M19-540 Decision Analysis for Clinical Investigation and Economic Evaluation (3 credit)
Fall 2022 (8/31/22 – 12/21/22)
Wednesdays, 1 to 4 pm
Location: Julius Richmond room, Taylor Avenue Building 2nd floor

INSTRUCTOR
Su-Hsin Chang, PhD, SM
Email: chang.su-hsin@wustl.edu
Phone: (314) 362-8623

OFFICE HOURS
By appointment.

PREREQUISITES
An introductory course in probability or statistics is a mandatory prerequisite for this class.

TARGET AUDIENCE
Anyone who is interested in health care technology assessment, quantitative medical decision making, health policy evaluation, and health resource allocation.

COURSE DESCPRIPTION, OBJECTIVES, and COMPETENCIES
This 3-credit course covers the methods and applications of decision analysis and cost-effectiveness analysis in healthcare strategy assessment, medical decision making, and health resource allocation. At the conclusion of the class, students will have an understanding of the theoretical basis for economic evaluation and decision analysis, its application, and hands-on experience in the application of the methods. Among the topics covered are development of a research topic and research questions, development of a decision analytic model, estimation of costs and effectiveness, use of preference-based measures, addressing uncertainty, and preparation of a manuscript presenting a decision analytic study. Students are required to complete a group project to apply methods and techniques they learn in class and prepare a research manuscript as the final project report. Course materials will be tailored to meet the needs of individual projects.

TEXTBOOK
Decision Making in Health and Medicine: Integrating evidence and values (2nd Edition) (2014) Mayriam Hunink, Milton Weinstein, Eve Wittenberg, Michael Drummond, Joseph Pliskin, John Wong, Paul Glasziou. Cambridge, UK: Cambridge University Press. (Reserved in Becker library).

RECOMMENDED READING
Methods for the Economic Evaluation of Health Care Programmes (3rd Edition) (2005) M Drummond, G Stoddart, and G. Torrance. Oxford: Oxford University Press.

REQUIRED SOFTWARE
We will be using TreeAge Pro software to demonstrate how to conduct decision analysis and economic evaluation. You are highly recommended to obtain a copy of TreeAge Pro for your own computer to 1) practice

the methods and the examples we discuss in class and 2) include these methods in your term project. The Master of Population Health Sciences Program will cover the cost of this software.

GRADING
Your grade will be based on:
- Class participation (20%)
- Project proposal (20%)
- Referee report (20%)
- Oral Presentations (15%)
- Final report (25%)

CLASS EXPECTATIONS
The class instructor will prepare and deliver course materials, be available to students by appointment, and provide timely feedback on student performance. Students are expected to attend each class on time, participate in class discussions, seek any necessary clarification regarding course expectations, and fulfill course requirements in a timely manner. Any issues with attendance, meeting deadlines, or completing assignments should be discussed promptly with the instructor. Email is the best way to contact the instructor and the teaching fellow.

MyCanvas: Please check the site regularly for class announcements, readings, and slides. MyCanvas will be the primary vehicle for course announcement and information. However, submissions of course assignments should be via email.

Course assignments: All written assignments should be delivered **before** class on the day of the deadline via email unless otherwise specified. Do not use MyCanvas for submitting course assignments. Late submission will not be accepted for credit unless prior approval is obtained from the instructor or a compelling situation prevents prior approval. The instructors will allow for documented family emergencies. Health issues must be documented by a physician. Assignments include:

1) Project proposal
   – Choose one research topic and propose a set of research questions and aims.
   – Come up with a feasible research plan by identifying i) the outcome measure(s) to be analyzed; ii) potential strategies or treatments; iii) data that could be used.
   – The format of the proposal should be the same as the NIH Specific Aim page (one page limit).
   – Email the proposal to the class instructor and the teaching fellow before class on the due date.
   – A brief presentation (20 minutes for each team) is expected on the day of proposal submission.

2) Referee report
   – Papers will be assigned to each student to read.
   – Write critiques on i) use of data; ii) choice of method and modeling.
   – Suggest improvements.
   – 1.5 page limit.
   – Email the report to the class instructor and the teaching fellow before class on the due date

3) Project presentation
   – Using the methods taught in class, you are required to complete your analysis of the research project.

- Each team needs to prepare a 30-minute in-class presentation with 20-minute Q&A in the last session of the class.
- Discussants will be assigned for each project.
- Email the slides to the class instructor, teaching fellow, and assigned discussants 24 hours before your presentation.

4) Project report
- Each team is required to submit one project report (first draft is due on the day of your presentation; final draft is due a week after the last class).
- The format of the project report: You are required to follow the manuscript requirements for *Journal of American Medical Association* (*JAMA*). See *JAMA* Instructions for Authors http://jama.jamanetwork.com/public/instructionsForAuthors.aspx
- Incorporate suggestions from the presentation and the discussion in your final report.
- Email the report to the class instructor and teaching fellow by the due date.

ATTENDANCE AND PARTICIPATION
All classes are required. As a courtesy to other students, you are expected to arrive on time. **More than one unexcused absence from class may result in a lowered grade**. Do not enroll if you have >2 absences already planned.

POLICY ON LATE ASSIGNMENTS
Late assignments will result in a deduction of one grade point (A+ down to A) for each day late (including weekends) unless prior approval is obtained from the instructor or a compelling situation prevents prior approval (i.e. documented health issues or family emergencies).

TENTATIVE COURSE SCHEDULE, ASSIGNMENTS, AND DUE DATES

Class	Date	Topic	Assignment Due
Class 1	Aug. 31	Course Introduction and Overview	
Class 2	Sep. 7	Statistical Overview	
Class 3	Sep. 14	Optimal Decision	
Class 4	Sep. 21	Valuing Outcomes	
Class 5	Sep. 28	Introduction to TreeAge Pro	

Class 6	Oct. 5	Proposal Presentation	**Project proposal**
Class 7	Oct. 12	Deciding when to test + Multiple test results	
Class 8	Oct. 19	Finding and Summarizing Evidence	
Class 9	Oct. 26	Cost-Effectiveness Analysis I	**Referee report**
Class 10	Nov. 2	TreeAge Pro – CEAI	
Class 11	Nov. 9	Cost-Effectiveness Analysis II	
Class 12	Nov. 16	TreeAge Pro – CEAII	
Class 13	Nov. 30	Project Presentations	**Slides (11/29 due)**
Class 14	Dec. 7	Project Evaluation and Discussion	**First draft of project report**
Class 15	Dec. 14	Project Evaluation and Discussion	
	Dec. 21	No class	**Final project report**

TEACHING FELLOWS
The teaching fellows are a critical resource for all of you. They will hold office hours and will answer brief clarification questions immediately before and after class; collect and maintain a record of all assignments turned in; help form the teams in class; and be responsible for the management of the class website. If you have a question about course content, please be sure to email the teaching fellows.

Name	**Email**
Mei Wang, MS	meiwang@wustl.edu
Mengmeng Ji, MBBS, PhD	j.mengmeng@wustl.edu

DROP DATES

You may drop for any reason during the course of the semester. However, you may only receive partial or no tuition reimbursement depending upon how far into the semester you drop the course. See the **MPHS Student Handbook**. Late withdrawals will appear on your transcript as a withdrawal.

MPHS ACADEMIC POLICY GUIDELINES

Guidelines regarding MPHS course registration and enrollment, grades, tuition obligation, and academic leave are consolidated in the **MPHS Student Handbook**. Please review this document. **MPHS Guidelines for Academic and Non-Academic Transgressions:** By registering for this course you have agreed to the terms of the **MPHS Academic Integrity Policy, outlined below and in more detail in the MPHS Student Handbook**. Please review this policy before submitting your first graded assignment.

Academic Integrity/Plagiarism Policy:

- Academic dishonesty is a serious offense that may lead to probation, suspension, or dismissal from the University. Academic dishonesty includes plagiarism (the use of someone else's ideas, statements, or approaches without proper citation). Academic dishonesty also includes copying information from another student, submitting work from a previous class for a new grade without prior approval from your instructor, cheating on exams, etc. You are responsible for reviewing WashU's academic integrity resources to become aware of all the actions that constitute academic dishonesty.
- All instances of academic dishonesty will be reported to the Office of the Registrar for investigation and potential disciplinary action. In addition, the instructor will make an independent decision about the student's grade on any assignment in question. The MPHS process regarding academic dishonesty is described in the **MPHS Student Handbook**.

DISABILITY RESOURCES

It is the goal of Washington University to assist students with disabilities in removing the barriers their disabilities may pose and provide support in facing the challenge of pursuing an education at Washington University.

Washington University recognizes and accepts its professional, legal and moral responsibility to avoid discrimination in the acceptance and education of qualified students with disabilities and to provide reasonable accommodations to such students consistent with the principles embodied in the law. These guidelines apply to students seeking admittance as well as to those who become disabled while they are enrolled.

Washington University makes every effort to insure that all qualified applicants and students can participate in and take full advantage of all programs and opportunities offered within the university. Washington University encourages and gives full consideration to all applicants for admission. Washington University does not discriminate in access to its programs and activities on the basis of age, sex, sexual orientation, race, disability, religion, color or national origin.

To learn more about services provided to students with disabilities, initiate the process of formal documentation and/or to arrange for accommodations, please review the Disability Resources for the Med School at the start of the course.

MENTAL HEALTH RESOURCES

Mental Health Services' professional staff members work with students to resolve personal and interpersonal difficulties, many of which can affect the academic experience. These include conflicts with or worry about friends or family, concerns about eating or drinking patterns, and feelings of anxiety and depression. See: shs.wustl.edu/MentalHealth.

SEXUAL ASSAULT RESOURCES

You can also speak confidentially and learn about available resources by contacting Dr. Gladys Smith, PhD, Sexual Violence Prevention Therapist and Licensed Psychologist at the Medical Campus, (314) 362-2404. Additionally, you can report incidents to the Office of Student Affairs or by contacting WUSM Protective Services 314-362-4357 or your local law enforcement agency.

BIAS RESOURCES

The University has a process through which students and staff who have experienced or witnessed bias, prejudice or discrimination against a student can report their experiences to the University's Bias Report and Support System (BRSS) team. For details see: diversityinclusion.wustl.edu/brss/.

Office of the Associate Vice Chancellor for Diversity, Equity and Inclusion (DEI) The DEI Training Team designs, facilitates and leads diversity education programming for faculty, staff and students on a wide range of topics including: creating a climate of respect, the value of diversity and the role of biases in our day-to-day lives. diversity.med.wustl.edu/training/

The Office of Diversity Programs promotes diversity among and prepares medical students to lead in a global society. A priority for the Office of Diversity Programs is to cultivate and foster a supportive campus climate for students of all backgrounds, cultures and identities. mddiversity.wustl.edu/

The Diversity and Inclusion Student Council promotes an inclusive campus environment for all School of Medicine students. sites.wustl.edu/disc/

The Office for International Students and Scholars embraces the university's mission of welcoming promising students from around the world. wumma.wustl.edu/