School of Public Health

Summer Institute of Advanced Epidemiology and Preventive Medicine

DRAFT SYLLABUS
<u>Medical Decision Making</u>
July 14-19, 2019 | 14:00-18:30/19:00

Course Instructors: Prof. Moshe Leshno (TAU), Prof. Jeremy Goldhaber-Fiebert (Stanford University)

Guest Lecuters: Prof. Ronni Gamzu (TAU and Tel-Aviv Sourasky Medical Center), Prof. Yoav Ganzach (TAU), Prof. Itzhak Gilboa (TAU and HEC Paris), Dr. Daniel Goldstein (TAU and Rabin Medical Center), Prof. Dan Greenberg (Ben Gurion University), Prof. Ido Wolf (TAU and Tel-Aviv Sourasky Medical Center)

Date & Time: July 14-18, 2019 | S, M, Th 14:00-18:30 / T, W 14:00-19:00

Final Exam: July 19, 2019 | 9:00-11:00

Location: Sackler Faculty of Medicine

Teaching Assistant: TBA

Course Documents: TBA

<u>Pre-requisites & Intended Audience</u>

Introductory course in Biostatistics (including probabilities).

The course is intended for Master's and PhD level students or above.

<u>Academic Credit & Course Requirements</u>

2 Academic Credits. Participants must pass the final exam with a grade of 60 (D). Noncredit participants are not required to take exam, but are expected to participate in team workshop and presentations.

<u>Recommended Reading</u>

<u>Course Description</u>

The decision-making process is an essential component in providing quality and safe care in healthcare. The main aim of the course is to familiarize the students with uncertainty decision making in medicine and health care and lay the theoretical foundations for conducting research in the field of medical decision-making. The economic paradigm of rational decision-making will be examined against alternative models. Participants will gain understanding of the intrinsic and extrinsic factors affect the efficiency of decisions, and interaction between the design instance and the decision-making. The course includes the use of tools based on rational decision making e.g. expected utility theory, with an emphasis on diagnostic tests, judgment and choice biases, setting preferences, decision trees, taking risks, probability estimations and sensitivity analysis. This course will be comprised of frontal lectures, simulations, case studies with real-life examples and group workshops.

Course Timetable

Sunday, July 14 (Day 1)	
14:00-14:30	Course Introduction and Overview
14:30-15:30	Introduction to Medical Decision Making • Rational vs. behavioral decisions, risk and uncertainty **Lecturer: Moshe Leshno**
15:30-16:00	Break
16:00-16:45	Diagnostic Tests, Part 1: Signal Detection • Sensitivity, specificity, changing cutoff-points, ROC **Lecturer: Moshe Leshno**
16:45-17:30	Diagnostic Tests, Part 2: Bayesian Reasoning • Are PPV or NPV relevant? • Are RR, OR and HR the same? **Lecturer: Moshe Leshno**
17:30-17:45	Break
17:45-18:30	Net Reclassification Improvement; Screening **Lecturer: Moshe Leshno**
Monday, July 15 (Day 2)	
14:00-14:15	Reflecting on Day 1: Lecturers & Teams and Review of Day 2 Agenda
14:15-15:00	Judgment and Choice Biased, Part 1 • Psychology of Diagnostic Reasoning, framing **Lecturer: Yoav Ganzach**
15:00-15:30	Judgment and Choice Biased, Part 1 • Prospect Theory **Lecturer: Yoav Ganzach**
15:30-16:00	Break
16:00-16:30	Decision theory: Clinical examples, What makes the debate (controversy) **Lecturer: Moshe Leshno**
16:30-17:30	Decision theory: Part 1: Expected Utility Theory Mathematical Models **Lecturer: Moshe Leshno**
17:30-17:45	Break
17:45-18:30	Decision theory: Part 2: Preferences, Calibration utilities, (QALY) **Lecturer: Moshe Leshno**

Tuesday, July 16 (Day 3)	
14:00-14:15	Reflecting on Day 2: Lecturers & Teams and Review of Day 3 Agenda
14:15-15:00	Decision Analysis: Health policy models: elements, types, and choices • Decision tree, Markov models, Influence diagram **Lecturer: Jeremy Goldhaber-Fiebert**
15:00-15:45	Disease natural history – parameter types and estimates **Lecturer: Jeremy Goldhaber-Fiebert**
15:45-16:15	Break
16:15-16:45	Disease natural history – calibration and evaluation **Lecturer: Jeremy Goldhaber-Fiebert**
16:45-17:30	Valuing Output I: Quality-Adjusted Life Years (QALYs), Patient Preferences, and Outcomes **Lecturer: Jeremy Goldhaber-Fiebert**
17:30-17:45	Break
17:45-18:30	Evidence based medicine, clinical guidelines, stochastic dominance **Lecturer: Moshe Leshno**
Wednesday, July 17 (Day 4)	
14:00-14:15	Reflecting on Day 3: Lecturers & Teams and Review of Day 4 Agenda
14:15-15:00	Markov and Related Modeling Techniques Part 1 **Lecturer: Jeremy Goldhaber-Fiebert**
15:00-15:45	Markov and Related Modeling Techniques Part 2- Practical Approach **Lecturer: Jeremy Goldhaber-Fiebert**
15:45-16:15	Break
16:15-16:45	Sensitivity and uncertainty analyses **Lecturer: Jeremy Goldhaber-Fiebert**
16:45-17:30	Choosing Wisely - Shared decision making **Lecturer: Ido Wolf**
17:30-19:00	Patient-Centered Oncology or Population-Centered Oncology—Which Do We Want **Lecturer: Daniel Goldstein**
Thursday, July 18 (Day 5)	
14:00-14:15	Reflecting on Day 4: Lecturers & Teams and Review of Day 5 Agenda
14:15-15:00	Decision making under uncertainty **Lecturer: Itzhak Gilboa**
15:00-15:45	Cost-Effectiveness Analysis - Introduction **Lecturer: Dan Greenberg**
15:45-16:00	Break
16:00-16:30	Cost estimation, discount rate **Lecturer: Dan Greenberg**

16:30-17:15	Incremental Cost-Effectiveness Plot, ICER **Lecturer: Dan Greenberg**
17:15-18:00	Sensitivity analysis, Tornado diagram, Acceptability Curve **Lecturer: Dan Greenberg**
18:00-18:45	Israeli Basket and ICER **Lecturer: Ronni Gamzu**
18:45-19:00	Summary and Ceremony
Friday, July 19 (Final Exam)	
09:00-11:00	Sackler Faculty of Medicine (Teaching Assistants will be present)