PhD Program in Epidemiology (JDP)
Educational Objectives, Fall 2012 and Spring 2013

Educational Objective
1. Describe the distribution and determinants of health and disease in populations, and the factors that influence these distributions.
2. Describe major national and international health concerns, their established risk factors and other contributing factors for these problems.
3. Identify the ethical issues involved with studies of human populations.
4. Develop a systematic approach for planning, collecting, processing and analyzing information in research and practice settings.
5. Apply appropriate analytic and statistical methods to data generated from a wide variety of public health research.
6. Design and implement independent research addressing a public health problem.
7. Develop and write fundable research proposals and critique those of other investigators.
8. Translate public health research findings into recommendations for specific interventions, health policies, or further investigative research.
9. Communicate scientific findings clearly and concisely, both orally and in writing to other health professions, as well as to the media and broader community.
10. Identify, measure, and discuss the major categories of bias and their potential impact on measures of association, assess the potential for their occurrence in specific situations, and propose methods to evaluate the and/or reduce their influence on the measures of major interest.
11. Identify situations where confounding and effect modification may be important, and apply designs and statistical methods to quantitatively assess confounding and effect modification.
12. Understand and apply methods necessary to conduct outbreak investigations.
13. Apply a range of sampling techniques and calculate appropriate sample sizes in accordance with study objectives.
14. Understand and apply the principles of screening for diseases and risk factors, calculate and interpret sensitivity, specificity, and predictive values of negative and positive tests.
15. Employ methods of direct and indirect standardization or adjustment for factors such as age or gender in a a study population.
16. Identify and apply appropriate advanced statistical methods, including multivariable regression, factor analysis, logistic regression, survival analysis, and cluster analysis.
17. Apply the principles of causation in designing studies and interpreting published literature.
18. Use appropriate epidemiologic and statistical methods to calculate and interpret dose-response issues and trends in prevalence or incidence of disease outcomes or risk factors.