



Center for International Programs and Sustainability Studies

Course Name: Physical Therapy & and Sport Rehabilitation

Course Code: HHD 1020

Total Contact Hours: 48

Requisites: NR

COURSE DESCRIPTION

Physical therapy ranks in Costa Rica and the USA as one of the most desirable careers. Physical Therapists play essential roles in today's health care environment. They contribute along with all health care providers to maintain, restore, and improve movement, activity, and health, enabling individuals of all ages to have optimal functioning and quality of life.

During this course the student will learn history of Physical Therapy, PT core values and principles, mechanical principles applied to human body, an introduction to exercise therapy, massage therapy and physical therapists' approach after a stroke.

Understand the role of the physical therapist within the health care system and have a general idea of biomechanics of human body, exercise therapy techniques and massage therapy.

AUDIENCE

This course is structured for international students attending the Study Abroad Program at an LCI Education university campus. However, courses are not exclusive to foreigners so local degree-seeking students may enroll in this course. Some of the courses are also taught in Spanish as part of our Bachelor's in Sustainability Management or Business Administration programs.

This is a theoretical-practical course and explores/responds to the following inquiry according to the professional/disciplinary profile:

In order to respond this question, we will study the following **generative topics**:

- Introduction of Physical therapy and Scientific evidence research
- Anatomy based on movement
- Biomechanics and kinesiology
- Evaluation Techniques
- Manual therapy
- Electro physical agents
- Strength and resistance exercise prescription
- Therapeutic Exercises
- Advanced robotic training equipment
- Common Sport Injuries and Treatment
- Common Neurological Pathologies and Therapeutic Approach
- Common Trauma Affections and Therapeutic Approach
- Building a physical therapy protocol
- Athletes and primary sports response
- Neurophysiology of pain

Along the course, the following **skills** will be fostered:

- Capacity to recognize and analyze dysfunctional biomechanics pattern.
- Capacity to propose. Reasonable and strategic therapeutic protocols.
- Capacity to analyze and understand the pain and the symptoms of the patient.
- Capacity to prescribe safe and reasonable therapeutic exercises.
- Capacity to identify red flags and yellow flags of the patient.

Among the **values** and **attitudes** that will be promoted among the students are the following:

- Critical thinking.
- Empathic and respectful communication
- Interest in solving problems.
- Responsibility
- Negotiating and knowing how to inspire trust and compassion.

COMPETENCIES, CRITERIA AND EVIDENCE

The competencies for the Veritas University are reflexive and integral actions that respond to the professional profile and to the problems of the context, with appropriateness and ethical commitment, integrating the knowledge of being, know-how and knowledge to know in an improvement perspective.

Below are both the disciplinary and general competencies, linked to their criteria and evidence of performance for this course.

Competencies	Key Competences	Learning Assessments
Disciplinary The ability and responsibility to use their broad knowledge base	Identifies dysfunctional and the reasonable clinical cause of the pain.	<ul style="list-style-type: none"> ○ Patient clinical report ○ Oral presentations ○ Final research project

to inform their practice. They work in an autonomous, safe, organized manner, and employ sound clinical decision-making.	Prescribe the best treatment for the patient and select the correct therapeutic exercises.	<ul style="list-style-type: none"> ○ Oral presentations ○ Protocols prescription
	Applies the diagnosis of the dysfunctional biomechanical pattern and provides the selective treatment prescription	<ul style="list-style-type: none"> ○ Manual Therapy practice ○ Final research project
Core/Generic		
Integrates the knowledge, skills and attitudes necessary to learn in a continuous way throughout professional life.	Learning to learn.	<ul style="list-style-type: none"> ○ Laboratory Practice Reports ○ Project presentation ○ Scientific article analysis ○ Patient report ○ Group and individual presentations
Develops the knowledge, skills and attitudes necessary to learn how to communicate orally and in writing in the different areas.	Communicate thoughts of the discipline orally, graphically, and in written form.	Laboratory Practice Reports Project presentation Scientific article analysis Group and individual presentations
Integrates the knowledge, skills and attitudes necessary to learn the techniques of teamwork and leadership.	Execute teamwork and leadership.	Oral presentations Final research report
Integrates the knowledge, skills and attitudes necessary to learn the interpersonal communication techniques.	Respect towards other handle and resolve conflicts. To negotiate knowing how to inspire trust and empathy. Critical and logical thinking	Mind maps Final research report

COURSE CONTENT

Unit 1. Introduction of physical therapy

- What is physical therapy?
- Massage vs movement
- History of physical therapy
- WCPT and physical therapy areas
- Engaging the process of rehabilitation
- Inclusive vs Abilities

Unit 2. Anatomy based on movement

- Movements patterns
- Functional anatomy
- Myofascia and muscles
- Physiology of muscles
- Posture vs activation

Unit 3. Biomechanics and Kinesiology

- Joint, bones and muscles
- Biomechanicle rules
- Human biomechanical machine
- Gait analysis and basic movement
- Functional movements

Unit 4. Evaluation Techniques

- Clinical observation
- Palpation techniques
- Yellow and red flags and transferences of a patient

- Normal and abnormal patterns
- Return to work analysis.

Unit 5. Manual Therapy

- Basic massage techniques
- Orthopedic manual therapy introduction
- Pathologies massage techniques
- Myofascial techniques
- Massage and physical therapy

Unit 6. Electrophysical Agents

- Electro therapy
- Advances in electrophysical agents
- Rehabilitation and recovery agents
- Shock waves, therapeutic ultrasound, electrical muscles stimulation, electroacupuncture and intratissue percutaneous electrolysis

Unit 7. Strength and resistance exercise prescription

- Exercise principles
- Strength vs other components
- Exercise physiology
- Sports training
- Sports physical therapy assessment

Unit 8. Therapeutic exercises

- Therapeutic exercises
- Weights, therapeutic bands, exercise machines, and functional exercise.
- Dosifications and prescriptions
- Macro, meso and Micro cycles

- Exercise in Oncology, Diabetes, Hypertension, Alzheimer and other pathologies.

Unit 9. Advanced robotic training equipment

- Advanced equipment in neurological treatments
- Advanced equipment in cognitive impairments
- Isokinetic machines
- Robotic training in dogs
- Future of physical therapy

Unit 10. Common sport and injuries treatment

- Common sport injuries
- Sports physical therapy treatment
- Sport cause – effect injuries
- Physical therapy analysis based on a specific sport
- Sport massage

Unit 11. Common neurological pathologies and treatment approach

- Common neurological pathologies
- Bobath, Perfetti and rood concepts
- Cerebral palsy analysis
- Neuroanatomy physiology
- Physical therapy first response to a Stroke

Unit 12. Common trauma affections and therapeutic approach

- Common trauma affections
- Champions Stories
- Physical therapy in Critical care and trauma
- Rehabilitation process after a surgery
- Rehabilitation in Africa

Unit 13. Building a physical therapy protocol

- How to build a physical therapy protocol?
- Steps of rehabilitation
- Motivation and adherence of the patient
- Control and follow up
- Materials and environmental factor (ICD)

Unit 14. Athletes and primary sports response

- Sports and Rehabilitation emergency injuries
- Physical therapy in athletes
- Athletes sport psychology
- Emergency vs strategy
- Return to sport physical therapy protocol

Unit 15. Neurophysiology of pain

- Neurophysiology of pain
- What is pain?
- Pathologies and pain
- Melzack and wall pain theory
- Stages of pain in physical therapy

METHODOLOGY

This course promotes the interaction between the students and the teacher, in order to develop active feedback between the two parties. The course will be composed of participatory activities such as thematic discussions, oral presentations, and manual practices. Throughout the course the students will be immersed in hands on experiences that include researching scientific data, practical classes and clinical analysis of cases. Additionally, students will participate in current case studies in physical therapy in different areas, with which they can propose better treatments for the safer rehabilitation

programs. This in turn will allow students to learn and critically analyze different real life situations in which they can apply the theory to propose new ideas and strategies for rehabilitation.

The role of the professor is to mediate, facilitate and guide the teaching and learning, allowing students to build and self-regulate learning, based on their previously collected information. The student is active, the teaching-learning process is collective and socialized. It also fosters social integration, the development of group work skills and community feeling, without neglecting individualization.

EDUCATIONAL RESOURCES

In order to guarantee good development of the course, and learning, the following resources are available: an updated bibliographic database, multimedia equipment that students can use for their individual presentations; whiteboards and other 12 school equipment for weekly sessions, and readings provided by the professor. All of these complement the suggested projects and provide the students with higher possibilities of knowledge ownership. Most of the lessons will take place in the classroom. A campus library, study rooms, and computer labs are available for the students' independent work time. Free Wi-Fi connection is available.

LEARNING ASSESSMENT

In order to make the course or program better competencies-based evaluation compiles and evaluates evidence by taking into account feedback providing pre-established criteria. The course evaluation must be aligned with the competencies and the teaching methodology. There is a rubric for each evaluation resource, and the details will be provided in **CANVAS LMS**. Even though the rubric grants a grade, it is also a quantitative and qualitative description of the students' performance. The rubrics include the core and discipline key competences.

*ASSIGNMENTS	PERCENTAGE VALUE
Individual presentations	40%
Articles summary	15%
Protocols case study	30%
Final presentation	15%
Total	100%

LEARNING STRATEGIES

1. Individual presentations:

The teacher will provide the students a topic. This topic will be assigned each week. With a total amount of 3 presentations. These activities are meant to develop specific skills and abilities in the student, such as research skills, self-confidence, time management, creativity, clinical analysis, participatory activity and design. Resources for presentations are power points, Prezi, Canva or another useful presentation tool. Students use extra class time to research and prepare the presentation which needs to be approved by the professor at least 4 days before deadline. The presentations will be every Monday and Tuesday of the following week.

1.2 Articles summary

The professor will assign a case study articles to the student, with the purpose of learning different skills of physical therapy. Each article must be returned with a summary no more than one page showing the results of the article. Each summary will be sent before midnight of the Friday of that week.

2. Protocols Case study

Students will be provided by a clinical case each day to research the amount of physical therapy treatments. And understand the symptoms and signs of the patient in each case. Student must provide a summary each day of the case, must be sent before midnight of the next day.

3. Final presentation

Topic can be selected by the student, presentation must be presented in the last week of the course, Topic will about a treatment in physical therapy, showing three clinical case examples. Presentation must be provided in 20 minutes per student. And it's the final part of the course.

ATTENDANCE

Regarding classes:

1. Students are only allowed a two (2) **non-consecutive (back-to-back) class absences**.
A student shall fail the course if more than two absences are registered by the professor. Administration does not control attendance.
2. Three **late arrivals** to class (arrival after the first 15 minutes) are treated as one absence. Attending class 30 minutes late without an official justification will also count as an absence.
3. In the case of an **absence from any assignment evaluated in class** (presentations, evaluations, field trips, etc.) a student will be given a grade of zero unless an official document is presented within **one week** of the absence.
4. If a student presents an official document to excuse the absence, the missed assignment is to be presented on that same day.

Regarding field trips:

5. An unjustified **absence on a field trip** will immediately result in the loss of all points assigned to that specific trip. However, if an official document justifying the absence is presented, 50% of the assignment points may be obtained upon presentation of a complementary research assignment, to be agreed upon with the professor, within one week of the field trip.
6. An absence on a field trip may be justified should two course field trips coincide. In such a case, and to avoid losing points, students shall be able to opt for carrying out a research assignment.

CODE OF CONDUCT

Professors have the right to expel a student from the classroom should he / she/ they:

1. Be disruptive in the classroom.
2. Behave in a disrespectful way.
3. Be under the influence of alcohol.
4. Be under the influence of any illegal drug.
5. Shows hygiene or odor problems that may disturb other students.

ELECTRONIC DEVICES

The use of cell phones, smartphones, or other mobile communication devices is disruptive and is therefore prohibited during class. **Please turn all devices OFF and put them away** when class begins. Devices may be used only when the professor assigns a specific activity and allows the use of devices for internet search or recording. Those who fail to comply with the rule must leave the classroom for the remainder of the class period. Using devices while the professor or other peers are lecturing, or presenting is perceived as a lack of interest and disrespectful.

STUDY ABROAD PROGRAM POLICIES

The student must comply with the provisions of the Study Abroad Program Policies available on the Canvas/Omnivox platform.

BIBLIOGRAPHY

- Kinesiology of the Musculoskeletal System, Foundations and Rehabilitation, Second Edition, D. Neumann, 2010.
- The Physiology of the Joints, Sixth edition, Volume one, Upper Limb, A. I. Kapandji, 2005.
- The Physiology of the Joints, Sixth edition, Lower Limb, A. I. Kapandji, 2008
- The Physiology of the Joints, Sixth edition, Volume three, The Spinal, pelvic girdle and head, A. I. Kapandji, 2007.
- Atlas of Human Anatomy, Fifth Edition, F. Netter, MD, 2011.
- Anatomy Trains, Myofascial Meridians for Manual and Movement Therapist, Second Edition, T. Myers, 2009.
- Assessment and Treatment of Muscle Imbalance, The Janda Approach, P. Page, C. Frank, R. Lardner, 2010.
- Clinical Neurodynamics, A new system of musculoskeletal treatment, M. Shacklock, 2010.
- The Trigger Point Therapy Workbook, Third Edition, C. Davies, A. Davies, 2013.

CHRONOGRAM

Week	Contents	Evidence of learning
1	Introduction of physical therapy Anatomy based on movement. Biomechanics and kinesiology	Oral presentation by professor. Student presentations Movement clinical practice
2	Evaluation techniques Manual therapy Electrophysical agents	Oral presentation by professor. Student presentations Clinical practice
3	Strength and resistance exercise prescription Therapeutic exercises Athletes and primary sports response Building a physical therapy protocol	Oral presentation by professor. Student presentations Sport practice Exercises based program practice
4	Common sport and injuries treatment Common neurological pathologies and treatment approach Common trauma affections and treatment approach Common sport injuries and treatment	Oral presentation by professor. Student presentations Gait clinical practice Movement analysis practice

5	Neurophysiology of pain Advanced robotic and training equipment Final presentations	Oral presentation by professor. Practical pain practice Student final presentations
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