NORTHWESTERN
UNIVERSITY

SCHOOL OF
CONTINUING
STUDIES

MED_INF 402-DL: Introduction to Clinical Thinking Syllabus   Spring 2012

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Course Description

This course provides an introduction to the clinical environment throughout the health center. It is designed for students not previously involved in clinical medicine and those trained in medicine outside the United States. The course features problem-based learning and traditional medical informatics task domains and covers medical terminology and basic pathophysiology. Topics include the clinical setting, eliciting information from patients, synthesizing the history and physical examination, establishing diagnosis, treatment planning, integrating evidence-based medicine, and using an intelligent medical record in a complex environment. This is a technologist-track course for students with little clinical experience. It is recommended before attempting core course work beyond MED_INF 403.

Text

Cutler, P. (1998). *Problem solving in clinical medicine: From data to diagnosis* (3rd ed.). Philadelphia, PA: Lippincott Williams & Wilkins.
[ISBN-13: 978-0683301670]

Software

None.

Prerequisites

None.

Learning Goals

The goals of this course are to:
- Describe the clinical decision making challenges of the current clinical care environment.
- Identify nursing, pharmacy, and physician clinical decision making techniques.
- Examine specific scenarios that reflect the complexity of applying an EHR context to clinical care.
- Explain future EHR approaches that will better address specific clinical care contexts.

Evaluation

The student's final grade will be determined as follows:
- Homework Assignments: 25%
- Discussion Board Participation / Small Group Presentations: 30%
- Final Presentation: 20%
- Final Exam: 25%

Grading Scale

A = 93%–100%
A- = 90%–92%
B+ = 87%–89%
B = 83%–86%
B- = 80%–82%
C+ = 77%–79%
C = 73%–76%
C- = 70%–72%
F = 0%–69%

Discussion Board Etiquette

The purpose of the discussion boards is to allow students to freely exchange ideas. It is imperative to remain respectful of all viewpoints and positions and, when necessary, agree to respectfully disagree. While active and frequent participation is encouraged, cluttering a discussion board with inappropriate, irrelevant, or insignificant material will not earn additional points and may result in receiving less than full credit. Frequency is not unimportant, but content of the message is paramount. Please remember to cite all sources—when relevant—in order to avoid plagiarism.

Proctored Assessment

None.

Attendance

This course will not meet at a particular time each week. All course goals, session learning objectives, and assessments are supported through classroom elements that can be accessed at any time. To measure class participation (or attendance), your participation in threaded discussion boards is required, graded, and paramount to your success in this class. Please note that any scheduled synchronous or "live" meetings are considered supplemental and optional. While your attendance is highly encouraged, it is not required and you will not be graded on your attendance or participation.

Late Work

Late assignments are generally not accepted without explicit permission from the instructor. Permission is only granted in the case of an emergency and in advance of the assignment due date. Late work, if accepted, may be subject to a penalty.

Learning Groups

Our teaching assistant will assign groups for the quarter based on locale and profession. It is with these small groups of three or four students that each student will complete the small group presentations; there will be two to three of these presentations this term. The group will also be responsible for a final presentation (with accompanying paper) that will be submitted towards the end of the term.

Academic Integrity at Northwestern

Students are required to comply with University regulations regarding academic integrity. If you are in doubt about what constitutes academic dishonesty, speak with your instructor or graduate coordinator before the assignment is due and/or examine the University Web site. Academic dishonesty includes, but is not limited to, cheating on an exam, obtaining an unfair advantage, and plagiarism (e.g., using material from readings without citing or copying another student's paper). Failure to maintain academic integrity will result in a grade sanction, possibly as severe as failing and being required to retake the course, and could lead to a suspension or expulsion from the program. Further penalties may apply. For more information, visit <www.scs.northwestern.edu/student/issues/academic_integrity.cfm>.

Plagiarism is one form of academic dishonesty. Students can familiarize themselves with the definition and examples of plagiarism, by visiting <www.northwestern.edu/uacc/plagiar.html>. A myriad of other sources can be found online.

Some assignments in this course may be required to be submitted through SafeAssign, a plagiarism detection and education tool. You can find an explanation of the tool at <http://wiki.safeassign.com/display/SAFE/How+Does+SafeAssign+Work>. In brief, SafeAssign compares the submitted assignment to millions of documents in large databases. It then generates a report showing the extent to which text within a paper is similar to pre-existing sources. The user can see how or whether the flagged text is appropriately cited. SafeAssign also returns a percentage score, indicating the percentage of the submitted paper that is similar or identical to pre-existing sources. High scores are not necessarily bad, nor do they necessarily indicate plagiarism, since the score does not take into account how or whether material is cited. If a paper consisted of one long quote that was cited appropriately, it would score 100%. This would not be plagiarism, due to the appropriate citation. However, submitting one long quote would probably be a poor paper. Low scores are not necessarily good, nor do they necessarily indicate a lack of plagiarism. If a 50-page paper contained all original material, except for one short quote that was not cited, it might score around 1%. But, not citing a quotation is still plagiarism.

SafeAssign includes an option in which the student can submit a paper and see the resultant report before submitting a final copy to the instructor. This ideally will help students better understand and avoid plagiarism.

Other Processes and Policies

Please refer to your SCS student handbook at <www.scs.northwestern.edu/grad/information/handbook.cfm> for additional course and program processes and policies.

Course Schedule

Important Note: Changes may occur to the syllabus at the instructor's discretion.
When changes are made, students will be notified via an announcement in Blackboard.

Session 1

Learning Objectives

After this session, the student will be able to:

- Identify three examples of competing agenda items for patient visits.
- Distinguish between open-ended and close-ended questions.
- Describe when closed-ended questions are required.
- Describe what is meant by *active listening*.
- Recite full characterization of symptoms.
- Describe the differences between the history taking approaches of senior physicians and students.
- Determine five ways informatics technology can augment clinical encounter processes.

Course Content

Textbook Reading

Cutler, Chapters 1 and 2

Online Reading

Makoul, *An Evidence-Based Perspective on Greetings in Medical Encounters*

Baker, *What Else? Setting the Agenda for the Clinical Interview*

Rand Report, *Can HIT Lower Costs and Improve Quality?*

National Academies Press, *Immediate Steps and Strategic Directions*

Wyatt, *Basic Concepts in Medical Informatics*

Multimedia

The Clinical Encounter

Discussion Board

Each session you are required to participate in the session-specific discussion board forum. Your participation in both posting and responding to other students' comments is graded. For this session's discussion topic(s), visit the discussion board in Blackboard.

Assignments

Session 1 Essay: The Clinical Encounter is due Sunday, April 1, 2012 at 11:55 p.m. (central time). For more information, click Assignments on the left navigation panel in Blackboard, and scroll to this assignment's item.

Sync Session

There will be a sync session held on March 26, 2012 from 6:00pm to approximately 8:00pm central time.

Session 2

Learning Objectives

After this session, the student will be able to:

- Describe the components of "chief complaints."
- Provide examples of "chief complaints."
- Distinguish between narrative and structured content.
- Describe when physicians should use narrative and structured content in their documentation.
- Define the problem list.
- Provide examples of appropriate items to add to a problem list.
- Describe the principles behind diagnostic decision approaches, including the sensitivity and specificity of clinical tests.
- Describe ways physicians might benefit from diagnostic aids such as DXplain.
- Describe how diagnostic aids such as DXplain might effectively integrate into care processes.

Course Content

Textbook Reading

Cutler, Chapters 3 and 4

Online Reading

Richardson, *Textbook Descriptions of Disease—Where's the Beef?*

King, *Clinical Skills Textbooks Fail Evidence-Based Examination*

Delbanco, *Open Notes: Doctors and Patients Signing On*

Multimedia

Diagnostic Tools and the Problem List

Discussion Board

Each session you are required to participate in the session-specific discussion board forum. Your participation in both posting and responding to other students' comments is graded. For this session's discussion topic(s), visit the discussion board in Blackboard.

Assignments

Session 2 Essay: Beginning the Diagnostic Process is due Sunday, April 8, 2012 at 11:55 p.m. (central time). For more information, click Assignments on the left navigation panel in Blackboard, and scroll to this assignment's item.

Session 2 Small Group Presentation is due Sunday, April 8, 2012 at 11:55 p.m. (central time). For more information, click Assignments on the left navigation panel in Blackboard, and scroll to this assignment's item.

Sync Session:

Session 3   6

Learning Objectives

After this session, the student will be able to:

- List the most common medical references used by health professionals.
- Explain the limitations and benefits of common medical references.
- Propose how medical references might be better integrated into clinical workflow.
- Describe how the evidence-based hierarchy of medical references may be applied to clinical decision making.

Course Content

Online Reading

Hunt, *User's Guide to the Medical Literature*

BMC Medical Informatics and Decision Making 2005

JAMC 7 JUIN 2005; 172 (12)

Shultz, *Comparing Test Searches in PubMed and Google Scholar*

PubMed Guides and Tutorials

How PubMed Works

MeSH Browser

UMLS Explanation

Discussion Board

Each session you are required to participate in the session-specific discussion board forum. Your participation in both posting and responding to other students' comments is graded. For this session's discussion topic(s), visit the discussion board in Blackboard.

Assignments

Session 3 Essay: Augmenting Clinical Knowledge is due Sunday, April 15, 2012 at 11:55 p.m. (central time). For more information, click Assignments on the left navigation panel in Blackboard, and scroll to this assignment's item.

Session 4

Learning Objectives

After this session, the student will be able to:

- Describe how physicians assess history details for clinical relevance.
- Describe how clinical algorithms can be applied to treatment decisions.
- Provide examples of three conditions for which algorithms exist.
- Describe order set processes in EHRs.
- Explain how order set process helps or hinders decision making.
- Describe the process of medication reconciliation.
- Describe the importance of medication reconciliation.
- Describe the difficulties in achieving accuracy in medication reconciliation.
- Apply an online rules-based tool to a clinical example.

Course Content

Textbook Reading

Cutler, Chapters 5 and 6

Online Reading

Le Gal, *Prediction of Pulmonary Embolism in the Emergency Department: The Revised Geneva Score*

Humair, *Management of Acute Pharyngitis in Adults Reliability of Rapid Streptococcal Tests and Clinical Findings*

McGinn, *Practice Corner: Using Clinical Prediction Rules*

Discussion Board

Each session you are required to participate in the session-specific discussion board forum. Your participation in both posting and responding to other students' comments is graded. For this session's discussion topic(s), visit the discussion board in Blackboard.

Assignments

Session 4 Essay: Applied Decision Making is due April 22, 2012 at 11:55 p.m. (central time). For more information, click Assignments on the left navigation panel in Blackboard, and scroll to this assignment's item.

Session 4 Small Group Presentation is due Sunday, April 22, 2012 at 11:55 p.m. (central time). For more information, click Assignments on the left navigation panel in Blackboard, and scroll to this assignment's item.

Session 5

Learning Objectives

After this session, the student will be able to:

- Describe approaches for involving patients in shared care plans.
- Propose solutions to address physician concerns regarding increased patient involvement.
- Describe how concepts of sensitivity and specificity may be explained to patients.
- Evaluate the limitations of current systems of informed consent.
- Propose alternative approaches to prevent limitations of current systems of informed consent.

Course Content

Textbook Reading

Cutler, Chapters 7–9

Online Reading

Clinical Skills Textbooks Fail Evidence-Based Examination

Halkin, *Likelihood Ratios: Getting Diagnostic Testing into Perspective*

Health Information Technology Fallacies and Sober Realities

Collective Statistical Illiteracy: A Cross-Cultural Comparison With Probabilistic National Samples

False Positive Screening Scares

Multimedia

Patient Sensitivity and Patient Involvement

Discussion Board

Each session you are required to participate in the session-specific discussion board forum. Your participation in both posting and responding to other students' comments is graded. For this session's discussion topic(s), visit the discussion board in Blackboard.

Assignments

Session 5 Essay: Involving the Patient is due Sunday, April 29, 2012 at 11:55 p.m. (central time). For more information, click Assignments on the left navigation panel in Blackboard, and scroll to this assignment's item.

Session 5 Small Group Presentation is due Sunday April 29, 2012 at 11:55 p.m. (central time). For more information, click Assignments on the left navigation panel in Blackboard, and scroll to this assignment's item.

Session 6

Learning Objectives

After this session, the student will be able to:

- Describe the challenges faced by nurses when performing their clinical duties.
- Describe challenges faced by pharmacists when performing their clinical duties.
- Describe how technology has the potential to facilitate or impede safe and efficient nurse and pharmacist care.

Course Content

Online Reading

Bobb, *The Epidemiology of Prescribing Errors: The Potential Impact of Computerized Prescriber Order Entry*

Clinical Decision Support in Electronic Prescribing: Recommendations and an Action Plan Report of the Joint Clinical Decision Support Workgroup

Physician and Pharmacist Collaboration to Improve Blood Pressure Control.

Discussion Board

Each session you are required to participate in the session-specific discussion board forum. Your participation in both posting and responding to other students' comments is graded. For this session's discussion topic(s), visit the discussion board in Blackboard.

Assignments

Session 6 Essay: Nursing and Pharmacy Care is due Sunday, May 6, 2012 at 11:55 p.m. (central time). For more information, click Assignments on the left navigation panel in Blackboard, and scroll to this assignment's item.

Sync Session TBD

Session 7

Learning Objectives

After this session, the student will be able to:

- Discuss the cognitive biases that contribute to diagnostic errors.
- Discuss improvement strategies available to avoid pitfalls in diagnostic reasoning.
- Provide clinical examples to illustrate biases that contribute to diagnostic errors.
- Provide clinical examples to illustrate potential approaches to avoiding pitfalls in diagnostic reasoning.

Course Content

Online Reading

McDonald, *Computerization Can Create Safety Hazards: A Bar-Coding Near Miss*

The Cognitive Psychology of Missed Diagnoses

Chassin, *The Wrong Patient*

Discussion Board

Each session you are required to participate in the session-specific discussion board forum. Your participation in both posting and responding to other students' comments is graded. For this session's discussion topic(s), visit the discussion board in Blackboard.

Assignments

Session 7 Essay: Lessons in Safety I is due Sunday, May 13, 2012, at 11:55 p.m. (central time). For more information, click Assignments on the left navigation panel in Blackboard, and scroll to this assignment's item.

Session 8

Learning Objectives

After this session, the student will be able to:

- Describe how failure modes and effects analysis (FMEA) can be applied to a clinical context.
- Use examples of clinical setting errors to demonstrate factors that lead to non-diagnostic errors.
- Describe how systems approaches can prevent clinical setting errors.

Course Content

Online Reading

Gandhi, *Fumbled Handoffs: One Dropped Ball After Another*

Unexpected Hypoglycemia in a Critically Ill Patient

Failure Modes and Effects Analysis (FMEA) and Failure Modes, Effects and Criticality Analysis (FMECA): An Overview of Basic Concepts

Discussion Board

Each session you are required to participate in the session-specific discussion board forum. Your participation in both posting and responding to other students' comments is graded. For this session's discussion topic(s), visit the discussion board in Blackboard.

Assignments

Session 8 Essay: Lessons in Safety II is due Sunday, May 20 at 11:55 p.m. (central time). For more information, click Assignments on the left navigation panel in Blackboard, and scroll to this assignment's item.

Session 9

Learning Objectives

After this session, the student will be able to:

- List the national care quality-focused organizations and their goals.
- Describe the approaches used to implement quality improvement (QI) projects.
- Describe what is meant by *pay for performance* in a medical context.
- Describe how measuring quality risks impeding clinical workflow.
- Describe current challenges facing quality reporting at a national level.
- Provide examples of quality improvement projects leveraging effective workflow integrated health care IT solutions.

Course Content

Online Reading

Glasgow, *Guiding Inpatient Quality Improvement: A Systematic Review of Lean and Six Sigma*

Fung, *Systematic Review: The Evidence that Publishing Patient Care Performance Data Improves Qualityof Care*

NCQA Report

NQF Report

Meaningful Use Reference Grids

Discussion Board

Each session you are required to participate in the session-specific discussion board forum. Your participation in both posting and responding to other students' comments is graded. For this session's discussion topic(s), visit the discussion board in Blackboard.

Assignments

Session 9 Essay: Quality Improvement Topics is due Sunday, May 27, 2012 at 11:55 p.m. (central time). For more information, click Assignments on the left navigation panel in Blackboard, and scroll to this assignment's item.

Final Group Presentation: Your final group presentation materials will be due on May 27, 2012, at 11:55 p.m. (central time). More information about what is required for this presentation will be disseminated throughout the quarter.

Sync Session TBD

Session 10

Learning Objectives

After this session, the student will be able to:

- No new learning objectives will be introduced.

Course Content

None.

Discussion Board

Each session you are required to participate in the session-specific discussion board forum. Your participation in both posting and responding to other students' comments is graded. For this session's discussion topic(s), visit the discussion board in Blackboard.

Assignments

The final exam for this course will be released during "Week 10." More information on the final exam will be disseminated throughout the quarter.