Syllabus* Clinical Decision Making (111501307)
Summer Semester 2022/2023

COARSE INFORMATION	
Course Name: Clinical Decision Making **Semester:** 3rd Year, Summer Semester **Department:** Department of pharmacology, public health and clinical skills **Faculty:** Medicine	**Course Code:** 111501307 **Core Curriculum**: Seminars and Practical sessions
Day(s) and Time(s): Variable (announced at the start of the semester) **Classroom:** Faculty of Medicine	**Credit Hours:** 3 **Prerequisites**: Pass All previous courses for the first three years
TEACHING METHODS	
The course will be delivered through a combination of active learning strategies. These will include: ● PowerPoint lectures and active classroom-based discussion ● Collaborative learning through small groups acting in an interdisciplinary context. ● Online live video lectures E-learning resources: e-reading through Model and Microsoft Team	
COARSE DESCRIPTION	

This course is designed to provide undergraduate medical students with a comprehensive understanding of the clinical reasoning and decision analysis processes. Students will learn the theoretical underpinnings of clinical decision making, shared and group decision-making and risk communication, including the numerical concepts and skills required for good interpretation of clinical evidence. This course will cover topics such as clinical decision making and modelling in medicine, shared and group decision making, definition and application of evidence-based medicine, clinical reasoning and associated errors, probabilities and Bayesian reasoning, diagnostic tests reasoning, decision analysis and Markov cohort models, clinical decision support systems, probabilistic sensitivity analysis and behavioral decision making. Ethical decision-making frameworks will be explored and applied to diverse educational and clinical situations. The importance of evidence-based decision-making will be emphasized, and students will learn how to identify, access, assess, and utilize quality evidence from science and other sources to make informed decisions. Integration of individual, societal, community, and global determinants of health into a shared medical decision-making approach to patient care and wellness will be a key focus. By the end of this course, students will have developed a strong foundation in the theoretical and practical aspects of medical decision-making, enabling them to make informed and effective decisions in their future medical practice.

FACULTY INFORMATION

Name	**Dr. Sofian Al Shboul**
Academic Title:	**Assistant professor**
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Office Hours:	**Sunday** 10-12 **Monday** 10-12 *Please send an e-mail (*Sofian@hu.edu.jo*) to confirm the meeting.*

REFERENCES AND LEARNING RESOURCES

Required Textbook:

1. Essential Evidence-Based Medicine, 2nd Edition, Mayer
2. Decision Making in Medicine, 3rd Edition, Mushlin & Green

Suggested Additional Resources:

- Pubmed database
- Google schooler
- Clarivates master journal listing
- SCOPUS
- we will be using several case scenarios from phone apps

Useful Web resources: www.UpToDate.com

STUDENT LEARNING OUTCOMES MATRIX*

Core Curriculum Learning Outcomes	Program Learning Outcomes	Course Objectives	Course Student Learning Outcomes	Assessment Method
Think critically and creatively in medical research problems Communicate competently with others using oral and written English skills Demonstrate competency in the use of research skills and various information sources.	Apply critical thinking and demonstrate problem-solving skills Use modern literature search methods to obtain information about.	1. To understand the importance and implications of clinical decision making 2. To understand the principles and application of evidence-based medicine 3. Be able to understand, critique and apply biomedical literature to aid clinical decision making 4. To become proficient in building basic decision analysis models through an understanding of the concepts which underlie these models. 5. To understand various decision making approaches	**1- Introduction to Decision Making** Objectives: 1. The overall aim of this lecture is to introduce students to general principles of decision making and to apply these principles into practical daily life decisions 2. Introduce student to definitions and principles of decision making, problem solving, critical and reflective thinking and judgment 3. Understand types, situations and components of decision making 4. Discuss steps in decision making process and apply them to practical problems 5. Discuss and apply different decision making techniques. **2- Decision Making in Medicine** 1. Understand the importance and complexity of decision making in medicine 2. Understand the different factors affecting clinical decision making 3. Explain the difference between clinical versus actuarial prediction 4. Practical applications of clinical decision making **3- Group Decision Making** 1. Introduce students to the principles and importance of group decision making 2. Understand different techniques used in group decision making 3. Discuss the advantages and disadvantages of group decision making 4. Practice group decision making using different strategies and methods **4- Shared Decision Making** 1. Understand the definition, importance, and advantages of shared decision making in medicine 2. Discuss barriers to effective shared decision making 3. Understand different methods and strategies for application of shared decision making **5- Evidence Based Medicine** 1. Introduce students to principles and	MCQs

			importance of EBM 2. Understand the 5 main steps in EBM including formulating the question, searching literature, appraise articles, apply to patient, and finally evaluate outcome 3. Apply the steps of EBM in practical cases **6- Clinical Reasoning** 1. Introduce students to principles and importance of clinical reasoning 2. Differentiate the clinical reasoning process between beginners and experts 3. Understand models and strategies for clinical reasoning 4. Discuss practical examples of clinical reasoning **7- Clinical Reasoning Errors** 1. Outline the steps of the clinical reasoning process 2. Define cognitive dispositions to respond (CDRs) and describe several CDRs seen with diagnostic reasoning errors 3. Recognize clinical reasoning errors in common educational settings 4. Develop strategies to reduce clinical reasoning errors **8- Probabilities and Bayesian Reasoning** 1. Describe different medical decision situations and illustrate sources of uncertainty 2. Describe the different models of clinical decision making 3. Introduce students to probability theory and its applications 4. Introduce students to Bayesian theory and its applications in clinical decision making 5. Describe advantages and disadvantages of Bayesian theory **9- Diagnostic Tests Reasoning** 1. Introduce students to the importance and uses of diagnostics tests in clinical practice 2. How to interpret diagnostics test 3. How to evaluate diagnostic tests in terms of: Reproducibility, Accuracy, Feasibility, Effects on clinical decisions, Effects on Outcomes **10- Decision Analysis** 1. Understand the definition and applications of decision analysis 2. Understand the different stages of	

			decision analysis 3. Apply the process of decision analysis on clinical practical examples 4. Discuss advantages and disadvantages of decision analysis **11- Markov Model and Influence Diagram** 1. Introduce students to principles and application of Markov model in clinical decision making 2. Understand the main elements of the Markov model including: Markov state, cycle time, incremental utility, and transition probabilities 3. Understand the different Markov model evaluation methods with practical examples 4. Describe the advantages and disadvantages of the Markov model 5. Understand the principles, applications, advantages and disadvantages of influence diagrams **12-Cost Effective Analysis** 1. Understand the principles and importance of cost-effective analysis 2. Understand the process of measuring cost effective (CE) ratio and incremental CE 3. Discus steps used to obtain proper CE ratio 4. Application on practical example **13- Clinical Decision Support Systems** Objectives: 1. Discuss the scope of Clinical Decision Support Systems 2. Identify issues for success or failure 3. Be able to evaluate Clinical Decision Support Systems 4. Understand computing techniques used to create DSS 5. Understand the design Cycle for the development of DSS 6. Understand early AI/Decision Support Systems 7. Discuss open source examples **14- Algorithms and Guidelines** 1. Introduce students to the definition, importance, and applications of clinical guidelines and algorithms 2. Understand the process of developing clinical guidelines 3. Guide students on reliable sources for updated guidelines 4. Discuss the benefits and implementation of clinical guidelines	

			15- Ethics and Clinical Decision Making 1. Introduce students to the principles and practice of ethics in clinical decision making 2. Discuss and apply the different ethical principles to clinical decisions 3. Discuss some important guidelines in clinical decision making	

COURSE REGULATIONS

Participation

Class participation and attendance are important elements of every student's learning experience at The Hashemite University, and the student is expected to attend all classes. A student should not miss more than 15% of the classes during a semester. *Those exceeding this limit of 15% will receive a failing grade regardless of their performance*. It is a student's responsibility to monitor the frequency of their own absences. **Attendance record begins on the first day of class irrespective of the period allotted to drop/add and late registration. It is a student's responsibility to sign-in; failure to do so will result in a non-attendance being recorded.**

In exceptional cases, the student, with the instructor's prior permission, could be exempted from attending a class provided that the number of such occasions does not exceed the limit allowed by the University. The instructor will determine the acceptability of an absence for being absent. A student who misses more than 25% of classes and has a valid excuse for being absent will be allowed to withdraw from the course.

No permission will be provided during face to face encoutners. Permission from the instructed can only be obtained by sending your instructor an email. The email should contain the student name, date of absence and any supportive document. This documentation process is important to examine the supportive document and decide on the student's eligibility for the exemption.

Professionalism

Students are expected to learn and practice the habits of professionalism. Students are expected to maintain high level of self-care including tidiness and cleanliness. Students should maintain professional behavior. Student are expected to have high level of maturity and treat others with courtesy and respect. Students are expected to stick to time requirements, being present *before* the start time of the teaching activity (~15 minutes before).

Students should aim for excellence in everything. Spending their maximum effort and get work completed. When students execute their assigned tasks, they should execute them with high quality.

Students soon to become Professionals, should carry high level of ethical standards, including confidentiality of private information and honesty in their communication with others.

Plagiarism

Plagiarism is considered a serious academic offence and can result in your work losing marks or being failed. HU expects its students to adopt and abide by the highest standards of conduct in their interaction with their professors, peers, and the wider University community. As such, a student is expected not to engage in behaviors that compromise his/her own integrity as well as that of the Hashemite University.

Plagiarism includes the following examples and it applies to all student assignments or submitted work:

- Use of the work, ideas, images or words of someone else without his/her permission or reference to them.
- Use of someone else's wording, name, phrase, sentence, paragraph or essay without using quotation marks.
- Misrepresentation of the sources that were used.

The instructor has the right to fail the coursework or deduct marks where plagiarism isdetected

Late or Missed Assignments

In all cases of assessment, students who fails to attend an exam, class project or deliver a presentation on the scheduled date without prior permission, and/or are unable to provide a medical note, will automatically receive a fail grade for this part of the assessment.

- Submitting a term paper on time is a key part of the assessment process. Students who fail to submit their work by the deadline specified by the instructor, will automatically receive a 10% penalty. Assignments handed in more than 24 hours late will receive a further 10% penalty. Each subsequent 24 hours will result in a further 10% penalty.
- In cases where a student misses an assessment on account of a medical reason or with prior permission; in line with University regulations an incomplete grade for the specific assessment will be awarded and an alternative assessment or extension can be arranged.

COURSE ASSESSMENT

Course Calendar and Assessment

Students will be graded through the following means of assessment and their final grade will be calculated from the forms of assessment as listed below with their grade weighting taken into account. The criteria for grading are listed at the end of the syllabus

Assessment	Grade Weighting	Deadline Assessment
Exam 1	**50%**	**8/23**
Final Exam	**50%**	**9/23**

Description of Exams:
Test questions will predominately come from material presented in the lectures. Semester exams will be conducted during the regularly scheduled lecture period. Exam will consist of multiple choice questions.
Make-up exams (short Essay questions): Only documented absences will be considered as per HU guidelines.
Resit (incomplete exam): for failed and absences students as per HU guidelines
Raised average exam: as per HU guidlines
Grades are not negotiable and are awarded to the MD program according to the following criteria*:

Letter grade	Description	Grade Points
A+	Excellent	4.00
A		3.75
A-		3.50
B+	Very Good	3.25
B		3.00
B-		2.75
C+	Good	2.50
C		2.25
C-		2.00
D+	Pass	1.75
D	Pass	1.50
F	Fail	0.00
I	Incomplete	-