

INSTRUCTIONS FOR COMPLETION OF THE UAMS GRADUATE SCHOOL COURSE APPROVAL FORM

1. Please save this PDF to your computer for editing.
2. The form has been designed with fields for your responses, and these are indicated in blue and gray shading. Please complete all fields. Use the "tab" key to move between fields. A 'beep' will sound if you attempt to enter a response that contains more characters than is permitted. **IF YOU NEED HELP IN ANY OF THE FIELDS, PRESS THE F1 KEY AND A HELP WINDOW WILL OPEN.**
3. Print the document, and then obtain the appropriate signatures before submitting the form to the Graduate Office.

**COURSE APPROVAL FORM, Graduate School
University of Arkansas for Medical Sciences**

This form and attached materials are due in the Graduate School Office on the first Monday of the month. All forms will be submitted to the UAMS Graduate Council Curriculum Committee for review and approval prior to consideration by the Graduate Council.

This form is not required for minor stylistic or editorial corrections to the title or course descriptions. These may be made when revising the catalog copy.

1. **Program:** Department of Biomedical Informatics

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Department *Alpha (Department) Code*

2. **Action proposed** (indicate one or more items): Effective term: Fall 2017

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|--|---|--|
| <input checked="" type="checkbox"/> Add course | <input type="checkbox"/> Change title | |
| <input type="checkbox"/> Eliminate course
(No outline needed) | <input type="checkbox"/> Change credit hours from: _____ to _____ | |
| | <input type="checkbox"/> Change course number
from: _____ to _____ | |
| | _____ Change description | |

3. **Course ID, title and description:**

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_____ Clinical Decision Sup
prefix *number* *title (20 characters)*

Clinical Decision Support
catalog name (40 characters)

Scheduled offering: Fall Spring Summer On demand

To cross list a course, use the Course Cross Listing Form.

Describe the course in sentence form using **50 words or less** as it is to appear in the catalog. List prerequisites, co-requisites and possible off-site instructional opportunities or requirements.

This graduate course covers clinical decision support approaches and methods in healthcare settings.

4. **Justification:**

Justify this change in terms of course needs or curriculum improvement. State the effect of this change on any degree programs. Identify the courses to be eliminated, if any, if this course is approved. (Course Approval Forms must also be submitted for these courses) Identify any existing course or courses that would extensively overlap or be duplicated if the proposed curricular change occurs. Provide statements of concurrence with the change from the chairperson(s) and dean(s) of the programs/areas offering the affected courses.

There will be no change to current degree plans.

SYLLABUS

COURSE NUMBER: BIOM _____

COURSE TITLE: Clinical Decision Support

COURSE DESCRIPTION:

This graduate course covers clinical decision support approaches and methods in healthcare settings.

PRE-REQUISITES: Health Information Systems

GENERAL INFORMATION:

CREDITS: 2 credit hours

SEMESTER: Fall, Spring

LOCATION: Campus and Online (hybrid)

FACULTY: Meredith Zozus

SPECIAL ASSISTANCE: Students who believe they may need accommodations in this class based on mental or physical impairments must contact the Students with a disability that need accommodations should contact the Associate Dean for Academic Affairs at (501) 686-5730 to schedule an appointment to discuss your needs. Please make arrangements as soon as possible so accommodations can be made in a timely manner.

COURSE OBJECTIVES:

Upon successful completion of this course, the student is able to:

1. Describe types of clinical decision support used in healthcare settings
2. Describe processes used in the design, implementation, evaluation and maintenance of decision support tools
3. Apply knowledge acquisition, modeling, representation, management and maintenance methods used in clinical decision support
4. Describe the role of clinical decision support in healthcare quality and safety
5. Describe current legal, ethical and regulatory issues in clinical decision support

6. Describe state of the art and remaining challenges in sharable guidelines and decision support
7. Design form, template, automation, alert, and knowledge access based clinical decision support

MAJOR TOPICS:

Types of decision support
Uses and users of decision support
Implementation, evaluation and maintenance of decision support tools
Knowledge acquisition, modeling and representation in CDS
Knowledge management and maintenance in CDS
Legal, ethical and regulatory issues in CDS
Quality and safety issues in CDS
Sharable guideline-based knowledge and Guideline Interchange format (GLIF)
Forms as decision support (paper forms, electronic and dynamic forms, templates)
Structured documents and templates
Automation as CDS
Alerts and reminders
 Rule-based
 Ontology-based
Point-of-care access to knowledge

ASSIGNMENTS:

Listed below for each week.

Week 1: Introduction to clinical decision support (CDS)

Assignment: Respond to a question set based on scenarios.

Reading: Greenes Chapters 1-2

Lab demonstration: Walkthroughs of documentation during an encounter.

Lab: Inventory, classify and describe the types of CDS used. Describe and discuss other types of CDS that could have been used. Compare your findings with those of other students. Comment on posts by two or more students by pointing out any omissions or by letting them know that you noted what they did.

Week 2: Features of clinical decision support

Assignment: Respond to a question set based on scenarios.

Reading: Greenes Chapter 3

Lab demonstration: Decision support in Clinical Imaging

Lab: Compare and contrast CDS at the point-of-care and CDS in Imaging. Compare your findings with those of other students. Comment on posts by two or more students by pointing out any omissions or by letting them know that you noted what they did.

Week 3: Seminal CDS implementations and case studies

Assignment: Respond to a question set based on scenarios.

Reading: Greenes Chapters 5-6, 8, Decision Support Systems Chapter in Collen

Lab demonstration: Group analysis and discussion of CDS case studies. Group summary of lessons learned.

Lab: Identify from the literature a more recent example of successful CDS. Describe ways in which it is more advanced and ways in which it is less advanced than the case studies in the text. Comment on posts by two or more students by pointing out any omissions or by letting them know that you noted what they did.

Week 4: Knowledge acquisition and formulation for CDS

Assignment: Respond to a question set based on scenarios.

Reading: Greenes Chapters 9-11, Supplemental reading from Milton

Lab demonstration: National Guidelines Clearinghouse, United States Health Information Knowledgebase, and NLM Value Set Authority Center (VASC).

Lab: Pick a clinical specialty or service unit. You will use this specialty or service unit for the rest of the course. Use the ontology of intentions (Figure 15-6 in the Greenes text) to enumerate the actions a physician in your chosen specialty or service unit needs to take and list the knowledge source and decision support needed for each.

Week 5: Knowledge representation (decision rules, expressions)

Assignment: Respond to a question set based on scenarios.

Reading: Greenes Chapter 12

Lab demonstration: Creating an epic rule-based BPA.

Lab: Write Arden Syntax MLMs for three CDS rules identified earlier as needed for your clinical specialty or service unit. Identify at least one relevant clinical guideline and identify (but you don't have to write) three additional CDS rules to enhance guideline compliance.

- Week 6: Knowledge representation (guidelines and workflow models)
Assignment: Respond to a question set based on scenarios.
Reading: Greenes Chapter 13
Lab demonstration: Computer Interpretable Guideline (CIG) Authoring tool.
Lab: Pick a guideline for your clinical specialty or service unit. Select a CIG formalism and represent a group of sequential decisions and actions from the guideline in the formalism.
- Week 7: Knowledge representation (grouped knowledge elements and standardized representations)
Assignment: Respond to a question set based on scenarios.
Reading: Greenes Chapters 14-15
Lab demonstration: Creating an epic template. Creating an epic order set. Creating an epic smart note.
Lab: For your clinical specialty or service unit, identify a needed documentation template, structured report, and order set. Draft them and describe any additional included decision support.
- Week 8: Knowledge representation (info buttons and point-of-care access to knowledge)
Assignment: Respond to a question set based on scenarios.
Reading: Greenes Chapters 16
Lab demonstration: Info-button, and Point-of-Care Outcomes-based Intervention Comparison.
Lab: For your clinical specialty or service unit, gaps in guideline-based evidence and conceptually design a knowledge source and corresponding access-to-knowledge solution.
- Week 9: Knowledge Representation standards for CDS
Assignment: Respond to a question set based on scenarios.
Reading: Greenes Chapters 17
Lab demonstration: Project introduction and overview.
Lab: For your clinical specialty or service unit, identify a CDS related gap and propose a project that will make a small in-road toward filling the gap. Post your proposal for the professor's approval.
- Week 10: Organizational, business and cultural challenges in CDS
Assignment: Respond to a question set based on scenarios.
Reading: Greenes Chapter 18

Lab demonstration: Panel discussion with institutional epic builders on overcoming institutional challenges faced by CDS.

Lab: Post your weekly project update

Week 11: Managing the organizational investment in CDS, including both organizationally maintained and licensed knowledge sources

Assignment: Respond to a question set based on scenarios.

Reading: Greenes Chapter 19, 21-22

Lab demonstration: Panel discussion with institutional epic builders on institutional coordination and lifecycle management of CDS items.

Lab: Post your weekly project update

Week 12: Legal and regulatory issues related to use of software in healthcare

Assignment: Respond to a question set based on scenarios.

Reading: Greenes Chapter 20-22, 24

Lab demonstration: Group analysis and discussion of knowledge management in CDS case studies. Group summary of current and best practices.

Lab: Post your weekly project update

Week 13: Architectural considerations for maintenance and use of knowledge resources in CDS

Assignment: Respond to a question set based on scenarios.

Reading: Greenes Chapter 23

Lab demonstration: Create an architecture diagram relevant to your project

Lab: Post your weekly project update

Week 14: Project presentations for class and lab sessions

Week 15: Project presentations for class and lab sessions

TEXTBOOK:

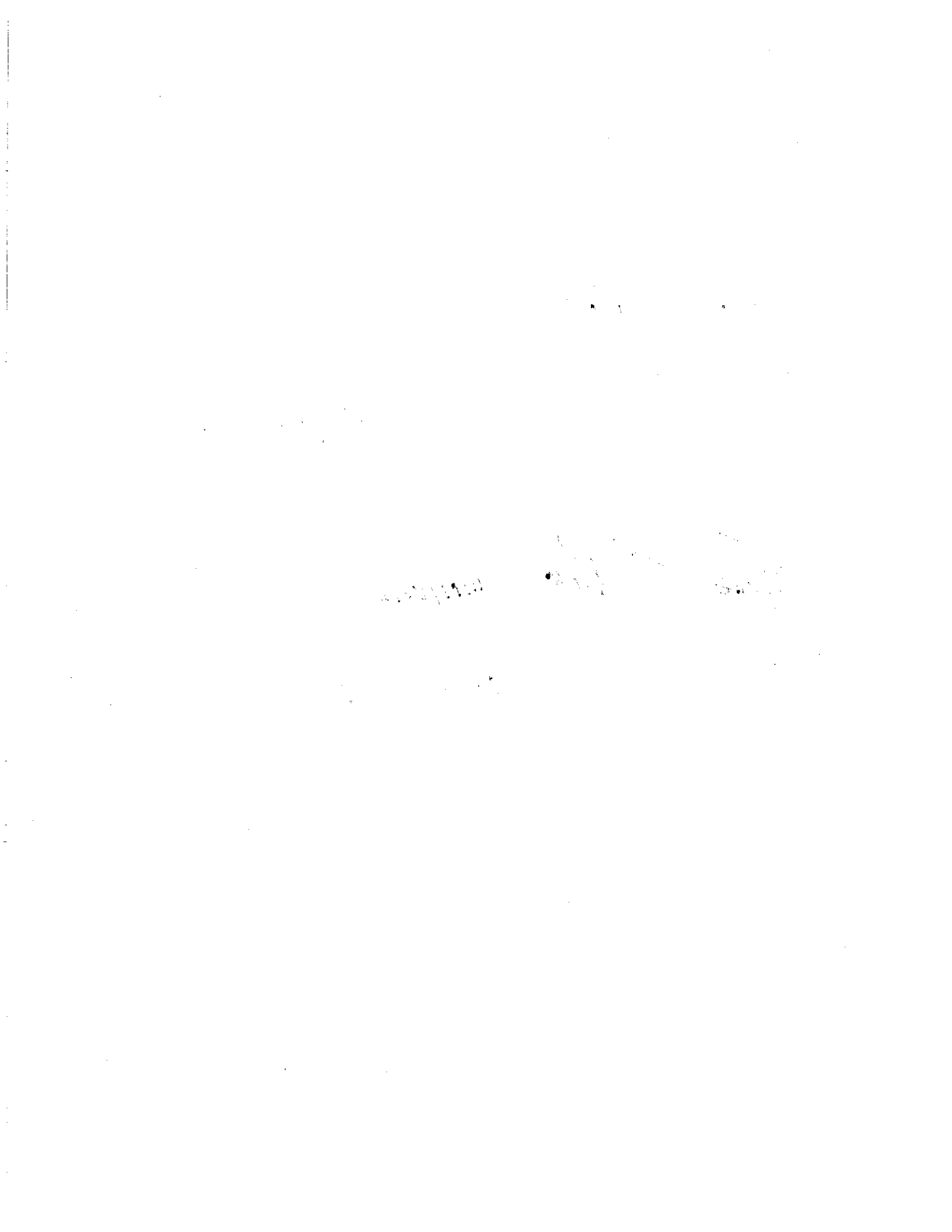
Robert A. Greenes, Clinical Decision Support: The Road Ahead. Elsevier, 2007.

EVALUATION:

This is a graded course. Grades will be assigned based on their course average according to the following scale: A (93-100), B (85-92), C(75-84), D(65-74), Fail (lower than 64).

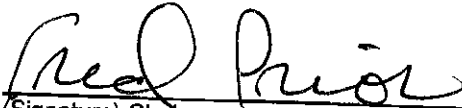
The course average will be comprised of course assignments and the Major project.

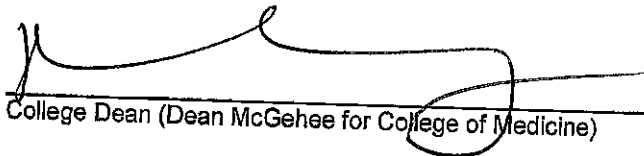
Assignments.....	30%
Labs.....	30%
Major project.....	40%



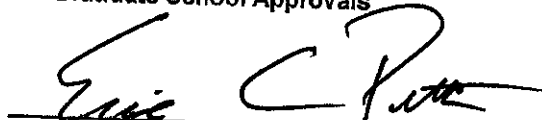
6. Program Approvals:

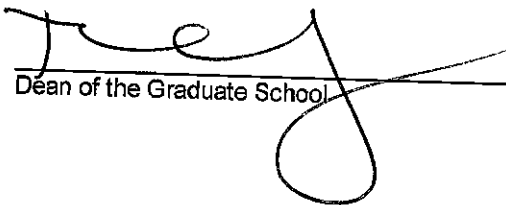
Fred Prior, PhD, Department of Biomedical Informatics
(Print or type) Chairperson, Academic Department or Area

 10/26/16
(Signature) Chairperson, Academic Department or Area Date

 11/17/2016
College Dean (Dean McGehee for College of Medicine) Date

7. Graduate School Approvals

 11/17/2016
Chairperson, Graduate Council Date

 11/17/2016
Dean of the Graduate School Date