

## Health Outcomes Research Curriculum

### 1. REQUIRED LECTURE:

**(1) “Health Outcomes Research in Cancer Prevention and Control” (Public Health Sciences Faculty and Staff)**

Topics: Issues of population based studies, sampling, design, assessment points, forms design, database development, aspects of implementation and conducting a health outcomes trial in the community.

### 2. REQUIRED CORE COURSES:

**(1) Principles of Epidemiology (PM 415)** This course provides an introduction to epidemiological concepts of disease and interventions to ameliorate them. The course will discuss population-based aspects of disease, morbidity and mortality statistics, basic study designs (cross-sectional, case-control, cohort and clinical trials), and the use of epidemiological data to draw conclusions about disease causation. At the end of the course, students should have a broad view of denominator-based medicine and be prepared for higher level courses in epidemiological methods. **(Public Health Sciences Faculty and Staff)**

**(2) Epidemiologic Methods (PM 416)** This course is designed to provide an in-depth coverage of the quantitative methodological issues associated with population-based epidemiological research. Issues specific to study design and analysis are emphasized. Topics to be covered include: optimal study design, methods of data collection and data management, confounding and effect-modification, and multivariate analytic techniques, including linear and logistic regression, Kaplan-Meier survival techniques and Cox proportional hazards modeling. **(Public Health Sciences Faculty and Staff)**

**(3) Cancer Epidemiology (PM 466)** The purpose of this course is to provide the student with a basic understanding of the biology, prevention, treatment and burden of malignancy in the U.S. The course will include discussions of patterns of cancer incidence, etiologic factors, individual risk assessment, stages of neoplastic development, recent laboratory techniques for measurement of biomarkers, and interventional approaches related to prevention, screening and treatment. Seminars will be generated from a series of selected papers from the literature, each representing either a seminal contribution or a new strategy in cancer research. In depth critiques of the research design and statistical approaches of each paper will also be included. **(Public Health Sciences Faculty and Staff)**

**Public Health & the Environment (PM 470)** The objective of this course is to present an overview of public health issues that are associated with the environment. Areas of emphasis include: the evolution of environmental health from its roots in communicable diseases; current environmental health issues; epidemiology of occupational hazards and their relevance to public health; environmental health policy and regulation, and the prevention and control of environmental hazards. **(Public Health Sciences Faculty and Staff)**

**(4) Management & Evaluation of Health Services Organizations, (PM 450)** This course provides an understanding of executive level management and leadership in non-profit health and human service organizations. In addition, students study organizational context, program design and implementation, and the evaluation of health care services. Students will complete two projects: a health and human service not-for-profit agency-based project that will involve an analysis of management and leadership issues, as well as a needs assessment, program evaluation or quality assurance assessment. **(Public Health Sciences Faculty and Staff)**

### **3. ELECTIVE COURSES:**

- Cancer Screening & Prevention (PM 467)
- Epidemiology of Mental Disorders (PM 468)
- Multivariate Models for Epidemiology (PM 469)
- Politics & Policies in US Health Care (PM 420)
- Intro to US Health Care System (PM 421)
- Field Epidemiology (PM 413)
- Clinical Evaluation & Outcomes Research (PM 482)
- Cost Effectiveness Research (PM 484)
- Molecular Epidemiology (PM 417)
- Nutritional Epidemiology (PM 442)
- Infectious Disease Epidemiology: Prevention & Control (PM 451)
- Qualitative Health Care Research (PM 458)

### **4. REQUIRED SEMINARS:**

**Ethics & Professional Integrity (IND 501)** aims to bring to light some of the salient issues related to ethical and responsible scientific conduct in clinical and basic science biomedical research arenas. Among the issues covered are: conflict of interest, plagiarism, animal and human experimentation copyright and fair use and intellectual property. The 10 session seminar series emphasizes experiential learning in small group format, and case studies are used to facilitate active discussion and interaction among students. **(Division of Humanities Faculty)**

**Working with funding agencies.** In the first semester of year 2, the trainees will attend a series of 14 seminars on technology transfer and protection of intellectual property. The trainee will be introduced to types and sources of research funding, including the University of Rochester's computerized database on sponsored research, the SMART system. These are designed to supplement the broad experience of the program mentors in obtaining cancer control research

support from a variety of sources such as the National Cancer Institute (NCI), American Cancer Society (ACS) and Department of Defense (DOD) as well as foundation sources.

These seminars will also include legal issues in clinical research, working with industry including copyright, patenting, licensure, and other intellectual property issues, and program management and marketing by industry. Invited speakers from local biotechnology and pharmaceutical firms will present their views on key topics. Roles of regulating agencies such as the FDA will be discussed. Federal policies and regulations in clinical research, including the inclusion of women, minorities and children and a discussion of assurances will constitute additional sessions. These include issues of financial conflict of interest, age/sex/handicapped/ minority discrimination, lobbying, etc. **(Public Health Sciences Faculty and Staff)**

## **5. INDIVIDUAL MENTOR RESEARCH OPPORTUNITIES:**

- Health economics, multivariate modeling; Cost Effectiveness of Treatments for DCIS
- Evaluation of behavior change intervention for smoking cessation and diet improvement; testing the self-determination process model
- Characteristics of racial differences in response to treatment for breast cancer
- Re-targeting mid-life and older smokers with telecounseling and focus on pharmacotherapy vs. “usual care” cessation; training pediatric and family clinicians to intervene with their smoking teens at well-visits; deploying a smoking cessation intervention in the Dominican Republic through the use of community internet stations
- Population-based studies of strategies to improve the primary prevention and early detection of cancer in the community, participation of minority women in cancer control trials, factors associated with health behaviors of women at high risk of hereditary breast cancer
- Explores hormonal, body composition and behavioral mechanisms of weight gain in breast cancer patients, cognitive-behavioral aspects of cancer-related fatigue and quality of life, and fatigue associated with cancer chemotherapy and. and cost effective analysis of hematopoietic growth factor support in cancer chemotherapy

