

## MED 831: Analytics in Medicine 3 (AIM)

Autumn 2018

Mondays – 10:00 a.m. to 12:00 p.m.  
Fridays – 1:00 a.m. to 3:00 p.m.  
1001 Shadow Lane

Course Chairs:  
Sandhya Wahi-Gururaj, MD  
Ranjit Makar, MD

### Course Description and Learning Objectives:

The third course, of a six-block series, builds upon the concepts introduced in AIM 1 & 2 and focuses on the contextualization of how key concepts in biostatistics, epidemiology and evidence-based medicine are presented in the medical literature, applied to patient care, and used to make informed decisions for the improvement of healthcare, its systems and processes. This sequence of longitudinal courses procures students' analytical techniques, understandings of principles associated with the testing and screening patients for data collection, research, interpretation, and clinical decision-making processes; as well as prepares students with the means to critically evaluate medical literature and apply sound evidence in patient care for the subsequent clerkship phase of the medical school curriculum.

- Critically evaluate new knowledge and determine its relevance to clinical problems and challenges presented by individual patients.
- Use evidence based medicine to learn independently with a critical awareness of the scope and limits of one's knowledge, skills, and values/beliefs.
- Demonstrate and contextualize how key concepts of biostatistics, epidemiology, and evidence-based medicine are used in medical literature and applied to patient care.
- Evaluate the credibility and rigor of medical literature and apply evidence to patient care.
- Apply statistical and study-design principles in the evaluation of clinical trials.
- Describe the ethical standards involved in using EBM in challenging situations for decision-making processes.
- Interpret, assess, integrate, and apply data and information from diagnostic tests in clinical problem solving processes, reasoning, and decision-making.
- Review biostatistics & epidemiology knowledge in preparation for the USMLE Step 1 Exam.
- Demonstrate an understanding of physicians' fiduciary duties.
- Recognize ethical issues that may arise in the course of patient care.
- Think critically and systematically through ethical problems using bioethical principles and other tools of ethical analysis.
- Provide a reasoned account of professionally responsible management of ethical problems and act in accordance with those judgments.
- Articulate ethical reasoning to others coherently and respectfully.
- Utilize relevant ethics statements from professional associations to guide clinical ethical judgment and decision-making.

### Required and Recommended Materials & Textbooks:

#### Required

- Fletcher, R. H., & Fletcher, S. W. *Clinical Epidemiology: The Essentials*. 5<sup>th</sup> ed. Wolters Kluwer | Lippincott, Williams & Wilkins.
- Hope, T. (2004). *Medical Ethics: A Very Short Introduction*. 1<sup>st</sup> ed. Oxford University Press.

- Jonsen, A. R., Siegler, M., & Winslade, W. J. (2015). *Clinical Ethics: A Practical Approach to Ethical Decisions in Clinical Medicine*. 8<sup>th</sup> ed. McGraw Hill Education | Lange.
- Lo, B. (2013). *Resolving Ethical Dilemmas: A Guide for Clinicians*. 5<sup>th</sup> ed. Wolters Kluwer | Lippincott, Williams & Wilkins.
- Riegelman, R. K. (2012). *Studying a Study and Testing a Test: Reading Evidence-based Health Research*. 6<sup>th</sup> ed. Lippincott, Williams & Wilkins.
- Veatch, R. M., Haddad, A. M., & English, D. C. (2014). *Case Studies in Biomedical Ethics. Decision-Making, Principles, and Cases*. 2<sup>nd</sup> ed. New York, NY: Oxford University Press.
- Weaver, A., & Goldberg, S. (2011). *Clinical Biostatistics and Epidemiology Made Ridiculously Simple*. 1<sup>st</sup> ed. MedMaster, Inc.

### Recommended

- Glaser, A. N. (2013). *High-Yield Biostatistics, Epidemiology, and Public Health*. 4<sup>th</sup> ed. Lippincott, Williams & Wilkins.
- Strome, T. (2013). *Healthcare Analytics for Quality and Performance Improvement*. Hoboken, NJ: John Wiley & Sons, Inc.

*Additional materials may be assigned and/or recommended at the onset and throughout the duration of the course to aid/facilitate aforementioned learning objectives.*

### **Course Schedule & Weekly Objectives:**

#### Week 1 – Monday, August 27, 2018

##### *Topics include:*

- Care at the end-of-life, including advance directive, life-sustaining intervention, determination of death, and decision-making capacity.

##### *Assigned Readings & Review Materials:*

- Lo, B. (2013). *Resolving Ethical Dilemmas: A Guide for Clinicians*. 5<sup>th</sup> ed. Lippincott, Williams & Wilkins, pp. 90-94 & 143-146.

#### Week 2 – Tuesday, September 4, 2018

##### *Topics include:*

- Evidence-based medicine, EBM, in searching for information and utilizing point-of-care tools to answer questions about specific patients

##### *Assigned Readings & Review Materials:*

- Shaughnessy, A. F., & Slawson, D. C. Center for Information Mastery. Retrievable at: <http://medicine.tufts.edu/Education/Academic-Departments/Clinical-Departments/Family-Medicine/Center-for-Information-Mastery>

#### Week 3 – Monday, September 10, 2018

##### *Topics include:*

- Ethics of genetics, neuroscience, and incidental findings

*Assigned Readings & Review Materials:*

- TBD

Week 4 – Wednesday, September 17, 2018

*Topics include:*

- Biostats/Epi Module 8: Applications to Clinical Medicine

*Assigned Readings & Review Materials:*

- TBD

Week 5 – Monday, September 24, 2018

*Topics include:*

- Describe and use a/the body of evidence collected for and against cause

*Assigned Readings & Review Materials:*

- TBD

Week 6 – Monday, October 1, 2018

*Topics include:*

- Ethical concerns, issues, and considerations in the field of psychiatry

*Assigned Readings & Review Materials:*

- Lo, B. (2013). *Resolving Ethical Dilemmas: A Guide for Clinicians*. 5<sup>th</sup> ed. Lippincott, Williams & Wilkins, pp. 286-291.

Week 7 – Monday, October 8, 2018

*Topics include:*

- Biostats/Epi Module 8: Applications to Clinical Medicine

*Assigned Readings & Review Materials:*

- TBD

Week 8 – Monday, October 15, 2018

*Topics include:*

- Apply evidence-based medicine to gather and use information to assess patient prognosis

*Assigned Readings & Review Materials:*

- Shaughnessy, A. F., & Slawson, D. C. Center for Information Mastery. Retrieval at: <http://medicine.tufts.edu/Education/Academic-Departments/Clinical-Departments/FamilyMedicine/Center-for-Information-Mastery>

Week 9 – Monday, October 22, 2018

*Topics include:*

- Biostats/Epi Module 8: Applications to Clinical Medicine

*Assigned Readings & Review Materials:*

- TBD

Week 10 – Monday, November 5, 2018

*Topics include:*

- National Guideline Clearinghouse and When Guidelines Collide

*Assigned Readings & Review Materials:*

- TBD

Week 11 – Monday, November 12, 2018

*Topics include:*

- Contrast expert-based, evidence-based, and evidence-linked guidelines
- Describe how financial and intellectual conflicts of interest can affect guideline recommendations

*Assigned Readings & Review Materials:*

- Shaughnessy, A. F., & Slawson, D. C. Center for Information Mastery. Retrievable at: <http://medicine.tufts.edu/Education/Academic-Departments/Clinical-Departments/Family-Medicine/Center-for-Information-Mastery>

Week 12 – Monday, November 26, 2018

*Topics include:*

- Using evidence-based medicine, EBM, evaluating the strengths and weaknesses of systematic reviews
- Develop a presentation defining the/a population, intervention, comparisons, outcomes (PICO questioning)

*Assigned Readings & Review Materials:*

- Shaughnessy, A. F., & Slawson, D. C. Center for Information Mastery. Retrievable at: <http://medicine.tufts.edu/Education/Academic-Departments/Clinical-Departments/Family-Medicine/Center-for-Information-Mastery>

Week 13 – Friday, December 7, 2018

*Topics include:*

- Biostats/Epi Module 8: Applications to Clinical Medicine

*Assigned Readings & Review Materials:*

- TBD

Week 14 – Monday, December 10, 2018*Topics include:*

- Ethics in Public Health; Public Health Emergencies

*Assigned Readings & Review Materials:*

- TBD

**Course Requirements & Evaluation:**

Active participation and preparation are integral parts of this longitudinal course. Students must engage in individual, small group discussions, case studies, and all problem-based activities to provide for an enriching and active learning environment designed to enhance critical thinking skills along with biostatistics, epidemiology, and research knowledge.

Students are expected to arrive on time to all problem-based learning sessions prepared to participate actively and engage in all educational activities. Moreover, students are expected to be respectful of each other, instructors, guests, and/or visiting faculty, as well as take full responsibility and accountability for their actions, choices, and decisions. This includes the demonstration of personal and professional integrity. Any student with a serious or multiple violations of professional behavior will be referred to the Medical Student Progress Committee (SPC) for review and potential action.

Attendance will be excused for matters pertaining to serious illness or in the event of a family emergency per the review and approval of the Senior Associate Dean for Student Affairs.

**Grading:**

A pass/fail (P/F) grade is based upon satisfactory participation in individual, small group discussions, problem-based learning activities, as well as the timely completion of written assignments, group exercises, and a satisfactory set of formative and summative narrative assessments. Additionally, quizzes may be administered to assess and reinforce basic bio-statistical and/or epidemiological concepts. Although points may not be awarded and a portion of the coursework may be presented in small PBL groups, all quizzes and methods of evaluation must be completed independently.

Students who fall below the minimum standards described, or who receive an 'Incomplete' grade, will undergo a formal remediation process. Students will coordinate and work with the course chair to develop a plan that addresses knowledge gaps, lack of competency and/or behaviors with specified activities, timelines and deadlines. (The plan will be submitted and presented to the UNLV SOM's Dean of Academic Affairs and Education for review, and subsequently referred to the Student Promotion and Conduct Committee, SPCC, for presentation by the Clerkship Director(s). Approval, and/or requested revisions will be determined by the SPCC given the complexity and suitability of the remediation plan.

**Dress Code:**

Students represent not only themselves, but also the medical profession to those with whom they

have contact. Appropriate and professional attire should be worn, especially when students are in patient care settings or when contact with patients is anticipated. Students should be aware that personal appearance may serve to inspire or hinder the establishment of the trust and confidence that are essential in the doctor-patient relationship. Jeans, sandals, and shorts (and other casual attire) are not considered professional dress. Scrubs are worn in the operating room, in the anatomy lab or in other clinical circumstances to protect the operator's clothing from soilage. Scrubs, in general, should not be worn outside of the lab or hospital, and scrubs worn in the operating room should not be worn outside of the operating room. (*Please refer to Section 6: Professionalism in the UNLV SOM Student Handbook for guidelines pertaining specifically to dress and deportment.*)

**University Expectations and Resources:**

Academic Misconduct – Academic integrity is a legitimate concern for every member of the campus community; all share in upholding the fundamental values of honesty, trust, respect, fairness, responsibility and professionalism. By choosing to join the UNLV community, students accept the expectations of the Academic Misconduct Policy and are encouraged when faced with choices to always take the ethical path. Students enrolling in UNLV assume the obligation to conduct themselves in a manner compatible with UNLV's function as an educational institution. An example of academic misconduct is plagiarism. Plagiarism is using the words or ideas of another, from the Internet or any source, without proper citation of the sources. See the Student Academic Misconduct Policy (approved December 9, 2005) located at: <http://studentconduct.unlv.edu/misconduct/policy.html>.

Copyright – The University requires all members of the University Community to familiarize themselves and to follow copyright and fair use requirements. You are individually and solely responsible for violations of copyright and fair use laws. The university will neither protect nor defend you nor assume any responsibility for employee or student violations of fair use laws. Violations of copyright laws could subject you to federal and state civil penalties and criminal liability, as well as disciplinary action under University policies. Additional information can be found at: <http://www.unlv.edu/provost/copyright>.

Disability Resource Center (DRC) – The UNLV Disability Resource Center (SSC-A 143, <http://drc.unlv.edu/>, 702-895-0866) provides resources for students with disabilities. If you feel that you have a disability, please make an appointment with UNLV SOM's Senior Associate Dean for Student Affairs, as well as a Disabilities Specialist at the DRC to discuss appropriate options.

If you are registered with the UNLV Disability Resource Center, please submit your Academic Accommodation Plan from the DRC to UNLV SOM's Office of Student Affairs to develop strategies for implementing an accommodations plan that meets both your needs and UNLV SOM requirements. Any information provided is private and confidential. To maintain confidentiality, please do not approach course chairs or instructors before or after class to discuss accommodation needs.

Religious Holidays Policy – Any student missing class quizzes, examinations, or any other class or lab work because of observance of religious holidays shall be given an opportunity during that semester to make up missed work. The make-up will apply to the religious holiday absence only. It shall be the responsibility of the student to notify the Senior Associate Dean for Student Affairs and the course chair or faculty preceptor no later than the end of the first two weeks of classes, January 31, of his or her intention to participate in religious holidays which do not fall on state holidays or

periods of class recess. This policy shall not apply in the event that administering the test or examination at an alternate time would impose an undue hardship on the instructor or the university that could not have reasonably been avoided. For additional information, please visit: <http://catalog.unlv.edu/content.php?catoid=6&navoid=531>.

Incomplete Grades – Course or clerkship/elective faculty share responsibility with individual students to monitor their performance in the curriculum. The Student Progress Committee (SPC) follows student performance in the curriculum, and is responsible for approving all remediation plans once students have been assigned an insufficient grade, *e.g.* ‘Incomplete’ or ‘Fail.’ Remediation plans are developed by individual course directors, based upon individual student’s identified academic and professional deficits, and tailored by both the course director and the SPC. The SPC determines deadlines for the adequate remediation of the course and provides final approval of the remediation plan. Students have the option, upon request, to appear before the SPC when plans for remediation are being considered.

*Please note:* In Phase 3 of the curriculum, any remediation of elective or advanced clerkship deficits must be completed prior to April 1 to meet the School of Medicine’s graduation requirements. Students are not permitted to remediate more than two (2) course grades of ‘Incomplete’ during a single academic year. Students who receive more than two incomplete grades must be reviewed by the SPC. (*Please refer to Section 7: Academic Policies in the UNLVSOM Student Handbook for guidelines pertaining specifically to academic progress and actions.*)

Tutoring & Academic Resources – The Academic Skills Team (AST) provides academic assistance for all UNLVSOM students taking UNLVSOM courses. Students are encouraged to stop by the AST to utilize a variety of academic services, including test-tasking skills and strategies, coping with test anxiety, and improving self-study skills in preparation for USMLE and board exams. The AST is located at: 2040 West Charleston Boulevard, 89102.

UNLV E-mail – By policy, faculty and staff should e-mail students’ UNLV e-mail accounts only. All UNLV students receive a Rebelmail account after they have been admitted to the university. It is one of the primary ways students receive official university communication such as information about deadlines, major campus events, and announcements. Students’ e-mail prefixes are listed on class rosters, and the suffix is: @unlv.nevada.edu.