

**JEFFERSON COLLEGE**

**COURSE SYLLABUS**

**PTA 210**

**Physical Agents**

3 Credit Hours

Prepared by:

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## PTA210 Physical Agents

### I. CATALOGUE DESCRIPTION

- A. Prerequisites: PTA140 Neuromotor Development with a grade of “C” or better, successful completion of PTA150 Clinical Experience I, and Reading Proficiency
- B. Credit hour award: 3
- C. Description: In this combination lecture-lab course, students will study basic physics theories and principles with a hands-on application to thermal, mechanical, and electromagnetic agents utilized by the physical therapist assistant under the direction and supervision of the physical therapist. By course completion, students will demonstrate safety and competency in using the following physical agents: compression therapies, cryotherapy, hydrotherapy, superficial and deep thermal agents, traction, biofeedback, electrotherapeutic agents, and athermal agents. A grade of “C” or better is required in this class to progress to PTA250 Clinical Experience II. (F)

### II. EXPECTED LEARNING OUTCOMES AND ASSESSMENT MEASURES

(Numbers in parentheses refer to CAPTE performance expectations)

| Expected Learning Outcomes  | Assessment Measures  |
|---|--|
| List indications, contraindications, and precautions for each thermal, mechanical, and electromagnetic agents as studied.   | Practical Examinations<br>Written Assignments<br>Skills Checks<br>Summative Written Examinations |
| Demonstrate appropriate interactions with patients, physical therapists, and other health care professionals in written, verbal, and nonverbal communication. (3.3.2.1.)  | Practical Examinations<br>Written Assignments<br>Skills Checks<br>Class Discussion               |
| Recognize individual and cultural differences and respond appropriately in all aspects of physical therapy services. (3.3.2.2.)   | Practical Examinations<br>Summative Written Examinations<br>Written Assignments                  |
| Demonstrate conduct that reflects practice standards that are legal, ethical, and safe as well as reflect a commitment to meet the expectations of those receiving health care services and members of the profession of physical therapy. (3.3.2.3., 3.3.2.4., 3.3.2.5.) | Practical Examinations<br>Skills Checks<br>Class Discussion/Activity                             |

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| <p>Demonstrate how to implement the plan of care developed by the physical therapist to achieve short and long term goals and intended outcomes, including situations where specialized equipment may be present. (3.3.2.6.)</p>   | <p>Class Discussion/Activity<br/>Practical Examinations<br/>Summative Written Examinations<br/>Written Assignments</p> |
| <p>Demonstrate competence in implementing physical and mechanical agents (such as athermal agents, biofeedback, compression therapies, cryotherapy, electrotherapeutic agents, hydrotherapy, superficial and deep thermal agents, and traction) identified in the plan of care established by the physical therapist. (3.3.2.7., 3.3.2.7.12-19.)</p> | <p>Practical Examinations<br/>Skills Checks</p>  |
| <p>Demonstrate competence in performance of components of data collection skills, such as anthropometric characteristics, integumentary integrity, and pain scales. (3.3.2.8., 3.3.2.8.4., 3.3.2.8.10-13., 3.3.2.8.22-23.)</p>   | <p>Practical Examinations<br/>Skills Checks</p>  |
| <p>Modify interventions within a plan of care established by the physical therapist in response to patient clinical indications and/or status and report this to the supervising physical therapist. (3.3.2.9., 3.3.2.11.)</p>   | <p>Classroom Discussion<br/>Written Assignments<br/>Practical Examinations<br/>Written Examinations</p>                |
| <p>Identify when interventions should not be provided due to changes in the patient's status and report these changes to the supervising physical therapist. (3.3.2.10.)</p>   | <p>Classroom Discussion<br/>Written Examinations<br/>Practical Examinations</p>  |
| <p>Determine when the direction to perform an intervention is beyond that which is appropriate for a physical therapist assistant and initiate clarification with the physical therapist. (3.3.2.12.)</p>  | <p>Classroom Discussion<br/>Written Examinations<br/>Practical Examinations</p>  |
| <p>Explain to patients, family members, and caregivers goals and desired outcomes based on the plan of care established by the physical therapist. (3.3.2.13., 3.3.2.14.)</p>  | <p>Practical Examinations</p>  |

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| Describe appropriate actions to take in an emergency situation. (3.3.2.15.)  | Classroom Discussion<br>Written Examinations<br>Practical Examinations |
| Produce thorough, accurate, logical, concise, timely, and legible documentation that follows guidelines and specific documentation formats required. (3.3.2.16.) | Written Assignments<br>Practical Examinations                          |
| Perform health care literature database searches. (3.3.2.18.)  | Written Assignments  |

### III. OUTLINE OF TOPICS

- A. Introduction to Physical Agents and How They Are Used
  - 1. Categories of Physical Agents
  - 2. History and Role of Physical Agents in Medicine and Rehabilitation
  - 3. General Contraindications and Precautions for Physical Agent Use
  - 4. Effects of Physical Agents
  - 5. Evidence-based Practice
  - 6. Using Physical Agents in Combination with Each Other or With Other Interventions
  - 7. Using Physical Agents within Different Health Care Delivery Systems
  
- B. Pathology Review
  - 1. Inflammation and Tissue Repair
  - 2. Pain
  - 3. Tone Abnormalities
  - 4. Motion Restrictions
  
- C. Thermal Agents: Cold and Heat
  - 1. Physical Principles of Thermal Energy
  - 2. Effects of Cold
  - 3. Contraindications and Precautions for Cryotherapy
  - 4. Application Techniques
  - 5. Documentation
  - 6. Effects of Heat
  - 7. Contraindications and Precautions for Thermotherapy
  - 8. Adverse Effects of Thermotherapy
  - 9. Application Techniques
  - 10. Documentation
  
- D. Ultrasound
  - 1. Effects of Ultrasound
  - 2. Clinical Applications of Ultrasound
  - 3. Contraindications and Precautions for the Use of Ultrasound

4. Adverse Effects of Ultrasound
  5. Application Technique
  6. Documentation
  7. Phonophoresis
- E. Diathermy
1. Physical Properties of Diathermy
  2. Types of Diathermy Applicators
  3. Effects of Diathermy
  4. Clinical Indications for the Use of Diathermy
  5. Contraindications and Precautions for the Use of Diathermy
  6. Adverse Effects of Diathermy
  7. Application Techniques
  8. Documentation
- F. Hydrotherapy
1. Physical Properties of Water
  2. Physiological Effects of Hydrotherapy
  3. Contraindications and Precautions for Hydrotherapy
  4. Adverse Effects of Hydrotherapy
  5. Documentation
- G. Electrical Currents
1. Introduction and History
  2. Effects of Electrical Currents
  3. Clinical Applications of Electrical Currents
  4. Contraindications and Precautions for the Use of Electrical Currents
  5. Adverse Effects of Electrical Currents
  6. Applications Technique
  7. Documentation
  8. Iontophoresis
  9. Biofeedback
- H. Traction
1. Clinical Indications for the Use of Spinal Traction
  2. Contraindications and Precautions for the Use of Spinal Traction
  3. Adverse Effects of Spinal Traction
  4. Application Techniques
  5. Documentation
- I. Compression
1. Clinical Indications for the Use of External Compression
  2. Contraindications and Precautions for the Use of External Compression
  3. Adverse Effects of External Compression
  4. Application Techniques
  5. Documentation

- J. Radiation
  - 1. Electromagnetic Radiation: Lasers and Light
    - a. Effects of Lasers and Light
    - b. Clinical Indications for the Use of Lasers and Light
    - c. Contraindications and Precautions for Lasers and Light
    - d. Application Technique for Lasers and Light
    - e. Documentation
  - 2. Ultraviolet Radiation
    - a. Effects of Ultraviolet Radiation
    - b. Clinical Indications for Ultraviolet Radiation
    - c. Contraindications and Precautions for the Use of Ultraviolet Radiation
    - d. Adverse Effects of Ultraviolet Radiation
    - e. Application Techniques
    - f. Documentation

#### IV. METHODS OF INSTRUCTION

- A. Lecture
- B. Textbook Readings
- C. Supplemental Handouts
- D. Active Learning in the classroom setting
- E. Case Studies
- F. Hands-on interaction during laboratory portion of course in which the students will act as both the patient and the physical therapist assistant to practice skills.

#### V. REQUIRED TEXTBOOKS

- A. Cameron, M. *Physical Agents in Rehabilitation from Research to Practice* (current edition). St. Louis, MO: Saunders-Elsevier
- B. Hayes, K., and Hall, K. *Manual for Physical Agents* (current edition). Upper Saddle River, NJ: Pearson Education, Inc.

#### VI. REQUIRED MATERIALS

- A. A computer with internet access and basic software to include Microsoft Word (available through Jefferson College labs)

- B. Course homepage available through Blackboard
- C. Appropriate clothing to both lab practice and practical testing experience as defined by student handbook

## VII. SUPPLEMENTAL REFERENCES

- A. Class Handouts
- B. Current Library Resources
  1. Supplemental text: Behrens, B. J., and Michlovitz, S. *Physical Agents: Theory and Practice* (current edition). Philadelphia, PA: F.A. Davis Company
  2. Databases: “Nursing and Allied Health Collection”, “Sports Medicine and Physical Therapy Collection”, and “Medline”
  3. Periodicals
  4. Videos
- C. Current Internet Resources
  1. On-line references
  2. Textbook companion website
  3. American Physical Therapy Association (APTA) website

## VIII. METHODS OF EVALUATION

- A. Summative Written Examinations: 35%
- B. Practical Examinations: 30%
- C. Written Assignments: 25%
- D. Attendance/Participation: 10%
- E. Grading Scale:
  - A=92-100%
  - B=84-91.9%
  - C=75-83.9%
  - D=65-74.9%
  - F=64.9% and below

## IX. ADA AA STATEMENT

Any student requiring special accommodations should inform the instructor and the Coordinator of Disability Support Services (Library: phone 636-797-3000, ext. 3169).

## X. ACADEMIC HONESTY STATEMENT

All students are responsible for complying with campus policies as stated in the Student Handbook. (See College website <http://www.jeffco.edu>).

All Physical Therapist Assistant (PTA) students are also responsible for complying with PTA Program policies as stated in the PTA Student Handbook distributed at orientation.

## XI. ATTENDANCE STATEMENT

Students earn their financial aid by regularly attending and actively participating in their coursework. If a student does not actively participate, he/she may have to return financial aid funds. Consult the College Catalog or a Student Financial Services representative for more details.

## XII. OUTSIDE OF CLASS ACADEMICALLY-RELATED ACTIVITIES

The US Department of Education mandates that students be made aware of expectations regarding coursework to be completed outside the classroom. Students are expected to spend substantial time outside of class meetings engaging in academically-related activities such as reading, studying, and completing assignments. Specifically, time spent on academically-related activities outside of class combined with time spent in class meetings is expected to be a minimum of 37.5 hours over the duration of the term for each credit hour.