

Erasmus Mundus Master in Adapted Physical Activity

Academic Year 2008-2009

PROGRAMME OVERVIEW

The present curriculum consists of 5 phases, including 1 pre-entry phase before the start of the program, 2 phases at the K.U. Leuven and 2 phases at the research host university.

<u>Phase 1</u>	Preparation phase before the start of the program. Update of preliminary knowledge in research methodology and pathology in APA, information about the current APA-status (research, education, formation) in the home country
<u>Phase 2</u>	A multidisciplinary package of theoretical courses, given by different APA experts from the participating universities
<u>Phase 3</u>	In-depth orientation in APA intervention within a modular system
<u>Phase 4</u>	Introduction in the existing initiatives of APA intervention and APA research in a specialised centre with a specific population
<u>Phase 5</u>	Master thesis

Phase 1

During the preparation phase, the student must accomplish all necessary steps to enter the program successfully. This includes: preliminary knowledge concerning research methodology, pathology and APA. Before entering phase 2, students are expected to update or review their knowledge of:

- (1) Terminology of basis statistics
- (2) Basics in neurology, orthopaedics, psychopathology, cardiology and respiratory disorders
- (3) Adapted Physical Activity - comparative study. Every student is asked to prepare overview on the current APA situation in his/her own country

Students are also strongly advised to work hard towards improvement of the level of English language, oriented for academic purposes

Upon arrival in Leuven, a test concerning the preliminary knowledge on research methodology is organised. This is not an entry exam, but merely an orientation test. Students who fail will be provided with information to update their knowledge through personal study and contact hours with the lecturers.

Phase 2 (August / October)

During phase 2 a multidisciplinary package of theoretical lectures and seminars is offered. All courses are organised at the K.U.Leuven.

Phase 3 (November / December)

During the third phase, a first orientation towards specialised in-depth study is accomplished. The students make their choice between one of the following options:

- APA and Sensorymotor Disorders
- APA and Physiological Disorders
- APA and Psychosocial Disorders

The choice defines the future content of the student's programme, including the research phase. This means that, from now on, the student enters a phase of thorough study of a particular population of handicapped persons. Consequently, the student group splits up into smaller study groups. The course is organised through lectures, seminars and practical training. Each option is co-ordinated by one member of the teaching staff of the host university, in order to avoid overlap and to take care of a well-balanced content. An exam over the different theoretical parts of EMMAPA is organised during and at the end of phase 3

Phase 4 and 5 (January - June)

These stages are meant to get through intensified specialisation with regard to research and practical training in the area, chosen during the third phase. This specialisation takes one semester (4 months), and is done at one of the participating in the program Universities. Phase 5 is ending with a master thesis defence organised in one of the 4 Consortium Universities.

COURSE SCHEDULE (phase 2 & 3)

Phase 2

	Hours	Credits
APA and sports: International Perspectives	20	3
Comparative study on APA	30	3
Management and social (re)integration	20	3
Research methodology in APA	30	3
Applied research in APA: state-of-the-art	120	9
Implications of exercise for persons with chronic diseases and disabilities	45	3

Phase 3

APA intervention (part-time 110h – 6 Credits)

The content of each course will be described in more detail further on in this syllabus.

PHASE 2: A MULTIDISCIPLINARY APPROACH TO APA

This phase consists of 6 courses given by different experts from the participating universities. The content consists of an updating review of the different aspects of APA.

All courses are given at the K.U.Leuven and are obligatory for all students. The courses are organised as lectures, including personal work and, seminars, and student's presentations.

1. APA and sports: International Perspectives	20h
2. Comparative study on APA	30h
3. Management and social (re)integration	20h
4. Research methodology in APA	30h
5. Applied research in APA: state-of-the-art	120h
6. Implications of exercise for persons with chronic diseases and disabilities	45h

APA AND SPORTS: INTERNATIONAL PERSPECTIVES

duration: 20 h

lecturers: G. Doll-Tepper (Berlin), P.D. Howe (Loughborough University)

Teaching methods: Lectures, group work, films and discussions

Assessment: written, open questions

aims:

Part one (10 h, G. Doll-Tepper):

- to acquire knowledge about the historical and current developments of APA and sport for persons with disabilities
- to become informed about different sport/sport science organisations and their tasks and involvement in APA and sport for persons with disabilities (e.g. IPC, IOC, ICSSPE, IFAPA, Special Olympics);
- to come to an understanding about historical/philosophical changes concerning exclusion and inclusion of individuals with disabilities;
- to have an overview of the most important research issues in sport for athletes with disabilities;

Part two (10 h, P.D. Howe): He has to fill in the tables, since he is new in the program

Content:

Part one (G. Doll-Tepper):

- the historical and current developments of adapted physical education/activity and sport for persons with disabilities (origins, terminology and definitions, international comparisons and trends);
- international sport/sport science organisations - their aims, objectives and responsibilities;
- Paralympism - Olympism/Paralympic Games - Olympic Games: differences and similarities;
- key research issues, including barriers to sport participation, attitudes, equity issues, gender and ethnicity, sport performance, empowerment, inclusion and integration, media;
- international information networks;

COMPARATIVE STUDY ON ADAPTED PHYSICAL ACTIVITY

Duration: 30 h

Lecturers: Lars Kirsten

Teaching methods: seminars, student's presentations

Assessment: essay

Aims:

To give a survey of the concept, training programmes and research structures of APA in the European countries, participating in the programme.

At the end of the course the successful student should be able to compare the situations in the different European countries with regard to sport and sport organisations for the disabled.

Course content:

After a general introduction on the course module, the situation in the different European countries is presented by the students. Through seminars and group work, the different presentations will be compared with each other and parallels and differences in European strategies can be the starting point for further discussion.

MANAGEMENT AND SOCIAL (RE) INTEGRATION

Duration: 30 h

Lecturers: B. Skirstad (Oslo)

Teaching methods: lectures, workshops, seminar presentations and group work, case study preparation and analysis

Assessment: essay

Aims:

- To acquire an appreciation of a planning model approach in providing sport for people with impairments, disabilities and handicaps;
- To develop those skills which are necessary in the preparation of a strategic policy for management and integration in APA;
- To identify appropriate management tools which enable the performance of both facilities and programmes.

At the end of the course successful students should be able to:

1. Plan, prepare and evaluate a strategic document which seeks to provide appropriate programmes in APA;
2. Identify the information needs of managers and customers in promoting APA;
3. Provide considered advice to facility and programme managers in the effective delivery of APA;
4. Make a contribution to the process of performance appraisal in strategic planning and programme management.

RESEARCH METHODOLOGY IN ADAPTED PHYSICAL ACTIVITY

Duration: 30 h

Lecturers: M. Thomis (Leuven), M. De Greef (Groningen)

Teaching methods: personal work with contact hours; lectures and seminars

Assessment: oral + discussion based on the research proposal

Aims:

to provide the students with the necessary concepts of statistics and research methodology to enable them to realise a research project in the field of APA.

At the end of the course the successful student should be able to:

- write down a research proposal;
- carry out a research project supervised by an experienced scientist;
- analyse the data by some statistical techniques and to interpret the results;
- read and interpret critically the scientific literature.

Course content:

1. Applied statistics

1.1. Basic descriptive statistics

1.2. Correlation methods and prediction (linear regression)

1.3. Interferential statistics.

1.3.1. Student t-test

1.3.2. Analysis of variance

1.4. Non-parametric statistical techniques (chi-square)

1.5. Selected topics in multivariate analysis

2. General research principles

3. Test construction

4. Research designs

APPLIED RESEARCH IN APA: STATE-OF-THE-ART

Duration: 120 h

Lecturers: see different modules

Teaching methods: lectures, group and individual discussion of peer reviewed publications, consensus statement seminars defining future research perspectives

Assessment: written - multiple choice questions and an oral exam – presentation of an article review and a poster presentation

Aims:

The aim of this course is to provide the student with a state-of-the-art on research in APA. Students should have insight in the research orientation (methodology, research questions...) in the past and present. The major goal of this course is an update of future research directions in therapy, physical education, recreation, and elite sports, adapted to the specific needs of people with disabilities. Furthermore, special attention will be paid to methodological strategies and implementations in the different fields of expertise. A multidisciplinary and non-categorical approach is stressed within the different teaching modules. The successful student should be familiar with the main concepts, the acquired knowledge and the current research within the broad domain of APA. Finally, students should be able to evaluate the appropriateness of different research methods to a domain-specific understanding of APA.

Course content:

Six different teaching modules (20 h each) addressing APA related research issues in

1. Biomechanics in APA
2. Exercise physiology and nutrition
3. Sports medicine, fitness, and rehabilitation
4. Motor development, motor control, and motor learning
5. Psychology and sociology, and
6. Pedagogy and education.

Special populations addressed in each module, are defined as people with sensorymotor, physiological, and/or psychosocial disabilities. Research questions and methodology are discussed within a therapeutic, an educational (integration in the least restrictive environment), as well as in a sports context (recreational, competitive, and elite sports).

MODULE 1: BIOMECHANICS IN APA

Co-ordinator: A. Spaepen (Leuven)

Lecturers: L. Peeraer (Leuven), A. Spaepen (Leuven), L. van der Woude (Amsterdam),

This module has 3 main aims:

- To provide students with an overview of the current state-of-the-art in research in APA and related areas; (knowledge)
- To introduce methodologies that can be used as a basis for furthering research in APA; (knowledge)
- Present and disseminate scientific knowledge by oral and poster presentations in an international peer group (skill).

Specific aims of biomechanics in APA:

- To provide an overview of APA-related research in the field of biomechanics.
- Through an extensive literature review to get insight in the main methodological approaches in biomechanics.
- To stimulate students to formulate feasible research questions in the domain of biomechanics.
- To enhance the understanding that multidisciplinary research will provide an added value, especially with respect to establishing causal relationships between variables.

Content

1. Introduction (10 hours) into biomechanics

Applied biomechanics

Clinical biomechanics (rehabilitation ergonomics (5u: L. van der Woude.; 2u L. Peeraer.)

- General framework ergonomy (L.V.)
- Ergonomics in special populations
 - ° Wheelchair users (L.V.):
Actual physical potential of the user, Equipment-aids, User-equipment-interface
 - ° Amputees (exemplars: L.P.)

Sport-specific biomechanics (1u: A. Spaepen.; 1u L. Peeraer.)

- Amputee sprinting (L.P.)
- Analysis of the wheelchair propulsion technique in racing, basketball, rugby ... (A.S.)
- Time-motion analysis in sports (A.S.)

Multidisciplinary studies: biomechanics as a scientific basis for other disciplines (1u) – A.Spaepen

- Relationship with exercise physiology, energetic optimization of movement: walking/cycling efficiency of CP, amputees, blind...
- Relationship with sports medicine - pathogenesis of sports injuries

2. Personal work of the students (10 hours) related to the full module L09B4A Applied research in adapted physical activity: state of the art.

The students will have to prepare one presentation in the form of a review of an article or a poster, based on an original peer-reviewed scientific or clinical investigation on a chosen topic. The article review should be based on a pre-defined list of peer-review articles, which are related with the main topics within L09B4 'biomedical sciences' (biomechanics is part of this group) or 'human sciences'. Hence, not all students will be able to choose topics within biomechanics.

The students will present the prepared topic to the class [timing and number of presenters per topic is pre-defined, based on time table and total student number - approximately 10 min presentation plus 10 min discussion]. If relevant, the presenters will critically highlight the methodologies and the research protocol(s) used, as well as the major findings. Each presentation will be followed by questions from a critical reader, the module co-ordinator and the audience to relate the methods and findings to sport and/or therapy. Care will be taken, so that the presentations cover as many different research areas as possible. Every student prepares his/her presentation in the form of a powerpoint presentation and has it revised by the module co-ordinator prior to presentation. Besides an oral presentation, every student has to make one poster on an original peer-reviewed scientific or clinical investigation paper. The posters will be presented in one session at the end of Phase 2.

MODULE 2: EXERCISE PHYSIOLOGY AND NUTRITION IN APA

Co-ordinator: M. Goris (Leuven)

Lecturers: M. Goris (Leuven), T. Reybrouck (Leuven), A. Varray (Montpellier)

Aims:

The aim of this module is to provide the students with an overview of APA related research methodologies and findings in the field of exercise physiology and nutrition. First, the students will be offered an overview of the main technologies and methodologies used within this field of expertise. When relevant, special reference will be made to the applicability/validity of these techniques in disabled individuals. A second part of the module consists in seminars held by the students themselves, based on a number of recent scientific (review) publications, through which the students will learn

- 1) to recognize the application of the main physiology-related approaches in the field of APA,
- 2) will learn to present and critically discuss research findings within the field of exercise physiology and nutrition, and
- 3) a body of knowledge which should enable them to elaborate feasible and pertinent future research questions.

Content:

1. Theoretical part (10hours)

1.1 Investigation techniques used in exercise physiology (2 h - T. Reybrouck)

- Ergospirometry systems (VO₂, etc.) (Stationary, portable)
- Methods for central cardiovascular performance assessment (HR, SV, Q, BP, etc)
- Peripheral blood flow measurements (plethysmography, laser Doppler flowmetry, etc.)
- Disturbance methods (tilt table & orthostatic tolerance testing, neck cuff, lower body negative/positive pressure)

1.2 Exercise testing in APA

Ergometry and Exercise Protocols in APA

- Leg cycle ergometers
- Treadmills
- arm cycle ergometers
- Wheelchair ergometers
- Field tests (walking, running, etc.)
- Lower-body versus upper body physiology (maximal and submaximal exercise)

Exercise testing

-Gather objective data on: Aerobic ability, Anaerobic ability, Endurance, Strength, Flexibility, Neuromuscular skills, Functional performance

1.3 Evaluation of peripheral muscle function (2h – A. Varray)

1.4 Techniques and procedures used to evaluate respiratory function (2 h - A. Varray)

1.5 Nutrition and APA (2 h - M. Goris)

- estimating nutrient needs
- food record
- nutrient composition
- interpretation of dietary information

2. Personal work of the students (10 hours)

The students will have to prepare one presentation in the form of a review of an article and a poster, based on an original peer-reviewed scientific or clinical investigation on a chosen topic. The article review should be based on a pre-defined list of peer-review articles, which are related with the topics of the module. The students will present the prepared topic to the class [timing and number of presenters per topic is defined, based on time table and total student number - approximately 10 min presentation plus 10 min discussion]. If relevant, the presenters will critically highlight the methodologies and the research protocol(s) used, as well as the major findings. Each presentation will be followed by questions from a critical reader, the module co-ordinator and the audience and be followed by a general discussion to relate the methods and findings to sport and/or therapy. Care will be taken, so that the presentations cover as many different research areas as possible. Every student prepares his/her presentation in the form of a powerpoint presentation and has it revised by the module co-ordinator prior to presentation. Next to this oral presentation, every student has to make one poster on an original peer-reviewed scientific or clinical investigation paper. The posters will be presented in one session at the end of Phase 2.

MODULE 3: SPORTS MEDICINE, FITNESS, AND REHABILITATION

Co-ordinator: L. Vanhees (Leuven)

Lecturers: R. Chappel (Antwerpen), Y. Eberhard (Grenoble), T. Troosters (Leuven), L. Vanhees (Leuven)

Aims:

Content:

1. Theoretical part (10 hours)

- 1.1 Risk stratification towards physical activity and exercise participation, including exercise testing (2.5h – T. Troosters)
- 1.2 APA and exercise during rehabilitation: improvements in functional profile, including evaluation procedures (specific attention towards cardiac, respiratory, oncological, and endocrinological diseases) (2.5h –L. Vanhees)
- 1.3 sports medicine, sports injuries (acute and chronic), cardiorespiratory complications during of following sports participation (2.5h – R. Chappel)
- 1.4 APA, genetics and training opportunities (2.5h – Y. Eberhard)

2. Personal work of the students (10 hours)

The students will have to prepare one presentation in the form of a review of an article and a poster, based on an original peer-reviewed scientific or clinical investigation on a chosen topic. The article review should be based on a pre-defined list of peer-review articles, which are related with the topics of the module. The students will present the prepared topic to the class [timing and number of presenters per topic is defined, based on time table and total student number - approximately 10 min presentation plus 10 min discussion]. If relevant, the presenters will critically highlight the methodologies and the research protocol(s) used, as well as the major findings. Each presentation will be followed by questions from a critical reader, the module co-ordinator and the audience and be followed by a general discussion to relate the methods and findings to sport and/or therapy. Care will be taken, so that the presentations cover as many different research areas as possible. Every student prepares his/her presentation in the form of a powerpoint presentation and has it revised by the module co-ordinator prior to presentation. Next to this oral presentation, every student has to make one poster on an original peer-reviewed scientific or clinical investigation paper. The posters will be presented in one session at the end of Phase 2.

MODULE 4: MOTOR DEVELOPMENT, MOTOR CONTROL, AND MOTOR LEARNING

Co-ordinator: J. Simons (Leuven)

Lecturers: B. Debû (Grenoble), J. Simons (Leuven)

Content:

1 Theoretical part (10 hours)

1.1 Measuring instruments: state of the art

- Norm referenced tests
- Criteria referenced tests
- Instruments for measuring self esteem

1.2 Motor control in mental retardation

- Postural and motor development and control in Down syndrome
- Effects of practice in Down syndrome population

1.3 The development of real and perceived physical competence in children with disabilities

1.4 Functional task analysis, deriving from ecological task analysis and dynamic system theory

- Theoretical background
- Practical suggestions for how to teach motor functions under handicapped conditions (Environmental, personal)

2. Personal work of the students (10 hours)

The students will have to prepare one presentation in the form of a review of an article and a poster, based on an original peer-reviewed scientific or clinical investigation on a chosen topic. The article review should be based on a pre-defined list of peer-review articles, which are related with the topics of the module. The students will present the prepared topic to the class [timing and number of presenters per topic is defined, based on time table and total student number - approximately 10 min presentation plus 10 min discussion]. If relevant, the presenters will critically highlight the methodologies and the research protocol(s) used, as well as the major findings. Each presentation will be followed by questions from a critical reader, the module co-ordinator and the audience and be followed by a general discussion to relate the methods and findings to sport and/or therapy. Care will be taken, so that the presentations cover as many different research areas as possible. Every student prepares his/her presentation in the form of a powerpoint presentation and has it revised by the module co-ordinator prior to presentation. Next to this oral presentation, every student has to make one poster on an original peer-reviewed scientific or clinical investigation paper. The posters will be presented in one session at the end of Phase 2.

MODULE 5: PSYCHOSOCIAL ASPECTS OF APA

Co-ordinator: M. Probst (Leuven)

Lecturers: M. Kudlacek (Olomouc), M. Probst (Leuven)

Aims

Both research and clinical experience indicate that different types of handicaps affect psychological and social aspects of life, very often in a negative way. Based on research as well as clinical experience, it is also known that movement and sports activities can be very useful tools for influencing psycho-social aspects in a positive way (e.g. psychomotor therapy in psychiatric patients (in children and adults)). Through movement experiences, negative psychological and social aspects can be changed into positive attitudes. Different working mechanisms can account for these changes. The major research questions that might be addressed in this respect therefore are: does APA and sports contribute to changes in the interaction between handicap and psychological and social situation of an individual, and which methods make it possible to evaluate these aspects in movement and sports situations.

The aim of this module is to provide the students with an overview of such APA related research studies in general; as well as with different types of special populations (both children and adults). Starting from a review of the available literature, students will discuss the main research hypotheses in past and present studies, the major research findings and future research directions. The successful student should at the end of this module be able to evaluate the appropriateness of the main research orientations to an understanding of APA from a psychosocial perspective.

Content

1.1 APA and psychological well-being

- The interaction between exercise, physical activity, and fitness on the one hand, and clinical depression, anxiety, self-esteem and personality on the other hand; and changes through APA interventions (including aspects of psychomotor therapy in children and adults)
- Determination of theoretical concepts and working mechanisms.
- Motivational strategies and coping strategies towards APA

1.2 APA requirements from a social perspective on impairment and disability

- Disability, identity, and involvement of disabled individuals in sports
- Empowerment
- Attitudes towards integration
- Sport socialisation
- Role of the media

2. Personal work of the students (10 hours)

The students will have to prepare one presentation in the form of a review of an article and a poster, based on an original peer-reviewed scientific or clinical investigation on a chosen topic. The article review should be based on a pre-defined list of peer-review articles, which are related with

the topics of the module. The students will present the prepared topic to the class [timing and number of presenters per topic is defined, based on time table and total student number - approximately 10 min presentation plus 10 min discussion]. If relevant, the presenters will critically highlight the methodologies and the research protocol(s) used, as well as the major findings. Each presentation will be followed by questions from a critical reader, the module co-ordinator and the audience and be followed by a general discussion to relate the methods and findings to sport and/or therapy. Care will be taken, so that the presentations cover as many different research areas as possible. Every student prepares his/her presentation in the form of a powerpoint presentation and has it revised by the module co-ordinator prior to presentation. Next to this oral presentation, every student has to make one poster on an original peer-reviewed scientific or clinical investigation paper. The posters will be presented in one session at the end of Phase 2.

MODULE 6: PEDAGOGICAL ASPECTS OF APA

Co-ordinator: D. Rodrigues (Lisbon)

Lecturers: D. Rodrigues (Lisbon), H. Valkova (Olomouc)

1. Proposed Module Structure

It would seem at the outset that there are two fundamental models that can be applied to provide a structure for the development of this module:

1. The first is a research model of differing forms of research that have pervaded the APA field (Reid, 1989).
2. The second is a more direct pedagogical model of mainstreaming and integration as a fundamental basis under which pedagogy and education can be applied to differing contexts (Meek, 1991) a facilitator approach to mainstreaming success. Whether the facilitator model can be cast under or over the research model is open to conjecture. However there is scope for an interaction effect, similar to that indicated in Reid's paper where he also applies Christina's (1989) three levels of research. In this module it may be that there is scope for an interactive model to be developed, which can focus the manner in which the research is analysed and examined.

2. Personal work of the students (10 hours)

The students will have to prepare one presentation in the form of a review of an article and a poster, based on an original peer-reviewed scientific or clinical investigation on a chosen topic. The article review should be based on a pre-defined list of peer-review articles, which are related with the topics of the module. The students will present the prepared topic to the class [timing and number of presenters per topic is defined, based on time table and total student number - approximately 10 min presentation plus 10 min discussion]. If relevant, the presenters will critically highlight the methodologies and the research protocol(s) used, as well as the major findings. Each presentation will be followed by questions from a critical reader, the module co-ordinator and the audience and be followed by a general discussion to relate the methods and findings to sport and/or therapy. Care will be taken, so that the presentations cover as many different research areas as possible. Every student prepares his/her presentation in the form of a powerpoint presentation and has it revised by the module co-ordinator prior to presentation. Next to this oral presentation, every student has to make one poster on an original peer-reviewed scientific or clinical investigation paper. The posters will be presented in one session at the end of Phase 2.

IMPLICATIONS OF EXERCISE FOR PERSONS WITH CHRONIC DISEASES AND DISABILITIES

Duration: 45 h

Lecturers: J.Steyaert (Leuven), M. Decramer (Leuven), R. Fagard (Leuven), A. Nieuwboer (Leuven), B. Nuttin (Leuven), J. Peuskens (Leuven)

Teaching methods: lectures, case study seminars, reading assignments

Assessment: written examination, multiple choice

Aims:

The aim of this course is to provide a framework for determining functional capacity and developing appropriate exercise programming for optimising functional capacity in persons with chronic diseases and / or disabilities. It is therefore important that rehabilitation professionals have a comprehensive knowledge of the physiology of exercise and its application in the clinical environment. The scientific rationale and the clinical importance of exercise in the rehabilitation of patients with a wide variety of disabling conditions are discussed, and the factors that must be weighted when prescribing exercise for these conditions are addressed.

Course content:

Proper use of exercise in rehabilitating patients with a wide variety of disabling illnesses requires understanding of both the basic adaptations to exercise and the important biomechanical correlates to movement. Special populations which will be addressed throughout this course are defined as people with sensorymotor, physiological, and / or psychosocial disabilities. Within each part, the physiologic nature of the disease or disability, its effects on exercise response and adaptation, the effects of commonly used medicines, and any unique circumstances that should be considered are addressed. Recommendations for assessment and intervention programmes are presented. Problems and unique needs are identified for each condition, and indications and contra-indications towards exercise behaviour are highlighted.

These contents are discussed, considering a holistic approach throughout the life-span.

The following types of disorders will be addressed in more detail:

1. Neurological disorders
2. Locomotor disorders
3. Cardiovascular disorders
4. Respiratory disorders
5. Psychopathology in adults
6. Psychopathology in children and adolescents

PHASE 3: IN-DEPTH ORIENTATION IN APA

During the third phase, a first orientation towards specialised in-depth study is accomplished. The students make their choice between one of the following modules:

APA and Sensorymotor Disorders

APA and Physiological Disorders

APA and Psychosocial Disorders

Each module consists of evaluation and intervention techniques, and an introduction into practical training and stage. Furthermore, students discuss the implementation of basic research methodology in APA within the context of the module through personal work, library work and contact hours with the different lecturers.

This means that, from now on, the student enters a phase of thorough study of a particular population of handicapped persons. Consequently, the student group splits up into smaller study groups.

ADAPTED PHYSICAL ACTIVITY INTERVENTION

Duration: 110 h

Lecturers: see different modules

Teaching methods: lectures, seminars, workshops, library work, contact hours, visits and practical training

Assessment: written

Aims:

- To foster understanding in assessing the actual and estimating the maximal functional potential in an APA environment;
- To develop teaching, training and coaching skills, needed for a well-balanced approach in a therapeutic, educational, and sports environment;
- To give insight in the practical implementation of the theoretical modules and the actual scientific knowledge;
- To give insight in the principles of adapting activities, games and sports;
- To apply basic research methodology within the area of APA.

At the end of the course the successful student should be able to 1) assess the actual functional potential of the disabled; 2) develop and implement APA programmes; 3) adapt physical education programmes to the special needs of the disabled; 4) conduct a scientific evaluation of intervention programmes, and 5) design an APA research project.

Course content:

Within a modular system, APA evaluation and intervention will be discussed from a two-dimensional perspective: 1) an environmental perspective (therapeutic, educational, and sports), and 2) a disability specific perspective (special populations are defined as people with sensorymotor, physiological, and / or psychosocial disabilities).

This course focuses on APA for people with a disability in special schools, in integrated education, and in rehabilitation centres. APA in special populations participating in sports for recreation and / or at a competitive level is also addressed. Movement characteristics of these special populations, including children, adolescents, adults, and the elderly, are studied.

Instructional strategies and didactic methodological principles are considered in the two-dimensional perspective.

Therapeutic implications of sports for people with a disability are discussed with respect to the rehabilitation process of spinal cord injured, amputees, and people with cerebral palsy, respiratory and cardiac disorders, cranio-cerebral traumata, muscle dystrophy, multiple sclerosis, and stroke. Diagnostic procedures and APA-intervention in cognitively, emotionally, and socially disturbed children and adults are addressed. The following aims, which complement the physiotherapy intervention, are stressed: optimisation of physical fitness, psychological well-being, extension of social radius of action, and improvement to the quality of life.

Adapted physical Education (APE) discusses the development and adaptations of APE-programmes with regard to the physical and psychosocial potential of pupils in special education. These pupils may be seriously emotionally disturbed, physically disabled, or may be suffering from mild or severe intellectual retardation, a chronic illness, visual impairments, auditory impairments, or have severe learning difficulties. Methods to optimise the pupils' basic motor skills, psycho-, perceptuo- and sociomotor skills are explained.

At the sports level, different kinds of adapted physical activities for recreation are analysed with special attention to adaptations of equipment and rules to meet participant related criteria, such as: purpose of participation, age, interest and functional potential, always taking into account the restrictions specific to the impairment. At the competitive level, an overview is provided of the different adapted sports highlighting issues related to psycho-social aspects in sports participation by the disabled, sport participation throughout Europe, sport specific technical developments, and sport counselling for the disabled from the basic level to elite sports.

The course is divided into three main parts:

1. Programme design and evaluation (10 h)
2. Choice between sensorymotor, physiological, or psychosocial module, including visits and practical training at different activities, depending the choice of 2
3. Library work and contact hours with the different lecturers with regard to the design of the research project.

MODULE 1: PROGRAMME DESIGN AND EVALUATION

Duration: 10 h

Lecturer: R. Van Wijck (Groningen)

Teaching methods: lectures, seminars,

Assessment: written

Aims:

The purpose of this course is to introduce the basic concepts, concerns and issues of programme evaluation in general. Special attention is given to the role of theory in evaluation of APA programmes and interventions. It is very important for APA evaluators to realise that there are several stakeholders in the evaluation process. This means that there are also several 'theories of practice' underlying the programme that can produce different programme goals. The effectiveness of an APA programme relies to a great extent on the reliability of these goals by the programme activities. The aims of this course are: (1) to make the students aware of the fact that programme success depends on who is judging the effectiveness of the programme and for what evaluation purposes, and (2) to train the students, to some extent, in designing a simple evaluation of an APA programme.

MODULE: EVALUATION AND INTERVENTION METHODS IN APA INCLUDING VISITS AND
PRACTICAL TRAINING

PART SENSORYMOTOR DISORDERS

Duration: 85 h

Lecturers: R. Chappel (Antwerp), Z. Janecka (Olomouc), G. Huber (Heidelberg), A. Nieuwboer (Leuven), A. Klavina (Latvian Sports Academy), L. Peeraer (Leuven)

Teaching methods: lectures, seminars, workshops, library work, contact hours, visits and practical training

Assessment: written

Aims:

- To get insight into the appropriate evaluation techniques with regard to the specificity of exercise capacities;
- to develop teaching, training and coaching skills which are necessary for a well-balanced approach with regard to the specific needs;
- To get an appreciation of the technological developments in these areas.

At the end of the course the successful student should be able to:

- work out an APA programme in these areas;
- adapt physical education programmes to the special needs;
- Evaluate the programme by scientific methods.

Course content:

1. APA and sensory impairment
2. APA and physical impairments, including therapeutic approaches, recreational activities, and competitive sports
3. APA and orthopaedic impairments, including low back pain
4. Principles of training and coaching
5. Principles of adapting activities, games and sports

PART PHYSIOLOGICAL DISORDERS

Duration: 85 h

lecturers : M. Goris (Leuven), T. Troosters (Leuven), A. Nieuwboer (Leuven), T. Reybrouck (Leuven), K. Schüle (Köln), L. Vanhees (Leuven)

Teaching methods: lectures, seminars, workshops, library work, contact hours, visits and practical training

Assessment: written

Aims:

- To get insight into the appropriate evaluation techniques with regard to the specificity of exercise capacities;
- To develop teaching, training and coaching skills which are necessary for a well-balanced approach with regard to the specific needs.

At the end of the course the successful student should be able to:

- work out an APA programme in these areas;
- adapt physical education programmes to the special needs;
- Evaluate the programme by scientific methods.

Course Content:

1. congenital problems in children
2. exercise physiology evaluation
3. evaluation and intervention in respiratory disorders
4. evaluation and intervention in cardiovascular disorders
5. APA and obesity, including densitometry
6. APA and oncological problems
7. Evaluation and intervention in diabetes and hypertension disorders

PART PSYCHOSOCIAL DISORDERS

Duration: 85 h

lecturers : G. Hölter (Dortmund), P. Rintala (Jyväskylä), J. Simons (Leuven), M. Probst (Leuven)

Teaching methods: lectures, seminars, workshops, library work, contact hours, visits and practical training

Assessment: written

Aims:

To give a survey of and insight into important quantitative and qualitative psychomotor observation and intervention methods for individuals with cognitive, emotional and social impairments.

At the end of the course the successful student should be able to:

- work out an APA programme in these areas;
- adapt physical activity programmes to the special needs;
- Evaluate the programme by scientific methods.

Course Content:

1. Psychomotor therapy in children: observation, evaluation and techniques
2. Psychomotor therapy in adults: observation, evaluation and techniques
3. APA and mental retardation, including Special Olympics
4. Autism

PHASE 4 & 5: INTRODUCTION INTO APA PRACTICAL TRAINING AND APA RESEARCH

In **phase 4 (10 credits)** the student is introduced in the existing initiatives offered to a specific population at the research host university. In most of the cases, the practical training is associated to the theme of the master thesis, to be submitted in phase 5. This introduction provides him/her with additional practice experience and an insight in local customs and cultural differences. Additionally, the student starts the practical organisation of his/her research, i.e. he/she is integrated into an ongoing research project in which he/she will take part.

During **phase 5 (20 credits)** the student does his/her research, which results in a master's thesis at the end of the training.

For those two phases a contract between tutor and student is drawn up, based on the bilateral co-operation agreement between European higher institutions. This contract also specifies the study programme and assignments (e.g. literature, lectures ...). **The host supervisor commits himself for a minimum of 30 hours of staff time.**

Both home and host institution must accept the regulations appropriate to the supervision of research at each institution and they must agree on the location and topic of a student research programme.

Phase 4 and 5 are taking place in the second semester: from January till end June.

The master thesis must be submitted by the end of the Academic Year following the year of the deliberation of phase 2 & 3, at the latest. The form and content of the thesis must be in conformity with the requirements set at the university which is hosting the defence. **One copy of the master's thesis will be sent to the EMMAPA secretariat in Leuven.**

All students are requested to inform themselves about the financial implications of presenting the Master Thesis not in the same year as the theoretical phases.

EXAMINATION PROCEDURE AND SCHEDULE

The student has to do written exams of the courses lectured in phase 2 and 3. These exams are scheduled throughout the study period of phase 2 and 3, and at the end of phase 3. The exact dates and deadlines for submission of essays are announced to the students in the beginning of phase 2.

These exams are organised following the exam regulations of the host university, the Katholieke Universiteit Leuven. Marks and credits will be transferred to the university of second destination of the student. The following guidelines have to be taken into consideration in this respect:

1. An official deliberation, including the decision over pass or fail, will take place at the moment examinations have taken place for **all** course modules, **including the master thesis**. This implies that the marks and credits are transferred to the student's university without any implication with regard to the continuation of the programme. The final deliberation over the EMMAPA programme becomes the responsibility of the university of last destination of the student, once the master thesis has been submitted.
2. The individual examination result sheets will be made available to the students and their university supervisors after all of the examinations for the theoretical phase have taken place (end December). The same procedure will be followed if a student takes a resit. **No individual marks will be announced following the exams, even not when they got advanced in time!** This is in accordance with the exam regulations of the Katholieke Universiteit Leuven.
3. Credits cannot be awarded for parts of course modules, but **only for complete course modules** on condition that the required examination has been taken successfully (this is: score equals 10 or more on 20). This overall mark is the 'weighted' mean score of the sub-scores for the different parts of one course module. A 'course module' is defined as an independent entity of the programme (e.g. Applied research in APA: state-of-the-art, is one course module). A 'course part' is defined as a sub-entity of a course module that may lead to an examination for its specific content (e.g. Module 'exercise physiology in APA' within the module 'applied research in APA: state-of-the-art', is one course part). A 'weighting' mechanism for the calculation of the overall score implies an adjustment of the calculated mean score with regard to the nature of the course part scores. This means that corrections will be made for failures for course parts as well as for overall high scores.
4. Resits can be organised for students that failed a course module, in advance of the official deliberation. All students do have the legal right to have ONE resit for a course module they failed. These resits will be organised in January, following the autumn semester, in agreement with the EMMAPA secretariat). The resit marks will be transferred to the University of Final Destination for final deliberation. No additional resits for that course module may be organised later on.

5. All exams are in English. The examinations are no open book examinations (except otherwise mentioned). The use of a dictionary is permitted. An oral examination includes preparation time of at least 20 minutes in which the student is able to write notes down. A written examination is limited in time with a maximum of 3 hours. Essays must be handed in, in two copies at the EMMAPA Soffice at the date mentioned. The original will be send to the lecturer. The copy is kept in the EMMAPA office.
6. For all further examination rules and regulations not otherwise specified in this 'syllabus', the Board of Studies agreed on following the K.U.Leuven examination regulations (<http://www.kuleuven.be/onderwijs/aanbod/info/algemeen/e/06040101.htm>)

The examinations over phases 4 & 5 are organised in agreement with the University of the Second Mobility of the individual student.

COURSE	CREDITS	DATE
APA and sports: international perspectives written	3	End phase 2
Comparative study on APA Essay	3	End November
Management and social (re)integration Essay	3	End November
Research methodology in APA Research proposal + oral exam	4	End phase 3
Applied research in APA: state of the art Written exam: 10 multiple choice + article review	9 (1,5cr/module)	End phase 2 (2 exams)
Implications of exercise for persons with chronic diseases and disabilities Written exam, Multiple choice	3	End phase 3
APA intervention Written exam Module 1: 1 question, 1 cr / question Module 2: 5 questions, 1 cr / question	1 5	End phase 3
TOTAL CREDITS	30	

APPENDIX: REQUIRED BASIC KNOWLEDGE ON RESEARCH METHODOLOGY

1. *Concepts*

- What are statistics?
- Types of variables
- Scales of measurement
- Populations and samples
- Descriptive statistics and inferential statistics
- Statistics and parameters

2. *Descriptive Statistics*

- Univariate
 - Organising and graphing data: frequency distribution, histograms, Scatter grams, frequency polygons, ...
 - Measures of central tendency
 - Measures of variability
 - Percentiles, standard scores
- Bivariate
 - Correlational research
 - ✓ covariation
 - ✓ Pearson correlation coefficient
 - ✓ other measures of relationship (spearman, contingency coefficient)
 - Prediction
 - ✓ linear regression

3. *Probability, sampling distributions, making decisions*

- * Normal distribution and standard normal distribution
- * t-distribution, F-distribution, Chi-square distribution

4. Inferential Statistics

- Logic of hypothesis testing
- Errors in statistical decision making
- One-tailed versus two-tailed tests
- Estimation: construction of confidence intervals
- Significance testing of a one-sample mean and other statistics
 - z-test, t-test, F-test
- significance testing of two-sample means and other statistics
 - independent and dependent samples
- Significance testing of k (>2) sample means
 - Analysis of variance (ANOVA)
 - Post hoc tests
 - Repeated measures
 - Two-way ANOVA
- Non-parametric procedures for frequency data and ranked data
 - Chi-square procedures
 - Mann-Whitney U-test
 - Wilcoxon test

5. Test Construction

- Standardization
- Objectivity
- Reliability: test-retest parallel forms, split half
- Validity: content, construct, concurrent and predictive validity
- Normalisation

6. Different types of research

- Descriptive studies and surveys
- Case studies
- Comparative and casual comparative studies
- Correlation studies and some notions of multi-variate analysis
- Growth studies
- Artificial intelligence, expert systems and computer simulation

Text book: Thomas JR; Nelson JK, 1996, 2001 or 2005, *Research methods in physical activity*, third, fourth or fifth edition, Champaign, IL: Human Kinetics, 449 p.