

SYLLABUS: Introduction to Imaging Interpretation FALL 2011

Course Number and Name: DI-4322 Introduction to Imaging Interpretation

Course Hours: Lecture 2 hrs Lab 2hrs

Course Credits: 3 credits

Schedule: All lectures meet in the LRC 203 ; lab meets in the Ligon bldg (LB-1).

Monday 09:00 am (lec) Thompson

Wednesday: 03:00 pm (lab) Batenchuk/Thompson

Friday 08:00 am (lec) Thompson

Friday 02:00 pm (lab) Batenchuk /Thompson

Contact Information:

Course Instructors:

Jeffrey R. Thompson, DC (281) 998-6071 jthompson@txchiro.edu

Brian Batenchuk,DC (281) 998- 5713 bbatenchuk@txchiro.edu

Instructor offices are in the Smith Building

Office Hours – office hours are by appointment; suggested times available for appointments

3-5pm Monday 12-1pm Tuesday 3-5pm Thursday

Specific appointments can be arranged with the instructor via email or discussion before/after the class.

Phone and email:

Jeffrey R. Thompson, DC (281) 998-6071 jthompson@txchiro.edu

Brian Batenchuk,DC (281) 998- 5713 bbatenchuk@txchiro.edu

Other Contact Information: the mailbox at edvance360 website can also be used to contact the instructor.

Edvance360 Address: <http://edvance360.com/txchiro>

Course Materials:

REQUIRED TEXT:

- Essentials of Skeletal Radiology 3rd edition. Yochum and Rowe;

Lippincott (Williams and Wilkens) Pub. 2004 ISBN: 0683093290 / ISBN-13: 9780683093292

RECOMMENDED REFERENCES:

- Skeletal Imaging- Atlas of the Spine and Extremities 2nd edition; Taylor J & Resnick D Saunders pub. 2009 ISBN: 978-1-4160-5623-2
- Clinical Imaging: With Skeletal, Chest and Abdomen Pattern Differentials ; Marchiori Mosby pub, 1999 ISBN: 0-8151-8616-9

HIGHLY RECOMMENDED REFERENCE:

- Normal Radiographic Variants Which May Simulate Disease; Keats T -(current edition is good, but even an older one, if you can find it, would be useful). Please use library copy!

MATERIALS:

Penlight.- as the room will be darkened during presentation of slides for both lecture and testing, a penlight or other SMALL light source is a requirement. Do not bring large flashlights or other large light sources, as they are a distraction to others. Cell phones and other electronic communication devices are NOT permitted during examinations!

Course Packs / Notes:

Appended class notes/PowerPoints are available under the Resource tab for this course on the Edvance 360 website. Please note that these are provided as a help only- they are not intended to be a comprehensive resource and will not include all materials presented in class- you are expected to take your own notes during class.

Course Description:

Following a brief discussion of basic physical principles of x-ray production and film exposure, the student learns to recognize/identify x-ray appearance of normal axial and appendicular musculoskeletal anatomy and common normal variants of the musculoskeletal system. Lectures center around presentation of projected images and lab sessions provide small group instruction at the viewbox.

Lecture:

- Material will be presented in the form of PowerPoint lectures with incorporated diagnostic images. Many of the images used in class presentations are previously published and copyrighted- complete class presentations are not made available to students. If you have a copy of lectures or tests that were not provided by the instructor, they were stolen. Students are expected to take notes. Consistent class attendance is therefore critical to the understanding of this material and excessive absences will result in penalties as noted in TCC attendance policy. Student attendance and attention during class is therefore important. Questions from students during class regarding presented or assigned materials are welcomed and expected.

Lab

- Students learn to manipulate and examine sample diagnostic images in a computer-based lab format. Digital x-ray images are reviewed with opportunity for students to more closely examine, review and gain hands-on experience in imaging diagnosis. The lab is located in the Ligon Bldg (LB-

Additional course resources

- The student is strongly encouraged to review sample case material via internet links. A primary resource is online material posted on MyPacs.net, which can be easily accessed by entering topics into the search engine at this website. Other useful internet links are posted on Edvance360 website for this course. (Edvance360 Address: <http://edvance360.com/txchiro>)
- A reading list is posted on the Edvance360 website under the Resources tab. This list the required text for this class (Essentials of Skeletal Radiology, 3rd ed)

CCE / TCC Competencies:

- Recognize the importance and necessity of diagnostic studies as they relate to the development of an accurate patient profile.
- Understand the significance of findings, values and ranges of values adequate to differentiate normal from abnormal findings obtained from diagnostic studies (x-rays).
- Interpret radiographic findings on presented plain film x-ray studies to recognize and differentiate normal from abnormal findings
- Develop the diagnosis by recognizing and correlating significant information
- Integrate data in a manner that facilitates the formulation of a diagnosis.
- Recognize limitations of routine plain film x-ray procedures and recognize indications for obtaining appropriate advanced studies.

Learning Outcomes:

- The student will be able to identify normal radiographic anatomy of the osseous and soft tissues as demonstrated on plain x-ray studies of the musculoskeletal system.
- The student will be able to recognize and identify common normal variants and anomalies of the musculoskeletal system as demonstrated on plain x-ray studies of the musculoskeletal system.
- The student will be able to identify

Learning Objectives:

- Recall important clinical and radiographic information related to the normal variant and/or anomalous musculoskeletal conditions affecting the spine, as presented in class.
- Recall important clinical and radiographic information related to the normal variant and/or anomalous musculoskeletal conditions affecting the appendicular skeleton, as presented in class.
- Analyze plain film images of the musculoskeletal system and identify normal radiographic anatomy of the spine and appendicular skeleton.
- Analyze plain film images of the musculoskeletal system and diagnose common normal variant and anomalous findings of the musculoskeletal system.

- Recognize and identify basic normal radiographic anatomy of the chest as demonstrated plain film radiographs.
- Identify soft tissue calcifications incidentally seen on musculoskeletal imaging of the spine.
- Identify salient features of selected normal and normal variant musculoskeletal anatomy as demonstrated on CT and MR imaging when provided as a supplement to plain film x-rays.
- Recognize imaging planes and basic spinal anatomy demonstrated on example CT and MR images.
- Recall applications for examples of advanced imaging procedures as presented in class.

Teaching Philosophy:

A teacher or mentor can provide the student with a number of things, important among which are knowledge (facts and figures) and personal application examples (life experience, through which the ability to discriminate and apply knowledge in an efficient and effective manner has been developed- a certain level of pragmatism). The learning environment has changed significantly over time. In the past, information and information access was limited to a degree that a teacher or mentor was a critical primary source of knowledge facts and figures. That contrasts with the information overload that exists in today's environment. On any given topic, volumes of material are instantly available online or in the library. Regarding knowledge, the instructor today is not so much the source but the sifter of facts and figures. The instructor must discriminate and collect course material that is relevant and essential, organize it concisely, present it clearly, and direct the student toward whatever specific ancillary resources may be useful, so the student is not lost in a torrent of irrelevant data. Life experience in their discipline also allows the instructor to determine what level(s) of mastery a student will need to achieve in the course material in order to be successful. The instructor helps the student achieve desired mastery by designing a course curriculum that clearly identifies the level of competence or skill level necessary for material within that course (memorization, recognition, synthesis, etc) and by designing a course experience (lectures, exercises, practical assignments, etc) that will build and reinforce student competence. The student must be cognizant of the fact that, although an instructor may bring decades of experience into the classroom, the time constraints of the classroom limit teaching to samples/examples and much of the responsibility for practice and experience with material presented rests with the student.

Student Responsibilities:

The student is expected to act in accordance with applicable TCC policies as outlined in the TCC Student Handbook and abide by the following course policies.

Attendance: Regular attendance is expected; no "extra credit" is assigned for attendance. TCC policy applies. (see below)

Missed exams or assignments:

Students are advised to familiarize themselves with the revised (June 2009) (see below)

Academic Dishonesty: As per college policy. If you are offered any "old exams" for this course, they are stolen material and having them in your possession may subject you to those penalties outlined in TCC Policy on Academic Integrity. Refer to student handbook for more information.

Use of Electronic Devices

- NOTE:** The opportunity to use electronic devices in the classroom is a privilege that can be immediately suspended if a student is in violation of this policy.
- Distracting or disruptive use of any electronic device is not permitted during class periods. (Distracting or disruptive use will include but not be limited to examples below.)
- Cell phones: Students may not use their cell phones during classes or exams- not for calls, not for texting, not for light, not for pictures, not for anything. If you are expecting an important call, put your phone on silent alarm, sit near the door and step outside the classroom to take the call. Return quietly to your seat. Failure to return will be recorded as an unexcused absence.
- Personal Computers: You may use your computer to take notes during class. You may not use it for ANY form of personal communication during class; you may not use it to check your email; you may not use it for ANY form of entertainment, including but not limited to U-tube, videos, movies or general web-surfing.
- TCC computers: You may not use the computers in the labs for any other purposes than those to which you are specifically directed by the instructor. You may not use them for ANY form of personal communication during class; you may not use them to check your email; you may not use them for ANY form of entertainment, including but not limited to U-tube, videos, movies or general web-surfing. You may not upload or download anything to/from these computers without the specific instruction or permission of an instructor.
- Other devices: The use of any other electronic recording or communication device in the classroom must be specifically approved by the instructor.

Tutoring:

- As per college policy. Refer to student handbook for more information.

Learning Disabilities/Impairments

- Those students who may require additional time or other special accommodations for testing due to learning disability MUST contact the TCC Counseling Dept. at the beginning of the trimester in order to allow sufficient time for arrangements to be made. The presence of a disability (diagnosis alone) is insufficient, although it must be established before any modification of standard testing protocols/procedures can be requested. To ensure the validity of any request, NO accommodation for special testing circumstances will be made without prior review and recommendation from the counseling department of TCC. Texas Chiropractic College policy is designed to comply with the ADA and Section 504 as well as the guidelines outlined by the Association on Higher Education and Disability (AHEAD).

Course Content and Outline:

❖ CLASS SCHEDULE: SPRING 2011

➤ This is a guideline and subject to change as deemed necessary by the instructor

❖ WEEK	❖ DATE	❖ TOPIC/ACTIVITY
❖	❖	❖
❖ 1	❖	❖ Physical principles of x-ray imaging; Review bone anatomy/physiology;
❖ 2	❖	❖ Normal Cervical spine anatomy and anomalies
❖ 3	❖	❖ Cervical spine anomalies; lines of mensuration - cervical
❖ 4	❖	❖ Normal anatomy and anomaly- Thoracic and Lumbar spine;
❖ 5	❖	❖ Thoracic and lumbar spine anomaly; Lines of mensuration
❖ 6	❖	❖ Scoliosis ;
❖	❖	❖ Inter-term exam
❖ 7	❖	❖ Spondylolysis and Spondylolisthesis
❖ 8	❖	❖ Normal anatomy and variants of the hip and pelvis; Lines of mensuration - Hip and Pelvis
❖ 9	❖	❖ Normal anatomy lower extremity; Anomalies of lower extremity
❖ 10	❖	❖ Normal anatomy and variant appearances of the upper extremity
❖ 11	❖	❖ Abdominal calcifications and other soft tissue findings
❖	❖	❖ Interterm exam
❖ 12	❖	❖ Skeletal dysplasias
❖ 13	❖	❖ Skeletal dysplasias and overview of special imaging procedures
❖ 14	❖	❖ Finals week
❖ 15	❖	❖ Finals week

Grade Method and Scale: (This is the policy of TCC and must not be altered.) Faculty has the discretion for setting the policy of rounding up or down and should be included in this section.

➤ **Testing/Grading:**

1. Tests will be in both scantron format (ie., multiple choice, true/false, matching and extended matching may be used), as well as **short answer/fill-in format for the practical portions.** Projected images will be shown during each examination for the practical portion of the exams and you will be expected to recognize salient features for identification and/or differential diagnosis without a word list or other prompts.
2. There are **no individual “extra credit” opportunities** for this class.
3. At least 2 announced quizzes will be given during the course. The **quiz average will account for 10% of the course grade.**
4. Two intra-term exams are anticipated, the average of which will account for 40% of the course grade
5. Appointments to review an exam must be scheduled for the 2 week period following the time the grades for that exam are posted. In the case of the final examination, the student may review the exam after finals week during the break (pending Dr. Thompson’s schedule) or the first two weeks of the next trimester.

❖ Grade Scale (%)	❖	❖ FINAL GRADE BREAKDOWN	
❖ A (90-100)	❖	❖ Quizzes (average grade)	❖ 10%
❖ B (80-89)	❖	❖ Interterm Examination(s)	❖ 40%
❖ C (70-79)	❖	❖ Final Examination	❖ 50%
❖ F (below 70)	❖		
❖	❖	❖ TOTAL	❖ 100%
❖	❖		

INSTITUTIONAL POLICY INFORMATION:

Attendance Policy:

Regular and punctual attendance of all scheduled classes and laboratories is expected. A student is subject to academic penalty if absences exceed 10%. Absences exceeding 20% subject a student to dismissal from a course. Three incidences of tardiness may constitute an absence. If justifiable cause can be shown for the absenteeism, the student may be permitted to make up missed assignments and maintain enrollment in the class.

Missed Examinations: Students must notify faculty before missing any examination. If an examination is missed for good and sufficient reason **and** the student has notified the faculty member in advance, a make-up examination may be given subject to a fee of \$40.00. The fee for the make-up examination is a minimum of \$75.00 if a standardized patient is required for the exam. Additional required standardized patient hours may increase this \$75.00 minimum fee. All intra-term examination must be made up prior to final examinations. Missed final examinations must be made up within the first week of the next semester. A student may be allowed a maximum of two missed examination dates for good and sufficient reason per trimester. These two missed examination dates are for all enrolled courses in a trimester, not for each individual course. Any request for additional make-up examinations will require documentation substantiating the absence and must be approved

by the Dean of Academic Affairs. Additional information on administration of classroom and institutional policies can be found in the TCC Student Handbook.

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NOTE: Content of this syllabus may be altered by the instructor as deemed necessary. Significant changes will be announced in class and/or made public via email or electronic posting on the Edvance360 website.

Attachment #1:

To simplify the process of developing learning outcomes and objectives follow the procedure below.

Definition: A **domain** is a classification of knowledge and or clinical activity.

1. Determine if you are measuring a cognitive domain, a psychomotor domain or an attitudinal domain.
2. Under that domain determine which level of knowledge you are trying to assess. When viewing the charts below consider each “**level**” (noted in the grey boxes) as relating to the learning outcomes.
3. Courses that occur early in the curriculum should use level 1 and 2 action verbs while courses that occur later in the curriculum should use level 3 and 4 action verbs or those in a higher level.
4. It is very important that the verbs being considered are measurable
5. Those listed below are just a few of the possibilities.

Cognitive or Thinking Domain: Skills in the **cognitive domain** revolve around knowledge, comprehension, and critical thinking of a particular topic.

Level 1 - Recall		Level 2 - Interpretation		Level 3 - Problem-solving	
Knowledge - Requires learner to recall information	Comprehension - Requires learner to understand meaning	Application - Requires learner to use material in new way	Analysis - Requires the learner to break down material into component parts and describe its organizational structure	Synthesis - Requires learner to put together parts to create a new whole	Evaluation - Requires learner to judge the value or quality of material based on clearly defined criteria
1. Define	1. Describe	1. Apply	1. Analyze	1. Create	1. Assess
2. List	2. Discuss	2. Demonstrate	2. Compare	2. Design	2. Diagnose
3. Name	3. Explain	3. Interpret	3. Contrast	3. Formulate	3. Justify
4. Recall	4. Locate	4. Predict	4. Differentiate	4. Manage	4. Recommend
5. State	5. Summarize	5. Utilize	5. Solve	5. Synthesize	5. Support

Note: some verbs may be applicable within more than one category.

Psychomotor (Skills) Domain: Skills in the **psychomotor domain** describe the ability to physically manipulate a tool or instrument like a hand or a hammer.

Psychomotor objectives usually focus on change and/or development in behavior and/or skills.

Level 1 - Perception	Level 2 - Imitation	Level 3 - Practice	Level 4 - Adaptation
Requires learner to use the senses to obtain cues that guide motor activity	Requires learner to perform an action as demonstrated (imitation, trial and error)	Requires learners to perform learned skills habitually with confidence and proficiency	Requires learners to modify application of skill to fit special requirements or problems
1. Detect	1. Assemble	1. Assemble	1. Adapt
2. Isolate	2. Construct	2. Construct	2. Alter
3. Differentiate	3. Measure	3. Measure	3. Change
	4. Organize	4. Organize	4. Design
			5. Originate

Note: some verbs may be applicable within more than one category.

Attitudinal or Affective (Valuing) Domain: Skills in the **affective domain** describe the way people react emotionally and their ability to feel another living thing's pain or joy. Affective objectives typically target the awareness and growth in attitudes, emotion, and feelings.

The affective domain is concerned with changes (growth) in interests, attitudes and values.

Level 1 Receiving	Level 2 Responding	Level 3 Valuing	Level 4 Organization	Level 5 Internalization
Requires learner shows awareness of the benefits of a particular value, attitude or interest	Requires learner to show awareness of the benefits of a particular value, attitude or interest	Requires learner to attach personal worth to a particular value, attitude or interest	Requires learner to determine how new values, interests and attitudes relate to those already held	Requires learner to respond consistently according to a set of values
1. Accept	1. Choose	1. Complete	1. Consider	1. Administer
2. Follow	2. Demonstrate	2. Evaluate	2. Facilitate	2. Criticize
3. Listen	3. Discuss	3. Justify	3. Investigate	3. Enhance
4. Observe	4. Identify	4. Propose	4. Recommend	4. Question
5. Receive	5. Select	5. Suggest	5. Synthesize	5. Solve

Note: some verbs may be applicable within more than one category.

