SPM-RME 573 – Research Methods & Epidemiology
Course Syllabus
Summer 2015

SPM 573 RESEARCH IN COMMUNITY HEALTH (RICH): The RME component will make up 50% of the SPM-RICH final semester grade.

SPM-RME 573 COURSE INSTRUCTOR: Jeremy Montague, Ph.D.

LECTURE SLIDE SETS, all course content is presented in the six lecture slide sets posted on Canvas. All exam questions come directly from these slide sets.

RECOMMENDED COURSE TEXTBOOK, Research Methods & Epidemiology (RME): Kuzma, J.W., and S.E. Bohnenblust. 2005. Basic Statistics for the Health Sciences (5th edition). McGraw-Hill/Mayfield Publishing Company, Mountain View, CA. ISBN 0072985437. (note: this is the most recent edition of a widely-used textbook). A copy of this textbook is available for consultation on each campus.

COURSE OUTCOMES, Research Methods & Epidemiology (RME): Upon completion of the lecture material, exams, and take-home assignments, the student will be able to:

- Understand and apply appropriate sampling methods in medical statistics and epidemiology;
- Understand and apply the concepts of probability, hypothesis testing and statistical significance;
- Identify and interpret medical and epidemiological statistical measures related to availability and quality of health services;
- Understand and identify the primary, secondary and tertiary levels of disease prevention;
- Understand the roles of prospective and retrospective research designs in epidemiology;
- Review and critique published medical and epidemiological research studies, particularly those designed as random clinical trials (RCT).

COURSE SCHEDULE, Research Methods & Epidemiology (RME)

- Friday, 15 May: Week 1 slide set 01 (introduction to clinical epidemiology; nature of epidemiological data; epidemiological sampling; the null hypothesis in epidemiology)
- Friday, 22 May: Week 2 slide set 02 (statistical inference; the nature of statistical significance; probability and sampling; statistical distributions in epidemiology)
- Friday, 29 May: Week 3 slide set 03 (one-sample and two-sample hypotheses; t-testing and comparison of means; introduction to public health screening)
- Friday, 5 June: Week 4 slide set 04 (epidemiological patterns of infectious and non-infectious disorders; models for infectious diseases)
- Friday, 12 June: Week 5 slide set 05 (retrospective vs. prospective designs)
- Friday, 19 June: Week 6 slide set 06 (the randomized clinical trial: RCT)

EVALUATION CRITERIA, Research Methods & Epidemiology (RME): The final semester grade component for RME (50% of the SPM 573 course) will be calculated as:

- 0.80 = the average percentage correct of the **FOUR** highest exam scores out of **SIX** weekly exams (the lowest exam score will be dropped).
- 0.10 = the percentage score on the first take-home assignment report (using the Honolulu Heart Study spreadsheet)
- 0.10 = the percentage score on the second take-home assignment report (using the U.S. Census Counties data spreadsheet)
- = 1.00
- + up to 0.05 extra-credit = the percentage score on the **OPTIONAL EXTRA-CREDIT** take-home assignment report (using the international health spreadsheet)

WEEKLY ONLINE EXAMS, Research Methods & Epidemiology (RME)

- I expect all SPM-RME 573 students to operate on the Honor System…
  - Students may **NOT** write out, copy, snip, save, or otherwise electronically duplicate any online question or answer to any SPM-RME 573 online weekly exam.
  - Students may **NOT** discuss or exchange information concerning any question or answer (the answer key will be released to all students after the test time has closed).

- o Students may **NOT** search out or consult questions or answers from previous semesters of SPM-RME 573.
  - o Any violation to these conditions represents a serious academic offense, and will result in a zero (F) in SPM-RME 573.
- The six scheduled weekly exams will be completed online in Canvas within a 81-hour time window (beginning 12:00 pm on Friday afternoon and ending three days later at 11:00 pm on Monday evening).
- The exams are **NOT** comprehensive; each exam will cover **ONLY** the content of that lecture slide set presented in that week's lecture.
- The student may take the exam on the computer and setting of his/her choice (at home, on campus, in a public library, in an internet cafe, in a Starbucks, etc.)
- Each exam will consist of 20 multiple-choice questions.
- All exams are **OPEN-NOTE, OPEN-BOOK** format - the student may use any and all slide sets, notes, online resources, etc., during the exam.
- A missed exam (for ANY reason) will be recorded as a **ZERO**, and may be used as the dropped score - there are **NO MAKE-UPS** for a missed exam.

TAKE-HOME ASSIGNED REPORTS, Research Methods & Epidemiology (RME): The instructions for required format and content (as well as SAMPLE assigned reports) are posted at the "Assigned Reports" hyperlink. Each student has been assigned to a particular "report set," which includes:

- comparison of biomedical data for the 100 men in the Honolulu Heart Study (HHS) Excel spreadsheet;
- comparison of epidemiological measures from 3,146 counties in the U.S. Counties Excel spreadsheet; and
- third Excel dataset available for the **OPTIONAL, EXTRA-CREDIT** assignment (see details below); this assignment uses data from 3,146 counties in the U.S. Counties Excel spreadsheet.

The assignment due-dates are posted at the "Assigned Reports" hyperlink. Successful completion of the assignments report will be based on the student's ability to sort the required data and generate a brief analysis of the assigned comparison. The assignment assumes the student has the basic understanding of and skills in sorting rows and columns of data in an Excel spreadsheet (in particular, we will use the Excel "Pivot Table" technique in the first two assignments students are encouraged to use their Excel "help" buttons to explore the concept of the "Pivot-Table."