Course Information:

Title: Clinical Application of Diagnostic Imaging
Number: PHTH 752
Credit Hours: 2
Semester: Fall 2017
Location: Online – University of South Dakota, Vermillion SD
Meeting Times: Variable – see attached schedule

Course Instructor Information

Course Director:
Roy W. Osborn, PT, DPT, MS, OCS
rosborn@usd.edu
605.212.0509 (cell)
Office Hours: by appointment

Course Description:

Course Prerequisites
Meeting the requirements and enrolled in the University of South Dakota Physical Therapy program transitional Doctor of Physical Therapy program of study.

Graduate Catalog Description/Expanded Course Description
This is a required course for students in the transitional Physical Therapy clinical doctorate program. Pre-requisite: Registered in the transitional Doctor of Physical Therapy Curriculum. This physical therapy course will contain content including the basic principles of diagnostic imaging as well as the evidence for application of diagnostic imaging in patient care. In addition, this course will focus on the application of basic principles and the available evidence related to diagnostic imaging in the clinical setting with specific patient/client conditions. This is a required course for students in the transitional Physical Therapy doctorate program.

Expanded Course Description
The emphasis in this course is on understanding and visualizing of normal imaging as well as a variety of pathologic findings utilizing a variety of imaging modalities. The course is focused primarily in the musculoskeletal area of clinical practice but also contains information involving the nervous system. The student will learn to apply knowledge of pathologic findings on diagnostic imaging and knowledge of patient pathology to develop or modify a plan of care for a patient. The student will also learn to apply knowledge of diagnostic imaging in the differential diagnosis process for patient examination as well as intervention. This is a required course for students in the transitional Physical Therapy doctorate program.
Course Teaching Methodology/Instruction Methods
This course is primarily taught as a lecture intensive course utilizing audio PowerPoint presentations delivered through Desire 2 Learn (D2L). The student may also participate in small group learning with selected components of the course (i.e. Discussion Board) through web based instruction such as Desire 2 Learn (D2L).

Required Texts and Reading:

Recommended Supplementary Materials:
• Anatomy textbook (Moore or Grays)
• Pathology textbook by Goodman, Fuller
• Atlas of Normal Roentgen Variants That May Simulate Disease by Keats

**STUDENT LEARNING OUTCOMES**

Upon completion of this course, students will:

<table>
<thead>
<tr>
<th>Objectives</th>
<th>*APTA’s Preferred Curricular Model for the tDPT Program Module MODULE#</th>
<th>**APTA Competencies of the tDPT Graduate (see below)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Describe the fiduciary responsibility physical therapists have with respect to diagnostic imaging in the presence of abnormal findings</td>
<td>30</td>
<td>K, M</td>
</tr>
<tr>
<td>2. When interpreting diagnostic images, practice in a manner consistent with the professional code of ethics</td>
<td>33</td>
<td>F, K</td>
</tr>
<tr>
<td>3. Understand the consequences of interpretation of diagnostic images and radiologist reports</td>
<td>33</td>
<td>K, M</td>
</tr>
<tr>
<td>4. Act with integrity in all interactions with patients/clients when dealing with diagnostic imaging</td>
<td>33</td>
<td>F, K, M</td>
</tr>
<tr>
<td>5. Communicate the findings of diagnostic images to patients/clients in a culturally competent manner</td>
<td>13, 16</td>
<td>C, E, K</td>
</tr>
<tr>
<td>6. Act with consideration for patients’/clients’ needs when communicating the findings of diagnostic images</td>
<td>13</td>
<td>K, M</td>
</tr>
<tr>
<td>7. Utilize clinical reasoning when interpreting the findings on diagnostic images</td>
<td>1, 2, 3, 4, 5, 7, 16</td>
<td>A</td>
</tr>
<tr>
<td>8. Utilize information technology available when reviewing diagnostic images</td>
<td>7</td>
<td>A</td>
</tr>
<tr>
<td>9. Critically evaluate and apply best evidence related to diagnostic imaging</td>
<td>9</td>
<td>B, L</td>
</tr>
<tr>
<td>10. Integrate best evidence for applying diagnostic imaging findings to patient practice</td>
<td>9</td>
<td>B, L</td>
</tr>
<tr>
<td>11. Perform evidence based reviews for various diagnostic imaging topics</td>
<td>9</td>
<td>B</td>
</tr>
<tr>
<td>12. Interpret diagnostic imaging data when making clinical judgments’ regarding patients/clients</td>
<td>7</td>
<td>D</td>
</tr>
<tr>
<td>13. Collaborate with other professionals on most appropriate plan of care for patients/clients based on findings from diagnostic images</td>
<td>33</td>
<td>I</td>
</tr>
<tr>
<td>14. Monitor and adjust plan of care by incorporating findings from diagnostic imaging</td>
<td>16</td>
<td>--</td>
</tr>
<tr>
<td>15. Apply the principles of prevention to patients with osteoporosis based on DEXA scan</td>
<td>7, 12, 20, 27</td>
<td>A, J</td>
</tr>
</tbody>
</table>

**The following above objectives are related to the following APTA Competencies of the tDPT Graduate:**

A. Critical Inquiry and Clinical Decision Making: Demonstrate clinical decision making skills, including clinical reasoning, clinical judgment, and reflective practice. (Objectives 7, 8, 12)
B. Critical Inquiry and Clinical Decision Making: Critically evaluate published studies related to physical therapy and demonstrate the ability to apply knowledge from these studies in a scientific manner and to appropriate populations. (Objectives 9-11)

C. Communication: Expressively and receptively communicate with patients/clients, family members, caregivers, practitioners, other consumers, payers, and policymakers. (Objective 5)

D. Evaluation: Synthesize data from the examination and analyze data to make clinical judgments regarding patient/client management. (Objective 12)

E. Individual and Cultural Differences: Display sensitivity to individual and cultural differences in all professional interactions. (Objective 5)

F. Professional Behavior: Demonstrate professional behaviors that are consistent with a doctoring profession in all aspects of practice. (Objectives 2, 4)

G. Professional Behavior: Practice in a manner consistent with the professional code of ethics. (Objective 2)

H. Professional Behavior: Internalize responsibility and accountability as a member of the doctoring profession. (Objectives 1, 3)

I. Screening: Identify health risks when patients/clients need further examination or consultation by a physical therapist or when they need to be referred to other health professionals or community resources. (Objective 13)

J. Prevention, Health Promotion, Fitness and Wellness: Provide services that are culturally sensitive to individuals, groups, and communities that reduce risk for injury or illness. (Objective 15)

K. Management of Care Delivery: Manage primary, secondary, and tertiary care using the patient/client management and disablement models. (Objectives 1 – 6)

L. Management of Care Delivery: Incorporate evidence/consensus-based practice in the management of patients/clients. (Objectives 9, 10)

M. Professional Responsibility and Advocacy: Demonstrate social responsibility, citizenship, and advocacy including participation in community and human service organizations and activities. (Objectives 1, 3, 4, 6).

Course Requirements:

COURSE PREREQUISITES/COMMUNICATION:

Students enrolled in this course are required to have internet access and a current USD email address. Your computer should run a current version of your computer’s operating system, antivirus program, and programs used during the course (namely, Microsoft Word, PowerPoint, and Adobe Reader). All course communication will be conducted by D2L email or Discussion Board. I will try to respond within 2 weekdays to any email or Discussion Board postings. Messages posted on Friday or on the weekend will be answered by Tuesday of the following week. I have the same expectation for students. Please respond to my emails and postings accordingly.

Please refer to the technology requirements listed in the “On-Line Orientation Guide” found on the USD Continuing Education webpage at:

Please contact the USD Information Technology Services help desk for assistance with D2L. They can be reached by telephone at 605-677-5028, by email at helpdesk@usd.edu, or on the web at www.usd.edu/its/helpdesk.

COURSE ASSIGNMENTS

Class Participation

Class participation is an important aspect of this course; it is important to establish dialogue & facilitate thought processes that could have a positive impact on patient/client care. To meet the criteria for class participation each student will need to post a summer recap to the instructor & other students on the D2L discussion board within the first week of class. Each student will also be required to post at least one clinical
**situation** involving diagnostic imaging related to a patient/client that the student has worked with presently or in the past. This post should be placed on the D2L discussion board. The dialogue should be closely related to a diagnostic image and may link to a specific component of the disease process for that specific patient. Students are encouraged to respond back to the posts of other students & provide insight from their experiences &/or ask questions to gain knowledge regarding the application of diagnostic imaging.

Participation points will be earned for the patient/client situation post. This post will be worth 2 points; please refer to the rubric outlining the distribution of points for the posts. Students may respond to any or all of the posts to add information regarding their experience with diagnostic imaging or ask questions to gain further insight to the application of diagnostic imaging. The course instructor will monitor these posts and may provide additional input as well.

**Grading Rubric: Patient/Client Situation Post**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Maximum Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correlation of imaging findings to clinical exam findings</td>
<td>1</td>
</tr>
<tr>
<td>Determine how the findings impact the plan of care</td>
<td>2</td>
</tr>
</tbody>
</table>

**Grading Rubric: Post related to fellow student patient/client situation post**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Maximum Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability to synthesize information in fellow student post</td>
<td>1</td>
</tr>
<tr>
<td>Professional presentation of post</td>
<td>2</td>
</tr>
</tbody>
</table>

There should be no grammatical errors in the post.

**WRITING ASSIGNMENT:**

**Clinical Correlation Papers**

- Students will work independently for these papers.
- Students will be assigned 10 clinical scenarios by the course instructor at various times throughout the course.
- A clinical scenario will be presented that will include images. Each student will be required to:
  1. Document the findings on the image
  2. Correlate imaging findings to clinical examination findings
  3. Determine possible effects the findings on the image may have on a plan of care.
- More detailed information pertaining to this assignment will be posted on D2L.
- Each paper will have a deadline date that will be posted in D2L.
- Completed papers must be placed in the D2L drop box.
- Instructor feedback on this paper will take place within 2 weeks of the receipt of the paper or the due date, whichever is sooner.

**Grading Rubric: Clinical Correlation Paper Written Assignment**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Maximum Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accuracy of assessment of pathology found on the image</td>
<td>0.3</td>
</tr>
<tr>
<td>Correlation of imaging findings to clinical exam findings</td>
<td>0.2</td>
</tr>
<tr>
<td>Determine how the findings impact the plan of care</td>
<td>0.5</td>
</tr>
</tbody>
</table>

There should be no grammatical errors in the paper. The instructor has the right to return any paper for revision if grammatical errors are present.
**STUDENT ASSESSMENT**

There will be four written examinations and a total of 10 (ten) clinical correlations in this course. The final written examination will be comprehensive for all imaging content.

**Written Examination Descriptions**

All written examinations will be computer based. Format will often be multiple choice, but may also include true/false, short answer, short essay or matching. The final written examination will be comprehensive for all diagnostic imaging content.

**Written Exams/Quizzes**

Each student will be responsible for completing online exams/quizzes that will be over the lecture & reading assignments. There will be an exam/quiz after every three to four weeks on average for a total of four exams/quizzes. Quizzes/exams will be given electronically and will be available to the student beginning at 7AM on the day following the completion of each topic presented as noted in the course schedule. Quizzes 1-3 will be available for 7 days. Quiz 4 (comprehensive final exam) will be available for 5 days. Access to the content quizzes will terminate upon the date and time outlined in the course schedule. It is expected that each student complete the quizzes independently; however, use of written resources such as course notes and textbooks will be permitted. You will be able to re-take any of the quizzes one time & the highest test score will count towards your grade. There will be a pre-determined time limit for each exam/quiz. Your quiz/exam will be graded immediately by D2L. However, occasionally the grade posted will be adjusted due to the method D2L uses to grade each question. Within 48 hours of completing each exam, a instructor completed/updated grade will be posted in D2L to allow the student to decide if he/she would like to take the second opportunity for that exam.
Written Exam Dates                  Due Dates                  % of Final Grade
Written Examination #1              9/11 - 9/17                20
Written Examination #2               10/19 - 10/25               20
Written Examination #3               11/16 - 11/22               20
Written Examination #4               12/12 - 12/18               20
(comprehensive)
Total                                                           85%

COURSE GRADING

Evaluative Criteria for the Course

<table>
<thead>
<tr>
<th>Evaluative Criteria</th>
<th>Due Date</th>
<th>Maximum Possible Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction/Summer activity post</td>
<td>Aug 28</td>
<td>1</td>
</tr>
<tr>
<td>Patient/client situation post</td>
<td>Sep 11</td>
<td>2</td>
</tr>
<tr>
<td>Post related to fellow student patient/client situation post</td>
<td>Sep 18</td>
<td>2</td>
</tr>
<tr>
<td>Clinical Correlation papers</td>
<td>See Schedule</td>
<td>10</td>
</tr>
<tr>
<td>Content Exams/Quizzes (4 quizzes)</td>
<td>See above</td>
<td>85</td>
</tr>
</tbody>
</table>

Late work
Each student should complete the above listed required assignments in a timely manner. Each assignment should be turned in no later than 11:59 PM on the date it is due. Late submissions will result in a 10% reduction in the assignment grade for each business day the assignment is late, unless prior approval is given by the instructor.

Failure to complete an examination during the scheduled dates
Each examination is available for at least 5 consecutive days. It is expected that all attempts will be completed for each examination within the specified dates for the exam. If a student does not complete an examination within the specified dates, the student will receive a 10% reduction in the possible points available for each business day the examination is delayed unless prior arrangements are made with the course director.

Final grades for this course will be computed based on the scoring as noted below:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>100.0-89.5</td>
</tr>
<tr>
<td>B</td>
<td>89.4-79.5</td>
</tr>
<tr>
<td>C</td>
<td>79.4-69.5</td>
</tr>
<tr>
<td>D</td>
<td>69.5-59.5</td>
</tr>
<tr>
<td>F</td>
<td>&lt;59.5</td>
</tr>
</tbody>
</table>

POLICIES

Professional Behavior
This syllabus serves as contract between the student and instructor but may be modified if deemed appropriate by the instructor. The student is referred to the Department of Physical Therapy Student Handbook, Section 2-IIIC, for Physical Therapy Program expectations regarding Professional Behavior Requirements.

Students, when posting questions or statements on D2L for discussion purposes, please show courtesy and professionalism to all those in the class. When discussing a patient case (i.e. using the case as an exemplar to a point you are trying to make), please maintain patient confidentiality. Finally, please submit discussions on time, type in complete sentences, utilize proper AMA formatting (when appropriate), use appropriate grammar, and follow the discussion board guidelines.
**Attendance and Make-up Policy**
The student is expected to view and complete all readings/assignments. As this is an on-line environment, you are responsible for your progress in this course. If there are any conflicts with dates and times for assignments, please contact the course instructor. The student is referred to the Department of Physical Therapy Student Handbook Section II-A for further information regarding Attendance and Course of Study Preparedness.

**Freedom in Learning**
Students are responsible for learning the content of any course of study in which they are enrolled. Under Board of Regents and University policy, student academic performance shall be evaluated solely on an academic basis and students should be free to take reasoned exception to the data or views offered in any course of study. Students who believe that an academic evaluation is unrelated to academic standards but is related instead to judgment of their personal opinion or conduct should contact the dean of the college which offers the class to initiate a review of the evaluation.

**ADA Policy**
Any student who feels s/he may need academic accommodations or access accommodations based on the impact of a documented disability should contact and register with Disability Services during the first week of class. Disability Services is the official office to assist students through the process of disability verification and coordination of appropriate and reasonable accommodations. Students currently registered with Disability Services must obtain a new accommodation memo each semester. For information contact: Ernetta L. Fox, Director; Disability Services; Room 119 Service Center; (605) 677-6389; dservices@usd.edu.

**Inclusiveness & Diversity**
The University Senate approves and endorses the following statement: “The University of South Dakota strives to foster a globally inclusive learning environment where opportunities are provided for diversity to be recognized and respected.”

The University of South Dakota, School of Health Sciences is committed to an environment of inclusiveness in classroom and clinical settings that honors the richness of diverse perspectives and inter-professional practice through valuing diverse traditions, heritages, and experiences.

**Plagiarism and Academic Dishonesty**
Plagiarism is defined as using the words and/or ideas of another and representing them to be your own, without proper credit to the author or source. Whether intentional or unintentional, plagiarism will result, at a minimum, in a grade of zero for that assignment.

Academic dishonesty is defined as, but not limited to the following: copying a classmate’s work, using crib notes during a test, stealing or conveying examination questions, informing classmates of information on practical examination, maintaining library materials so that classmates cannot utilize the materials, falsely representing clinical cases, turning in written assignments that are not authentic, not referencing sources used in assignments (including websites), claiming work that you did not do, or fabrication of any sort.

The University of South Dakota Board Of Regents has established a policy for plagiarism that is firmly upheld by the USD Physical Therapy Program. No credit can be given for a dishonest assignment. At the discretion of the instructor, a student caught engaging in any form of academic dishonesty,
including plagiarism, may be:
- Given a zero for that assignment.
- Allowed to rewrite and resubmit the assignment for credit.
- Assigned a reduced grade for the course.
- Dropped from the course.
- Failed in the course.

The USD Physical Therapy Program reserve the right to expel a student, based upon the severity of the academic transgression. Students are referred to the Department of Physical Therapy Student Handbook, Section 2-V, for Physical Therapy Program expectations regarding Academic Integrity.

ADDITIONAL INFORMATION

When you have a question, you should contact:
- E-mail/ Login/Password Issues: USD Help Desk (605) 677-5028 or helpdesk@usd.edu
- D2L Issues: USD Help Desk (605) 677-5028 or helpdesk@usd.edu
- Computer Issues: USD Help Desk (605) 677-5028 or helpdesk@usd.edu
- To answer many of your questions, please review the “On-Line Orientation Guide” http://www.usd.edu/~/media/files/usd-online/online-orientation-guide.ashx?la=en