**Course Change Proposal**

**Form A**

<table>
<thead>
<tr>
<th>Academic Group (College):</th>
<th>Health and Human Services</th>
<th>Academic Organization (Department):</th>
<th>Physical Therapy</th>
<th>Date:</th>
<th>2/8/2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of Course Proposal:</td>
<td>New ___ Change <em>x</em>_ Deletion ___</td>
<td>Department Chair:</td>
<td>Dr. McGinty</td>
<td>Submitted by:</td>
<td>Dr. McKenough</td>
</tr>
<tr>
<td><strong>Does this course fulfill a requirement for single-subject or multiple subject credential students?</strong></td>
<td>Yes ___ No <em>x</em>_</td>
<td>For Catalog Copy:</td>
<td>Yes <em>x</em>_ No ___</td>
<td>Semester Effective:</td>
<td>Fall <em>x</em>_ Spring <strong>, 20</strong></td>
</tr>
<tr>
<td><strong>CCE (Extension):</strong></td>
<td>Yes ___ No <em>x</em>_</td>
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</tbody>
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This course replaces experimental course Subject Area (*prefix*) and Catalog Nbr (*course number*):

If changing an existing course, should new version be considered a repeat of the original version? If so, the same Course ID will be maintained. If not, a new Course ID will be assigned. Note: In PeopleSoft terminology, the Course ID is the unique system identifier, not the Catalog Nbr.

<table>
<thead>
<tr>
<th>Change from:</th>
<th>Title:</th>
<th>Units:</th>
</tr>
</thead>
<tbody>
<tr>
<td>*<em>Subject Area (<em>prefix</em>) &amp; Catalog Nbr (<em>course no.):</em></em> PT 204</td>
<td>Principles of Human Movement</td>
<td>2</td>
</tr>
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</table>

**Change to:**

<table>
<thead>
<tr>
<th>*<em>Subject Area (<em>prefix</em>) &amp; Catalog Nbr (<em>course no.):</em></em> PT 604</th>
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**JUSTIFICATION:**

This course is being changed as part of the curriculum changes with the new DPT program required for continued accreditation for the program. The course has been upgraded to reflect the expectations in a doctoral program.

---

**NEW COURSE DESCRIPTION:** (Not to exceed 80 words, and language should conform to catalog copy. See [http://www.csus.edu/um/academic/acad.htm](http://www.csus.edu/um/academic/acad.htm) - Guidelines for Catalog Course Description)

This course focuses on developing an understanding of components of human movement under normal and pathological conditions. Content includes the American Physical Therapy Association Model of Practice, models of disablement, contemporary concepts of motor learning and motor control, task analysis, and theories of the recovery of function. The course includes a review of the foundations of neuroanatomy for normal movement. Open to Physical Therapy majors only.

**Note:**

**Prerequisite:**

- BIO 233 Review of Human Gross Anatomy
- PT 600 Pathokinesiology
- PT 608 PT/Patient/Professional Interactions
- PT 630 Pathophysiology
- PT 602 Evidence Informed Practice I

Enforced at Registration: **Yes _x__ No ___**

**Corequisite:**

- PT 606 Therapeutic Measurements and Techniques
- PT 614 Neuroscience for Physical Therapists
- PT 618 Foundations for Patient Management
- PT 620 Physical Therapy Interventions I
- PT 622 Evidence Informed Practice II

Enforced at Registration: **Yes ___ No _x__**

**Graded:** Letter _x__ Credit/No Credit ___

Instructor Approval Required? **Yes ___ No _x__**

**Course Classification (e.g., lecture, lab, seminar, discussion):** Lecture C-O2

Title for CMS (not more than 30 characters)

**Principles of Human Movement**

**Cross Listed?**

<table>
<thead>
<tr>
<th>Yes ___ No <em>x</em>_</th>
<th>If yes, do they meet together and fulfill the same requirement, and what is the other course.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>
How Many Times Can This Course be Taken for Credit? ___1___

Can the course be taken for Credit more than once during the same term? Yes ___ No x___
FOR NEW COURSE PROPOSALS OR SUBSTANTIVE CHANGES ONLY:

**Description of the Expected Learning Outcomes:** Describe outcomes using the following format: "Students will be able to: 1), 2), etc." See the example at http://www.csus.edu/acll/example.htm

At the completion of this course the student will have an introductory understanding of:

**Goal 1.0: Demonstrate Professional Effectiveness**

1.1 Compare and contrast normal biological, physiological, and psychological mechanisms of the human body with pathophysiological factors that lead to impaired body functions and structure.

1.1.2 Describe how pathological processes affect normal function.

1.1.2.1 Discuss the neurophysiological basis of voluntary movement.
1.1.2.2 Discuss the neurophysiological basis for postural control
1.1.2.3 Discuss the scientific basis of motor learning.
1.1.2.4 Discuss the theories of neural plasticity and recovery of motor function.
1.1.2.5 Discuss the International Classification of Functioning, Disability and Health (ICF)
1.1.2.6 Describe clinical reasoning based on an ICF model

1.2 Determine the physical therapy needs of any individual seeking services.
1.2.3 Perform an effective and efficient systems review screen.

1.2.3.1 Perform a task analysis of normal movement patterns during functional activities.

1.4 Implement the physical therapy plan of care designed to restore and/or maintain optimal function applying selected procedural interventions that demonstrate safe and effective psychomotor and clinical reasoning skills.

1.4.1 Perform efficient and effective procedural interventions utilizing evidence-informed physical therapy procedures in a competent manner.

1.4.1.1 Apply his/her understanding of feedback and massed/distributed practice to the design of a treatment program.

**Goal 2.0: Demonstrate Professional Behaviors**

2.2 Communicate effectively for varied audiences and purposes.

2.2.1 Demonstrate effective interpersonal (verbal, nonverbal, electronic) communication skills considering the diversity of populations and environments.

2.2.2 Facilitate therapeutic communication and interpersonal skills.

2.2.3 Discuss difficult issues with sensitivity and objectivity.

2.2.4 Appropriately utilize communication technology efficiently, professionally, and effectively.

2.2.5 Respect roles of support staff and communicate appropriately.

2.4 Recognize the need for personal and professional development.

2.4.1 Participate in self-assessment to improve clinical and professional performance.

2.4.2 Welcome and seek new learning opportunities.

2.4.3 Assume responsibility for professional lifelong learning.

2.4.4 Accept responsibility and demonstrate accountability for professional decisions.

2.4.5 Recognize own biases and suspend judgments based on biases.

2.5 Demonstrate entry level generic abilities.

2.5.1 Professional accountability and commitment to learning.

2.5.2 Recognition of one's own limitations

2.5.3 Effective use of constructive feedback

2.5.4 Effective use of time and resources

2.5.5 Demonstrate integrity, compassion, and courage in all interactions

**Goal 3.0: Practice in an Ethical and Legal Manner**

3.1 Practice physical therapy in a manner consistent with established legal and professional standards.

3.1.2 Practice within all applicable regulatory and legal requirements

3.1.2.1 Describe the American Physical Therapy Association Model of Physical Therapy Practice

**Goal 4.0: Demonstrate Scholarship**

4.1 Apply basic principles of statistics and research methodologies within the practice of physical therapy.

4.1.1 Formulate and reevaluate positions based on the best available evidence.

4.1.1.1 Develop a conceptual framework for clinical practice.

**Attach a list of the required/recommended course readings and activities [Note: it is understood that these are updated and modified as needed by the instructor(s).] This attachment should be forwarded only to your Dean's office, not Academic Affairs.
Assessment Strategies: A description of the assessment strategies (e.g., portfolios, examinations, performances, pre-and post-tests, conferences with students, student papers) which will be used by the instructor to determine the extent to which students have achieved the learning outcomes noted above:

ASSIGNMENTS: (For details see Assignments on the Homepage)
1. The Motor System: Label the illustrations and complete the tables.
2. Task Analysis: For a given therapeutic activity describe the regulatory conditions for the individual, task, and performance environment.
3. Write a position paper describing your conceptual framework for clinical practice (see S-C&W Ch 6)
4. Participation summary

There are 4 assignments for the course. Assignments are due in hardcopy at the beginning of class on the assigned date. Without prior approval, late assignments are not accepted and a score of 0 is entered for the assignment.

ASSessment/ Assignments

<table>
<thead>
<tr>
<th>Assessment type</th>
<th>Points</th>
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<tbody>
<tr>
<td>Test 1</td>
<td>40</td>
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<tr>
<td>Test 2</td>
<td>40</td>
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<td>Final examination (Cumulative)</td>
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<tr>
<td>Assignment 2: Task Analysis</td>
<td>10</td>
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<tr>
<td>Assignment 3: Conceptual Framework</td>
<td>20</td>
</tr>
<tr>
<td>Assignment 4: Class participation</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>200</strong></td>
</tr>
</tbody>
</table>

There are 3 scheduled exams during the semester. For excused absences ONLY, make-up exams are available through the University Testing Center with a 10 point penalty due to additional study time.

GRADING SCALE:

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<thead>
<tr>
<th>Grade</th>
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<td>A</td>
<td>93 – 100%</td>
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<tr>
<td>A-</td>
<td>90 – 92%</td>
<td>180-185</td>
</tr>
<tr>
<td>B+</td>
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<td>174-179</td>
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<tr>
<td>B</td>
<td>83 – 86%</td>
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<td>D</td>
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<td>194-200</td>
</tr>
<tr>
<td>F</td>
<td>59% &amp; below</td>
<td>186-193</td>
</tr>
</tbody>
</table>

For whom is this course being developed?
Majors in the Dept: x   Majors of other Depts: __  Minors in the Dept: __  General Education: ___  Other: ___
Is this course required in a degree program (major, minor, graduate degree, certificate)? Yes x  No: __
If yes, identify program(s): DPT

Does the proposed change or addition cause a significant increase in the use of College or University resources (lab room, computer facilities, faculty, etc.)? Yes ___  No x ___
If yes, attach a description of resources needed and verify that resources are available.

Indicate which department or programs will be affected by the proposed course (if any). ___  Physical Therapy __

The Department Chair's signature below indicates that affected programs have been sent a copy of this proposal form.

Approvals: If proposed change, new course or deletion is approved, sign and date below. If not approved, forward without signing to the next reviewing authority, and attach an explanatory memorandum to the original copy.
<table>
<thead>
<tr>
<th>Signatures:</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department Chair:</td>
<td>2-16-11</td>
</tr>
<tr>
<td>College Dean or Associate Dean:</td>
<td>2-(C-1)</td>
</tr>
<tr>
<td>CPSP (for school personnel courses ONLY)</td>
<td></td>
</tr>
<tr>
<td>Associate Vice President</td>
<td></td>
</tr>
<tr>
<td>and Dean for Academic Programs</td>
<td></td>
</tr>
</tbody>
</table>

Distribution: Academic Affairs (original), Department Chair and College Dean. Dean’s office to send original after approval to Academic Affairs, at mail zip 6016. An electronic copy must also be sent.

9/10/2008
PT604 Principles of Human Movement

Spring Semester

COURSE CREDIT: 2 units: 2 lecture hours
INSTRUCTOR: TBA
CLASSROOM: TBA
TIME: TBA

COURSE DESCRIPTION
This course focuses on developing an understanding of components of normal movement, contemporary concepts of motor control, and their application to physical therapy practice. The course includes a review of the foundations of neuroanatomy for normal movement. Open to Physical Therapy majors only.

PREREQUISITES:
BIO 633 Review of Human Gross Anatomy
PT 600 Pathokinesiology
PT 608 PT/Professional Interactions
PT 630 Pathophysiology
PT 602 Evidence Informed Practice I

CO-REQUISITES:
PT 604 Principles of Human Movement
PT 614 Neuroscience for PTs
PT 618 Foundations for Patient Management
PT 606 Therapeutic Measurements & Techniques
PT 620 PT Interventions I
PT 622 Evidence Informed Practice II

REQUIRED TEXTS/REFERENCES:
3. Class Notes and articles as provided on the Homepage
COURSE OBJECTIVES: (Referenced to Program Educational Goals and Related Objectives)

At the conclusion of this course, the student is expected to:

**Goal 1.0: Demonstrate Professional Effectiveness**

1.1 Compare and contrast normal biological, physiological, and psychological mechanisms of the human body with pathophysiological factors that lead to impaired body functions and structure.
   1.1.2 Describe how pathological processes affect normal function.
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4.1 Apply basic principles of statistics and research methodologies within the practice of physical therapy.
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   4.1.1.1 Develop a conceptual framework for clinical practice.

**TEACHING STRATEGIES AND LEARNING ACTIVITIES**

Case-method teaching, lecture by instructors and/or guests, demonstration, instructional videos, discussion groups, role playing, reading assignments, internet assignments, multiple writing assignments, laboratory practice.

**ATTENDANCE**

Daily attendance and timeliness is expected. Courtesy and professional responsibility requires notification of the instructor for any absence in advance. Failure to notify the professor of an absence can result in lowering your participation grade and is considered unprofessional. Students are responsible for any missed work and may be required to complete make-up assignments.

**ACADEMIC HONESTY**

The university policy regarding academic honesty is in effect in this course and any alleged violations will be handled in accordance with the policies described in the University Catalogue. (www.csus.edu/admbus/umanual/UMA00150.htm)

**BEHAVIORAL EXPECTATIONS**

Students are responsible for appropriate behaviors as defined by the *generic abilities*. Failure to comply with behavioral expectations during class may result in a student first being warned that behavior is inappropriate, then, if inappropriate behavior continues, a student may be asked to leave a class. Repeated failure to comply with behavioral expectations can lead to failure in the course. Cell phones and beepers should be off or silent (set to vibration mode) during the class. No text messaging is permitted in class.

**SPECIAL ACCOMMODATIONS**

During the course of the year, some students may utilize prearranged accommodations. If you are a student with a learning disability, physical disability, or other special needs, please let me know as soon as possible if you need special accommodation. These kinds of confidential discussions are best handled during my office hours or by special appointment. You can expect
confidentiality and cooperation regarding any circumstances and needs that have been verified though the Office of Services to Students with Disabilities (SSWD) Lassen Hall 1008, (916) 278-6955.

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Please note that this syllabus may be changed at any time at the discretion of the Instructor with prior notification of students.

PT 604 Principles of Human Movement
Course Schedule

<table>
<thead>
<tr>
<th>Wk</th>
<th>Date</th>
<th>Topic</th>
<th>Reading/Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aug 30</td>
<td>Course overview</td>
<td>Course Syllabus and Schedule</td>
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<td></td>
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<td>Lecture slides</td>
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<td>S-C&amp;W, Ch 6</td>
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<td>2</td>
<td>Sept 6</td>
<td>NO CLASS Labor Day (Holiday) Campus Closed</td>
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<td>3</td>
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<td>Gentile: A Working Model of Skill Acquisition</td>
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<td>12 Nov 15</td>
<td>Exam 2: Motor System, Muscle &amp; Muscle Receptors, Motor Control, Task Analysis</td>
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<td>13 Nov 22</td>
<td>Transfer of Learning</td>
<td>Lab activity: Learn/Teach new motor skill</td>
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<tr>
<td>15 Dec 6</td>
<td>Recovery of Function</td>
<td>Lecture slides</td>
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<td>Review</td>
<td>Assignment 3: Conceptual Framework for Clinical Practice</td>
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<td>16 Dec 12-18</td>
<td>Final Exam: Cumulative</td>
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Legend:  
McK, McKeough, lecture slides and reference material available on the Course Homepage  
Please note this schedule is subject to change as needed at the discretion of the Instructor.
Motor Learning

1. The two therapist controlled variables with the most powerful influence on motor learning are:
   A. goal selection and the decision process
   B. knowledge of results and knowledge of performance
   C. ability and motivation
   D. practice and feedback

2. By asking a patient to identify what was wrong with their previous performance, the therapist is reinforcing the patient’s:
   A. knowledge of the goal
   B. satisfaction with the treatment program
   C. reference of correctness
   D. ability to transfer in knowledge from similar tasks

3. In what category of the model of goal directed movement is the therapist operating when they ask a patient to identify what was wrong with their previous performance?
   A. selective attention
   B. formulation of a motor plan
   C. the decision process
   D. augmenting knowledge of results

4. By selecting activities that are meaningful to the patient and setting goals that are challenging, the therapist is attempting to:
   A. maximize the patient’s motivation
   B. change the patient’s inherent motor ability
   C. make it easier for the patient to attend to knowledge of performance
   D. allow the patient to skip from the cognitive to the autonomous stage of learning

5. You are seeing a patient with functional limitations due to Alzheimer’s dementia. She requires moderate assistance to transfer in and out of bed. Her lower extremity strength is 4/5 and AROM is WFL throughout. Which of the following treatment approaches is most likely to improve her transfer ability?
   A. Have the patient practice the transfer with high repetitions under invariant conditions
   B. Have the patient identify the regulatory constraints and verbalize her movement strategy
   C. Have the patient practice transferring from every surface in her house
   D. Have the patient stop transferring and teach the caregiver how to do dependent transfers

6. A treatment session designed to maximize transfer of learning would:
   A. repeat the performance until the client could perform the movement automatically
   B. repeat the performance with intertrial variability
   C. maximize efficiency by performing all activities in one position (seated) before moving to another position (supine)
   D. use a developmental progression of treatment activities

7. By talking during performance what aspect of the client’s motor learning is the therapist interfering with?
   A. selection of a goal
   B. identification of an appropriate strategy
   C. formulating a motor plan
   D. selectively attending to KP
8. During the associative stage of learning what process is enabling the performer to refine their movement pattern?
   A. developing a better motor plan
   B. learning the cause of their errors and correcting them
   C. keeping the performance environment closed
   D. ignoring extraneous knowledge of performance

9. According to Gentile, what is the focus of the performer while working in an open environment during the later stage (associative) of learning?
   A. developing diversification
   B. developing consistency
   C. developing skill
   D. developing a motor plan

10. Why is treatment planning more complex for a therapist operating from a complex systems perspective of motor control than a therapist operating from a hierarchical facilitation perspective of motor control?
    A. they must know the developmental progression in which to introduce treatment activities
    B. they must consider the individual, task, and the environment
    C. they must know exactly where to place their hands and what to say during performance
    D. they must perform tests and measures of the CNS to understand lesion effects

Match the stage of motor skill learning on the left with the most appropriate feedback on the right.
11. _____ Cognitive          A. Augmented knowledge of results
12. _____ Associative        B. Augmented knowledge of performance
13. _____ Autonomous        C. Confirm reference of correctness
                               D. Continuous feedback on 100% of trials

Match the stage of motor skill learning on the left with the performer’s learning focus on the right.
14. _____ Cognitive          A. Following the therapist’s instructions
15. _____ Associative        B. Refining the movement pattern
16. _____ Autonomous        C. Learning what to do
                               D. Developing skill

**Physiology of Motor Learning**
17. What type of learning is achieved through increased physiological effects (↑ EPSP and IPSP)?
    A. short-term memory
    B. long-term memory
    C. declarative
    D. procedural

18. Changes in the type of protein produced by the neuron and __________ are the mechanisms of long-term memory.
    A. increased production of neurotransmitter substance
    B. atrophy
    C. synaptogenesis
    D. decrease in the number of receptor sites

19. What is the role of the amygdala in the learning process?
    A. rehearsal
    B. identification of important information
    C. initiates pre-programmed cell death
    D. produces short-term learning
20. What is the role of the hippocampus in the learning process?
   A. increases physiological effects
   B. production of new protein
   C. storage of the memory trace
   D. consolidation

Recovery of Function
21. What is the mechanism causing trans-synaptic lesion effects?
   A. loss of trophic substance
   B. disuse atrophy
   C. loss of blood supply
   D. edema

22. Which of the following is not a mechanism of the effectiveness of PT intervention?
   A. sprouting of axon collaterals
   B. resolution of pathology
   C. changes in cortical maps
   D. use of alternate pathways

23. What is the rule that governs the unmasking of silent synapses, development of new synapses, and changes in cortical mapping both before and after injury?
   A. Wallerian degeneration
   B. increased synaptic effectiveness
   C. use dependent competition
   D. the production of new types of protein

24. What mechanisms underlie motor learning under normal circumstances?
   A. orthograde and retrograde improvement in cellular function
   B. hypertrophy
   C. cellular proliferation
   D. synaptogenesis and increased cortical differentiation

25. Which of the following statements about recovery of function is not true?
   A. Rehabilitative training has its greatest effect when performed as soon after the injury as possible
   B. It is not likely that any single training approach will be as effective as a combination of approaches
   C. Facilitation techniques based on the hierarchical model of motor control have been shown to be most effective to treat neuromuscular impairments
   D. Treatment strategies will be most effective when carefully considering the patient’s history, health status, age, and experience

26. Following a lesion of the cortex (stroke) what type of learning will be most difficult?
   A. procedural
   B. declarative
   C. short-term
   D. long-term
27. According to the most current research results, which formula contains the ingredients for the “best practice” approach to neurological rehabilitation?
   A. task-specific training that requires willful intention performed in an enriched environment with facilitatory pharmacology using a variety of treatment approaches performed soon after the injury tailored to the individual patient’s history, health status, age, and experience involving both physical and mental practice
   B. error-free performance with therapeutic assistance ensuring minimal interference from the feedback that arises from abnormal movement performed soon after injury and continuing as long as the patient shows any improvement in normal movement
   C. individually prescribed, skilled physical therapy intervention performed by a licensed practitioner in a properly equipped drug-free controlled environment
   D. attempting a variety of treatment approached and adopting the one that the patient prefers and performed in a pleasant and supportive environment with activities selected by the patient for the greatest chance of success

Conceptual Framework for Clinical Practice
28. The most important aspect of the APTA model of PT practice is that it:
   A. is the central component to the APTA code of ethics
   B. defines the scope of PT practice and establishes a process for treating all PT patients
   C. is required by all APTA members
   D. is a logical process that will lead to the correct diagnosis and treatment

29. By determining their conceptual framework for clinical practice each therapist will:
   A. ensure compliance with the APTA model of practice
   B. identify the treatment approach they will follow throughout their practicing career
   C. select their own treatment approach and accept the underlying assumptions
   D. have done everything possible to become the best therapist they can be

30. Which of the following is not a component of the top-down model of clinical reasoning?
   A. What is the patient’s medical diagnosis?
   B. What is the patient’s participation goal?
   C. What skilled activities are involved in attaining that participation goal?
   D. What problems in body function or structure may be causing the activity limitations?

31. Which of the following statements about hypothesis-oriented clinical practice is false?
   A. clinical reasoning (examination) by a novice tends to be chart-driven
   B. clinical reasoning (examination) by an expert tends to be hypothesis-driven
   C. to form hypotheses, a clinician must understand the relationship among symptoms
   D. use of chart-driven clinical practice ensures a correct diagnosis

Goal Directed Movement
32. What is gained by viewing movement as the solution to a motor problem?
   A. patients then find therapist’s instructions easier to understand
   B. it becomes easier to identify movement errors
   C. it enhances the effectiveness of an instructor
   D. movement becomes a process for acquiring a goal

33. Which term indicates that the same movement goal can be attained using different strategies?
   A. strategy equivalence
   B. motor equivalence
   C. degree of difficulty
   D. degrees of freedom

34. The following prognosis was taken from the PT chart. “The patient will regain premorbid functional capacity.” What component of a prognosis is missing?
   A. treatment approach
   B. time frame
   C. specification of treatment dosage
   D. identification of the highest functional level expected
35. What are the two types of movement goals?
A. speed and accuracy
B. error free performance and movement efficiency
C. aesthetic beauty and creation of a movement pattern or solution that has never been performed before
D. movement as the means for achieving the goal and the movement pattern as the goal itself

36. Which of the following therapist’s actions is intended to affect the patient’s motor plan?
A. showing the patient a video of their performance
B. telling the patient to “try it differently next time”
C. identifying the regulatory stimuli
D. telling the patient how they should move

**Disablement Models**

37. Which of the following was not a reason for replacing the Nagi model?
A. it failed to account for disability not due to pathology
B. it failed to establish the relationship between impairments and functional limitations
C. it failed to account for disability due to societal attitudes
D. it was a unidimensional and unidirectional pathology-based model

38. Pathology from the Nagi model was replaced with which of the following in the ICF model?
A. Participation
B. Activities
C. Health Condition
D. Contextual Factors

39. Disability from the Nagi model was replaced with which of the following in the ICF model?
A. Participation
B. Activities
C. Health Condition
D. Contextual Factors

40. Which of the following was the most important PT understanding to have come from the Nagi model?
A. pathology is the root cause of all functional limitation and disability
B. to improve function you must reduce impairment
C. PT intervention need not be concerned with the disability level
D. PT concerns should focus exclusively at the impairment level

41. With adoption of the ICF model to replace the Nagi model, physical therapists can now hypothesize that functional limitation may be caused by:
A. body functions & structures, contextual factors, health condition, or participation restrictions
B. impairments or disability
C. pathology, impairments, or societal attitudes
D. body functions & structures, impairments, pathology, or personal factors

42. Which of the following is an impairment goal? The client will:
A. increase gait velocity from 1.5 to 2.5 MPH
B. ambulate (I) in an open environment without an assistive device
C. increase (L) tibialis anterior MMT to 3+/5 in two weeks
D. increase standing reach test from 10 inches to 14 inches

**Motor System**

43. Which motor control system is primarily responsible for controlling stability and transport tasks?
A. segmental reflexes
B. proprioceptors
C. dorsolateral
D. ventromedial
44. Which of the following activities best portrays parallel activity in the two components of the motor control system?
   A. lying on the couch using the remote control
   B. maintaining balance while seated on a Swiss ball
   C. walking while texting
   D. drinking a glass of wine while reclining in a hot tub

45. If the motor control system is viewed as having 3 levels, what aspect of movement is controlled by the highest level?
   A. selecting the goal of the movement and the strategy for achieving the goal
   B. specifying the temporal and force parameters of the movement plan
   C. activating the motor units that generate the movement pattern
   D. detection of movement errors

46. Postural sway (the maintenance of static erect posture in the absence of a movement command) is auto regulated by the muscle spindles in antagonistic muscles about a joint. What type of control strategy is being used to maintain this position?
   A. positive feedback
   B. negative feedback
   C. co-contraction
   D. open loop

47. Coordinated movement involves orchestrating the activity of prime movers, secondary movers, stabilizers, neutralizers and antagonists. While sitting on a bench and drinking a cup of tea, which group of muscles is turned on first? In the picture shown here, which area of the primary motor cortex (M1) would turn on first to control that movement?
   A. A
   B. B
   C. C
   D. D

48. Which of the following are the symptoms produced by the lesion shown here?
   A. spastic paralysis and hyperreflexia in the muscles of the appendicular skeleton in L2 myotome on the left
   B. spastic paralysis and hyperreflexia in the muscles of the axial skeleton in L2 myotome on the left
   C. flaccid paralysis, areflexia, and atrophy in the muscles of the axial skeleton in L2 myotome on the right
   D. flaccid paralysis, areflexia, and atrophy in the muscles of the appendicular skeleton in L2 myotome on the right

49. The function of a Golgi tendon organ is to:
   A. reflexively regulate the force of a muscular contraction
   B. inform the CNS which motor units are contracting
   C. protect the muscle from excessive force via inhibitory reflex connections
   D. inform the CNS when threshold length has been exceeded

50. Which of the following are the symptoms produced by the lesion shown here?
   A. absence of discriminative touch on the side of the lesion, generalized below the lesion level
   B. spastic paralysis and hyperreflexia on the side opposite the lesion, generalized below the lesion level
   C. flaccid paralysis, areflexia, and atrophy at the level of the lesion on the right
   D. absence of pain and temperature sensation on the side opposite the lesion, generalized below the lesion level
Motor Control
51. If the motor control system is viewed as having 3 levels, what aspect of movement is controlled by the lowest level?
   A. selecting the goal of the movement and the strategy for achieving the goal
   B. specifying the temporal and force parameters of the movement plan
   C. activating the motor units that generate the movement pattern
   D. detection of movement errors

52. During a movement sequence the sensory system sends information to the central nervous system allowing it to monitor the movement and correct movement errors. This type of control is:
   A. open loop
   B. reciprocal inhibition
   C. central pattern generator
   D. closed loop

53. During a voluntary eye movement the cortical control center sends a command to both the intrafusal and extrafusal muscle fibers of the extraocular muscles. The message to the intrafusal fibers is an example of what type of control?
   A. feedforward
   B. feedback
   C. reflex
   D. stimulus - response

Task Analysis
54. Which of the following is a unique ability required of a performer in an open environment?
   A. utilizing feedback to make decisions about subsequent performances
   B. detecting movement errors
   C. identifying regulatory conditions
   D. prediction

Answer questions 55-59 using the matrix below

Classify the following activities by placing the corresponding number in the appropriate cell of Gentile’s taxonomy of tasks. (2 points each)
55. Sitting and taking a single drink from a cup of tea
56. Batting a balloon back and forth with the PT while seated on a mat table
57. Maintaining standing balance on a foam pad with eyes closed
58. Performing 3x10 reps of bench press and lat pull on Universal weight machine in PT gym
59. Walking on a treadmill at 2 mph and performing bicep curls with 5 pound dumbbells

\[
\begin{array}{ccc|cc}
\text{Environmental Context} & \text{Body Stability} & \text{Body Transport} \\
\hline
\text{Stationary} & \text{No intra-trial variability} & \text{No Manipulation} & \text{Manipulation} \\
\hline
\text{Inter-trial variability} & \text{Manipulation} & \text{Manipulation} \\
\hline
\text{Stationary} & \text{No intra-trial variability} & \text{No Manipulation} & \text{Manipulation} \\
\hline
\text{Motion} & \text{Inter-trial variability} & \text{Manipulation} \\
\hline
\end{array}
\]
Anatomy: label the structure/process indicated (1 point each)
Assignment 3

Use the matrix provided to complete the assignment by describing the components of your conceptual framework of clinical practice and the justification for your choices. (20 Points)

<table>
<thead>
<tr>
<th>Component</th>
<th>Describe your selection</th>
<th>Describe your justification</th>
<th>Pts</th>
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<tbody>
<tr>
<td>Model of PT practice</td>
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<td>5</td>
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<tr>
<td>Model of Disablement</td>
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<tr>
<td>Hypothesis-Oriented clinical practice</td>
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<td>5</td>
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<tr>
<td>Theory of motor control</td>
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Name ____________________________

This assignment should be written in the first person, stating YOUR conceptual framework for PT and explain why you made your choices. I don’t see how you could describe and justify your choices in less than 2 pages.