmont: Duxbury Press.  
- Collection of articles.

*Teaching method*

The course is structured in the form of 6 lectures with accompanying seminars and 3 computer practice sessions.

*Assessment*

Closed and/or open questions.

**4.5.3 Writing Skills III**

Coordinator: Peter Vermeear, Psychology, tel.: 3881895, Dr Tanslaan 10, rm 4.005.

*Third-Year Essay*

All psychology students are required to write at least one third-year essay before graduation. Approval for traineeship studies will only be granted after the third-year thesis has been submitted and assessed as sufficient. Students who wish to pursue their study or research traineeships abroad must write their third-year essay in English.

*Selection of Topics*

Portfolios containing topics which students may select for third-year projects are available from Anouk Cuijpers, Psychology, tel.: 3881886, Dr Tanslaan 10, rm 4.006 and at the learning resources centre. For each topic, the instructor who will

supervise and evaluate the student's work is indicated. Students wishing to write papers on topics not found in the portfolio must find supervisors/assessors themselves.

#### *Third-Year Essay Supervision*

The instructor who evaluates the third-year essay will also supervise its preparation.

#### *Requirements*

Essays are to be submitted in triplicate along with an annotation form to an office staff member. They must be submitted personally. On the title page, in addition to the title, must be indicated:

- the name of the author;
- the examination number;
- the name of the content supervisor.

All essays are to be prepared individually.

The thesis must be at least fifteen pages long, excluding the title page, sources, tables, appendices, etc., and no longer than twenty-five pages. Exceeding the lower limit is not permitted. Exceeding the upper limit must be justified with cogent reasons in the foreword. The length will be taken into account in evaluating the formal aspects of the paper.

Essays are to be typed on one side of A4 sheets, with one-and-a-half-line spacing and approximately three-cm margins on all sides.

#### *List of Assessment Aspects*

The essays will be evaluated on form and content aspects (problem formulation, argumentation, professional aspects and formal aspects). The aspects are assessed separately and all four aspects carry the same weight in the evaluation. The separate scores on the aspects are added together and averaged to produce a total score. This final score must not be less than sufficient. For further details on assessment aspects, please refer to the "writing skills manual".

#### *Submission Procedure*

Each student is to submit three copies of the essay to Anouk Cuijpers, Psychology, tel.: 3881886, Dr Tanslaan 10, rm 4.006, who will send them with an assessment form to the supervisor. Within twenty working days, the supervisor will return the essay with assessment to the office. One copy, possibly with commentary, will be returned to the student. Another copy will be sent to an independent instructor for evaluation.

## 5 The Fourth Year

### 5.1 GENERAL

In the final year of the psychology programme, students follow elective courses, carry out research traineeships and write traineeship reports: the master thesis. In the first three module terms of the year, elective courses will be offered by the Faculty of Psychology. It is always possible to follow elective courses offered by other faculties within the Maastricht University or elsewhere, provided that the examination board has granted permission in this respect.

### 5.2 ELECTIVE COURSES

The third year of the programme is characterized by the differentiation of the curriculum and by specialized instruction in the various fields. In the first half of the fourth year, elective courses are provided which enable students to both broaden and further specialize their programmes. To accomplish these twin goals, a wide range of electives is required. In order to achieve this, the classical PBL approach has been dropped. Moreover, in their final year students follow increasingly individual paths. This process begins during the preparations for the research traineeship and may result in an ambition to work in a very specific field. The organisation described below is very well adapted to the individualization of the learning process which characterizes the fourth year.

### Organisation of the electives

The wide range of elective topics offered has been arranged into clusters. Seven clusters have been distinguished, representing on the one hand work areas, on the other hand important scientific themes.

For each topic, teachers will provide a "coursebooklet" containing a short description of the topic, a list of the literature to be studied and the assessment (for example, essay, oral exam, assignment, etc.). The booklet may also indicate any practical training involved, the manner in which the computer room is to be used, etc.

These courses last six weeks and may be followed by one or more students. Given the very wide range of subjects in the overall programme, however, it can be expected that no more than a few students will pick any particular topic.

Most likely, approximately twenty students will register for topics within any given cluster. It is not enough to leave it at that, however. After all, it is well known that



the learning process does not proceed effectively without interpersonal contact between students and instructors, and that the risks of dropping out or failing to complete the course on schedule are great under such circumstances. For these reasons, joint activities will be organized for all students who have chosen topics within a cluster. Some of these activities will be mandatory. The minimum number of contact hours to be organized for each course will be fixed in advance. Based on these conditions, joint activities such as the following can be considered:

1. A weekly seminar in which students report on their own subjects.
2. Reading groups, in which all students read an important work within the cluster.
3. A weekly class (formal lectures are most likely not suitable unless organized for a wide audience).
4. Joint practical training.
5. Instruction in relevant specialized methods and techniques/statistics.

At the beginning of the fourth year, students are to select three units of elective instruction. A survey of the clusters with accompanying subjects will be found below. There are some ten subjects per cluster. Details of course contents and the development of the accompanying material will be presented in an elective instruction portfolio which will be available in January, 1998.

## Clusters

### A. *Work and Organization*

#### Topics:

1. Selection and Assessment
2. Stress
3. Human Resource Management
4. Organizations
5. Environmental Psychology and Ecological Ergonomics
6. Implementation of Ergonomic Advice
7. Man and computer

### B. *Education and Learning*

#### Topics:

1. Education and Instruction Technology
2. Tutoring Systems
3. Clinical Educational Psychology
4. Creativity
5. Curriculum Development
6. Group Processes
7. Development of Expertise
8. Special Education

### C. *Mental Health*

#### Topics:

1. Sexology
2. Psychodiagnostics
3. Psychotherapy: Evaluation Studies/M&T

4. Eating Disorders
  5. Personality Disorders
  6. Mental Health Policy
  7. Educational Theory
  8. Information Processing and Psychopathology
- ### D. *Clinical Neuroscience*

#### Topics:

1. Aging
  2. Developmental Disorders
  3. Diagnosis and Treatment
  4. Addiction
  5. Behavioural Toxicology
  6. Rehabilitation
  7. Neuropsychiatric Diseases
  8. Mental Handicaps
  9. Psychopharmacology
  10. Hospital Psychology
- ### E. *Cognitive Neuroscience*

#### Topics:

1. Psychophysics
2. Sleep and Dream
3. Gender Differences
4. Perception
5. Language and Brain/Neurolinguistics
6. Cerebral Laterality
7. Memory and Memory Disorders
8. Fundamental Problems in Neuroscience
9. The Body-Mind Problem in the Neurosciences
10. Neural Networks

### F. *Development*

#### Topics:

1. Language Development
2. Aging
3. Educational Problems/Orthopedagogy
4. Gender
5. Learning Disorders
6. Highly Gifted Individuals
7. Mental Handicaps (see also D)
8. Developmental Disorders (see also D)
9. Intelligence and Intelligence Tests
10. Career Choice and Career Choice Tests

### G. *Man and Machine*

#### Topics:

1. Artificial Intelligence

2. Gerontechnology
3. Software Engineering
4. Pattern Recognition (Computer Vision and Voice Recognition)
5. Knowledge Technology
6. Physical Ergonomics
7. Computer Linguistics
8. Systems Theory and Cybernetics
9. Artificial Life
10. Advanced Programming

### 5.3 Research traineeship and final thesis

In the fourth year, 24 weeks are reserved for the traineeship and master thesis. To conclude their academic programme, students are required to independently set up, implement and evaluate a research project and report on it in their master thesis. The selected research traineeship will be closely related to the selected degree course and specialization. A reasonable number of students will be able to complete their traineeships abroad.

Depending on their specific curriculum path, students can follow traineeships in education (school counselling services, school medical services or specialized institutes) and the business community (pharmaceutical industry, industrial research laboratories, Netherlands Institute of Applied Scientific Research, etc.). Students specializing in health-care aspects may find traineeships in regional institutes for mental welfare (RIAGG), psychiatric and general hospitals, rehabilitation centres and nursing homes. Traineeships are also possible in centres for alcohol and drug abuse, medical daycare centres and related institutions.

Students in the psychopathology track and in neuropsychology preparing for work in the field of health care should gain experience in a relevant health-care setting. Psychology students who have completed these modules may be asked to focus their traineeships on clinical aspects and carry them out in clinical settings.

The possible choices with respect to traineeships and final theses indicate the wide range of possible occupational areas.

In January 1998, a traineeship portfolio will be available in which students can find possible traineeship opportunities. In this portfolio, a short description of the traineeship will be provided, including the type of traineeship, the sort of research which can be carried out, the name of the institution concerned, the names of the contact person from the Faculty of Psychology and the contact person in the institution. Both Dutch and foreign traineeships will be available. To help students make well-informed choices, a contact person has been appointed for each of the various tracks. Even before the traineeship portfolio is available, students may approach these contact persons with questions about traineeships. Practical information on foreign traineeships may be obtained from Ina Engelen, international relations officer, tel.: 3881920, Dr Tanslaan 10, rm 4.017.

### Contact Persons

#### *Cognitive Psychology*

Jettie Hoonhout, tel.: 3881954, Dr Tanslaan 10, rm 4.061, consultation every Friday from 1-2 pm or following telephonic appointment.

#### *Biological Psychology*

Simon Ponten, tel.: 3881939, Dr Tanslaan 10, rm 3.005, consultation every Wednesday from 11.30 to 12.30 am.

#### *Psychopathology*

Harald Merckelbach, tel.: 3881945, Dr Tanslaan 10, rm 3.018, consultation every Wednesday from 11.00 to 12.00 am.