

OST 598 – Evidence-based Health Sciences

Summer Semester 1 - 2020

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Notice to Students: Although course syllabi at MSUCOM have a consistent format, important details differ by course. For this reason, you must read the syllabus thoroughly at the onset of each course to know what the course will provide and what is expected of you.

Section 1 – Course Information

Course Description

Evidence-based Health Sciences is a 1-credit hour course.

Evidence-based Medicine is the practice of medicine and patient care that is based on the best available research evidence to guide clinical decisions and is applicable to the individual patient. It integrates best current available research evidence, clinical experience and individual patient values and expectations.

The Evidence-based Health Sciences is an introductory course to the practice of Evidence-based Medicine that is structured on the principles of Epidemiology, Biostatistics, Research Methods, Preventive Medicine and Public Health. The course will impart the basics of Epidemiology, Biostatistics, Research Methods, Preventive Medicine and Public Health in relation to Evidence-based Medicine and clinical decision making. The principles and methods taught in the course will continued to be reinforced longitudinally during the courses downstream in the medical curriculum.

Self-Directed and Active Learning in OST 598 Workshops

It is a goal at MSUCOM to promote self-directed learning to help our students grow into strong, self-directed future clinicians. Self-directed learning is also required by medical school accreditation standards. Self-directed learning is a 4-step process that occurs within an encapsulated timeframe. One of the ways you will this take shape in OST 598 is through the use of self-directed learning workshops, which unfold as follows:

Self-Assessment of Learning Needs – Students are provided with a workshop topic, a set of related learning objectives, and related learning materials or prompts. Students are encouraged to reflect on initial learning needs related to the topic and learning objectives and to engage with materials accordingly.

Identification, Analysis, & Synthesis of Information – Once students have reflected on their learning and engaged with related learning materials, they have opportunity to seek and apply information related to case scenarios in didactic live sessions that make use of collaboration with peers.

Appraisal of Information Credibility – Students are encouraged to appraise the credibility of these information sources related to the case scenarios described, and also to appraise their learning holistically through quiz assessments in the D2L learning management system.

Feedback on Information-Seeking Skills – Faculty facilitators will provide feedback to students in terms of information seeking processes and accomplishment of learning objectives through probing questions, prompts for reflection, and prompts for elaboration among other strategies. Students also receive scores on the quiz assessments as part of the feedback.

Course Goals

Upon completion of this course, students will be able:

1. To demonstrate an understanding of the following basics of Biostatistics: types and presentation of data, measures of association (relative risk, odds ratio), hypothesis testing (p-values and

confidence intervals), correlation, regression, association and causation, statistical tests (t-test, Analysis of Variance, Chi-squared test)

2. To demonstrate an understanding of the following basics of Epidemiology: frequency of disease (incidence, prevalence, case-fatality rate, mortality), epidemic, prevention (primary, secondary and tertiary prevention), diagnostic and screening tests (sensitivity, specificity, predictive values, likelihood ratios), difference between random error and systematic error, bias and confounding.
3. To demonstrate an understanding of the following basics of Observational studies: ecological study, cross-sectional study, cohort study, case-control study, nested case-control study, measures of association (incidence rate, relative risk/risk ratio, odds ratio, prevalence ratio)
4. To demonstrate an understanding of the following basics of Randomized clinical trials (RCT): sample size, power and types of error, generalizability (external validity) and internal validity, Phase I-IV drug testing trails (FDA), types of RCTs, Factorial experiments, Parallel groups design, cluster randomized trials, hypothesis type RCT (superiority/non-inferiority/equivalence), intention-to-treat analysis, per-protocol analysis.
5. To demonstrate an understanding of the basics of Evidence-Based Medicine (EBM): Developing a clinical question: PICO framework and clinical vignettes, practice of EBM, searching and acquiring best current evidence, pre-appraised evidence, evidence-based healthcare (EBHC) pyramid, critical appraisal of evidence: validity; magnitude of results (absolute risk reduction, relative risk reduction, absolute risk increase, number needed to treat, number needed to harm); precision of results (confidence intervals); applicability and feasibility of results to our patient.
6. To demonstrate an understanding of the basics of public health: definition of public health, relationship between clinical care and public health, contribution of the social determinants of health in the promotion of health, role of public health in relation to contemporary healthcare challenges.
7. To demonstrate critical appraisal of a randomized controlled trial
8. To demonstrate an understanding of systematic review and meta-analysis (Forest plot, Funnel plot, risk of bias chart, Cates plot, heterogeneity)

College Program Objectives

In addition to the course-specific goals and learning objectives, this preclerkship course also facilitates student progress in attaining the College Program Level Educational Objectives, which are published in the MSUCOM Student Handbook.

Course Coordinator

(Note - Preferred method of contact is shown in italics)

Name: Furqan Irfan, MBBS (MD), PhD

Phone: 517-353-7785

Email: irfanfur@msu.edu (preferred method)

Address: 325A West Fee Hall, 909 Wilson Rd., East Lansing, MI 48824

Course Faculty

Name	Email	Phone	Site
Andrea Amalfitano, DO, PhD	amalfit1@msu.edu	517-355-9616	EL
Kevin Brooks, MSc, PhD	brooks52@msu.edu	517-432-8385	EL
Furqan Irfan, MBBS (MD), PhD	irfanfur@msu.edu	517-353-7785	EL
Nicole Jess, PhD Candidate	jessnico@msu.edu		EL
Dennis Paradis, MPH	paradis@msu.edu	517-353-1664	EL
John M. Popovich, PhD, DPT, ATC	popovi16@msu.edu	517-353-8470	EL
Carolina Restini, PhD	restinic@msu.edu	517-353-7145	MUC
Janice Schwartz, PhD	schwa317@msu.edu	517-884-9671	DMC
Dhruv Sharma, PhD	sharmadh@msu.edu	517-353-1058	EL
Alla Sikorskii, PhD	sikorska@msu.edu	517-432-4204	EL
Kirsten Waarala, DO	waarala@msu.edu	517-884-3238	EL
Abe Wheeler, MILS	awheeler@msu.edu	517-884-0893	EL

Curriculum Assistants

Site	Name	Email	Phone
East Lansing	Alison Lux	luxaliso@msu.edu	517-432-7295
DMC	Donna Stern	sterndon@msu.edu	313-578-9667
MUC	Rosemary Shubeck	shubeckr@msu.edu	586-263-6746

Lines of Communication

- For administrative aspects of the Course: contact the course coordinator.
- For content questions relating to a specific lecture or topic: contact the faculty presenter for that specific portion of the course or your SE MI on-site instructor.
- For absences/missed exams (see excused absence information below)
- Please set your notifications in D2L to immediate to receive posted News announcements. You may choose to receive notifications by email or SMS.

Office Hours

Questions concerning may be discussed individually by making an appointment with the Course Coordinator, *Furqan B. Irfan*, West Fee Hall, Room 325A, by phone at (517) 353-7785 or via e-mail: irfanfur@msu.edu.

The course coordinator is generally available *Tuesday – Thursday (1 – 5:30 pm)* or by appointment.

Course Web Site

The URL for the Course website is: <https://d2l.msu.edu>

Textbooks and Reference Materials

Required

- Users' Guides to the Medical Literature: A Manual for Evidence-Based Clinical Practice, 3rd ed. Gordon Guyatt, Drummond Rennie, Maureen O. Meade, Deborah J. Cook. [Online copy of User's Guides to the Medical Literature](#)

- Clinical Epidemiology: The Essentials, 5th edition Robert H. Fletcher, MD; Suzanne W. Fletcher, MD; Grant S. Fletcher, MD. [Online copy of Clinical Epidemiology](#)
- Medical Statistics from Scratch: An Introduction for Health Professionals, 4th edition David Bowers. [Online copy of Medical Statistics from Scratch](#)

Optional Reading

- Principles of Epidemiology in Public Health Practice, Third Edition. An Introduction to Applied Epidemiology and Biostatistics. (CDC). Lesson 3: Measures of Risk
<https://www.cdc.gov/csels/dsepd/ss1978/lesson3/index.html>

Course-based Academic Support

The course faculty are here to facilitate your learning. Please feel free to contact the Course Coordinator with any personal issues you may have involving this course. Additional academic support resources can be accessed through MSUCOM Academic and Career Guidance and MSUCOM Personal Counseling.

Courses Begin and End Dates

OST 598 begins on 7/1/20 and ends on 8/20/20. See addendum for detailed daily course schedule.

Exams/Assessments

The successful achievement of learning objectives will require knowledge and skills acquired in other portions of the overall MSUCOM educational program. Students will be expected to apply concepts and vocabulary learned in other courses to problem-solving for exams/assessments in this course.

To maintain security of assessments, you may NOT post questions on the discussion board regarding exam questions or quiz questions. Kindly email your questions to the course coordinator.

Assessments	Projected Points	Material to be Covered
Exam 1	27	Biostatistics, Epidemiology
Exam 2	27	Biostatistics, Epidemiology, Public health, Evidence based-Medicine
D2L Quiz 1	10	Epidemiology 1, 2, 3 and 4 Biostatistics 1 (part a and b)
D2L Quiz 2	10	Epidemiology 5 and 6 Biostatistics 2 and 3
D2L Quiz 3	10	EBM 1, 2 and 3
Workshop 1	10	EBM 4: Critical appraisal of randomized controlled trial
Workshop 2	6	EBM 5: PICO

D2L Quiz 1, 2 and 3 will consist of 10 MCQs each, worth 1 point each and will have a 15 minute time limit, to be taken within a 40 minute window on D2L individually.

Workshop 1 (EBM 4: Critical appraisal of randomized controlled trial), will be assessed with 10 MCQs worth 1 point each (total 10 points) that students will have to answer individually in D2L.

Workshop 2 (EBM 5: PICO), will be assessed with 6 MCQs worth 1 point each (total 6 points) that students will have to answer individually in D2L.

Course Grades

The course faculty determine the threshold for satisfactory performance in each preclerkship course. Your course grade will be determined by the following formula:

$$\frac{(\text{Exam 1} + \text{Exam 2} + \text{D2L Quiz 1} + \text{D2L Quiz 2} + \text{D2L Quiz 3} + \text{Workshop 1} + \text{Workshop 2})}{(\text{total points possible})} \times 100\% \\ = \text{Final Percent Score}$$

- **P-Pass**—means that you have achieved a satisfactory level of performance and will receive credit for this course. To obtain a “P” grade for this course, you must earn a final percent score of 70%.
- **N-No Grade**—means that you have not achieved a satisfactory level of performance and no credit will be granted for this course. If you earn a final percent score below 70%, you will receive an “N” grade.
- **Remediation** – If you receive an “N” grade and meet the criteria below, you will be eligible to attempt remediation:
 - Earn a final percent score in the course of 50% or greater.

The remediation opportunity for this course will be by examination. Passing is 70%.

All remediation exams for semester US20 are scheduled for Tuesday, August 25th and Wednesday, August 26th, 2020. Refer to the remediation policy information provided in Section 2 of this syllabus for more information.

Student Evaluation of the Course

We want your feedback on how to improve this course.

- **Informal Feedback:** Feel free to approach the Course Coordinator, Dr. Furqan Irfan, or any of the other course faculty with your reactions and suggestions.
- **Formal Evaluation:** In addition to the above, we ask every student in the class to complete formal on-line course evaluation upon conclusion of the course. Student feedback provides Course Coordinators with valuable information regarding their performance, the performance of their colleagues, and the quality of the course. The information gained from these evaluations is used to continuously improve future offerings of this course. Students can access the evaluation system at: [MSUCOM Pre-clerkship Evaluation System](#).

Section 2 – Policies

Please refer to the [MSUCOM Student Handbook](#) for these and other policies.

Academic Honesty and Professionalism

Every student is responsible for their behavior and is expected to adhere to all MSU and MSUCOM policies of academic honesty and professionalism, as outlined in the MSUCOM Student Handbook and the MSU Medical Student Rights and Responsibilities. These documents may be found on the MSUCOM website. Additional guidance on academic integrity may be found on the MSU Ombudsperson’s website at <https://ombud.msu.edu/sites/default/files/content/Academic-Integrity-at-MSU-updated-August-2017.pdf>

Incidents of academic dishonesty or professional misconduct will be addressed by the faculty, administration, or staff; such action may include, but is not limited to: giving a failing grade, referring a student for judicial review, directing the student to the Associate Dean of Medical Education, evaluation by the Committee on Student Evaluation, and other actions outlined in the Medical Student Rights and Responsibilities document.

Types of Class Sessions

MSUCOM designates lectures and other class sessions by their delivery method. While additional terms may be used in a specific course, the following will provide general guidance to the type of session:

- Live or livestream lecture:
- Online Lecture:
- Webinar:
- Lab:

Changes to Course Schedule or Requirements

Due to external circumstances, the course requirements published in the course syllabus and/or course schedule may be subject to change. Timely notification Communication regarding changes will be provided to enrolled students via the course D2L site and/or email. Any changes made will consider the MSU Code of Teaching Responsibility and the MSU Medical Students Rights and Responsibilities.

Mandatory and Optional Class Sessions

All lectures and other class sessions are considered to be integral to the course, and students are expected to attend, view, or participate in each session. Some sessions are designated as “mandatory” in that attendance at the session on the scheduled date and time is required. Depending on the course, a student may earn points for attending or participating in a mandatory session or may lose points for failing to attend or participate. Availability of make-up points for missed sessions is at the discretion of the course coordinator. Optional class sessions are offered by faculty to assist students in learning or reviewing course content.

Absences from Mandatory and Examinations/Assessments

It is the responsibility of the student to know which class sessions are deemed as mandatory and comply with the MSUCOM policy regarding absences from mandatory sessions and examinations. This policy may be found in the MSUCOM Student Handbook on the MSUCOM website. Requests for an excused absence must be submitted via the [student portal](#).

Computer-Based Testing

It is the responsibility of each student to know and comply with the MSUCOM policy on computer-based testing. This policy may be found in the MSUCOM Student Handbook on the MSUCOM website.

Administration of quizzes, examinations, and other assessments may be self-proctored, virtual proctored, or classroom proctored. Regardless of the proctoring method, you are expected to take the exam in a quiet, private setting. Just like in a proctored exam, you are not to access notes, textbooks, references, your phone, or other materials, and you are not to interact with fellow students or others. Remember that integrity is defined as what you do when no one is looking.

You are also expected to not record, photograph, take screen shots, make notes of, or otherwise attempt to make a copy of any exam item for any purpose, including your personal use. A student who is discovered to have cheated or breached exam security will be subject to formal disciplinary action, up to and including dismissal from MSUCOM.

If you have concerns or evidence of an exam security breach on this or any exam, you may report that to an MSUCOM administrator or through the online concern form.

Medical Student Rights and Responsibilities

If problems arise between instructor and student, both should attempt to resolve them by informal, direct discussions. If the problems remain unsolved, the Associate Dean for Medical Education and/or the MSU Ombudsperson may be consulted. The MSU Medical Student Rights and Responsibilities (MSRR) document defines processes for additional steps, including submission of a formal grievance. The MSSR may be found in the MSUCOM Student Handbook and online at splife.studentlife.msu.edu.

Reef Polling (iClicker Cloud) Policy

It is your responsibility to know and comply with the Reef Polling (iClicker Cloud) Policy. This policy may be found in the MSUCOM Student Handbook. If you forget your device or if it does not work, for whatever reason, no make-up experiences will be provided, and no points will be given.

If Reef Polling is used to take attendance for an on-campus event, you will be expected to arrive to the physical location on time and to stay for the duration of the assigned activity. If Reef Polling is used to take attendance for an online event, you will be expected to start the session at the scheduled time and participate for the duration of the assigned activity.

As a matter of professionalism, please note that under no circumstances should you provide access to their iClicker Reef account to another student by sharing your device and/or account login, nor should a

you accept another student's device or login credentials to access Reef Polling on their behalf. Answering questions or checking in for attendance on behalf of another student by using their device or account is considered to be academic dishonesty and may result in disciplinary action up to and including dismissal from the college.

Remediation

The MSUCOM Policy for Retention, Promotion and Graduation requires successful completion of each required course to progress in the curriculum. If you receive an "N" grade in a course, that grade will be recorded on your official transcript; you must meet the course requirement by successfully remediating or repeating the course.

Eligibility to attempt remediation of the course is determined by criteria described in the "Course Grades" section of the syllabus. If you are not eligible to attempt remediation, or if you fail the remediation, you must retake the course, provided you are eligible to continue in the program as determined by the Committee on Student Evaluation.

Student Safety and Well-being

The MSUCOM website and Student Handbook provide information on student safety, campus security, access to medical care and counseling services, and to policies on injuries and exposures. If you have an injury or acute illness on campus, an incident report should be completed. The form is available on the MSUCOM intranet or from Academic Programs.

Requests for Accommodations

Michigan State University is committed to providing equal opportunity for participation in all programs, services and activities. Requests for accommodations by persons with disabilities may be made by contacting the Resource Center for Persons with Disabilities (RCPD) at 517-884-7273 or online at rcpd.msu.edu. Once eligibility for an accommodation has been determined, you may be issued a Verified Individualized Services and Accommodation (VISA) form. Each VISA includes an expiration date; to request an accommodation, you must have an active VISA. You may work with RCPD to renew a VISA.

During the preclerkship curriculum, the college will help to coordinate accommodations for additional testing time. Provide your VISA to Nancy Thoma, thoman@msu.edu, A333 East Fee Hall at the start of the term and/or at least two weeks prior to the assessment event (test, project, labs, etc.). Requests for accommodations received with less notice will be honored whenever possible. You may choose whether or not you wish to use accommodations for a particular event. For other accommodations, you may also review your VISA with the course coordinator and curriculum assistant assigned to that course.

Title IX Notifications

Michigan State University is committed to fostering a culture of caring and respect that is free of relationship violence and sexual misconduct, and to ensuring that all affected individuals have access to services. For information on reporting options, confidential advocacy and support resources, university policies and procedures, or how to make a difference on campus, visit the Title IX website at titleix.msu.edu.

Limits to confidentiality. Essays, journals, and other materials submitted for this class are generally considered confidential pursuant to the University's student record policies. However, you should be aware that University employees, including instructors, may not be able to maintain confidentiality when it conflicts with their responsibility to report certain issues to protect the health and safety of MSU community members and others. Instructors must report the following information to other University offices (including the Department of Police and Public Safety):

- Suspected child abuse/neglect, even if this maltreatment happened when you were a child;
- Allegations of sexual assault, relationship violence, stalking, or sexual harassment; and
- Credible threats of harm to oneself or to others.

These reports may trigger contact from a campus official who will want to talk with you about the incident that you have shared. In almost all cases, it will be your decision whether you wish to speak with that individual. If you would like to talk about these events in a more confidential setting, you are encouraged to make an appointment with the MSU Counseling and Psychiatric Services.

Addendum: Course Schedule

Course schedule for the current semester will be posted to D2L. Changes to the course schedule will be noted on the class academic calendar ("Google calendar") and communicated to students via D2L and/or email. The schedule for the most recent offering of this course will be posted on the MSUCOM website under Current Students/Preclerkship Curriculum.