This revised proposal was developed by an ad hoc group of Interdisciplinary Curriculum Committee Members supported by UCSF Global Health Sciences. Input was obtained from faculty members across the four UCSF schools and the Graduate Division as well as from UC Berkeley School of Public Health.

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SECTION 1. INTRODUCTION

1.1 Aims and Objectives

The mission of the University of California, San Francisco (UCSF) Global Health Sciences is to integrate unique faculty expertise in basic sciences, clinical research, anthropology, behavioral sciences, epidemiology, social sciences, economics, and global health to improve the health of vulnerable people in all countries of the world through research and training. This proposal seeks to establish a Graduate Group in Global Health Sciences (GGGHS) at UCSF. The GGGHS will be the home for a multidisciplinary graduate program that will initially provide a new curriculum developed for the Master of Science (MS) degree in global health sciences. After this MS is established, a PhD program will follow with a focus on global health science research, unique to health sciences schools in the United States.

1.2 Historical Development of the Field and Institutional Strengths in the Field

1.2.1 Overview

Global health has become an important concern of both the industrialized and developing nations and has captured the imagination of academic institutions, their faculty and students, as well as numerous private and public organizations. Many reasons can be cited for the current popularity and importance of global health, including:

1) The HIV/AIDS Pandemic: HIV/AIDS is the worst pandemic in human history. It has devastated many countries in Sub-Saharan Africa, destroying their workforce, economy, and social and cultural fabric, as well as threatening their national security. The pandemic is spreading rapidly in India, Southeast Asia, and China. A very small proportion of patients with HIV/AIDS in these countries is receiving antiretroviral drug therapy. The international community is committing unprecedented sums of money to fight the pandemic, but the depletion of the local health workforce presents a critical challenge.

2) Emerging and re-emerging infections: Modern transportation has allowed the spread of emerging infections with jet speed. The recent epidemic of severe acute respiratory syndrome (SARS) provides a perfect example of how a disease that originates in a remote place can rapidly spread to the industrialized world, causing disruption in the economy, commerce and travel. Other examples are Ebola virus, avian influenza virus, West Nile virus, and drug-resistant tuberculosis. Global warming has the potential to encourage the spread of vector-borne disease. The emergence of these conditions has underscored the need for industrialized nations to consider diseases of developing countries as posing a threat to the health of their own people and economy.

3) Globalization: Globalization is transforming the world order in trade and commerce, in the interdependence of nations, and in the patterns of disease in developing countries. As the manufacturing and service industries move
increasingly to the developing countries, the concept of a global workforce with specific healthcare mandates is compelling.

4) Non-Communicable Diseases: The global burden of disease study indicates that these conditions are rapidly becoming as frequent and important in developing countries as communicable diseases. Heart disease, diabetes, hypertension, cerebrovascular disease, obesity and traffic accidents now account for about 50% of the global disease burden overall. New approaches to population health and prevention of non-communicable disease are required. Multidisciplinary approaches in particular are necessary in the approach to these conditions. Tobacco as a specific global public health problem has warranted the development of the Framework Convention on Tobacco Control, the first health treaty negotiated under World Health Organization auspices. UCSF has particular strengths in this area, and it ties together numerous disciplines such as epidemiology, health policy, and anthropology.

5) Humanitarian Concern: Concern for fellow human beings has created a major interest in global health among faculty and students in academic institutions and in developed countries. UCSF faculty members currently conduct approximately 200 research projects on five continents. About 50% of UCSF medical students spend some time in developing countries gaining experience in global health. Clinical trainees (residents) now have increased opportunities to work and conduct research in international settings through a new Global Health Clinical Scholars program, which they helped initiate.

6) Health Diplomacy: This is broadly defined as a political change agent to improve global health while maintaining and improving international relations abroad, particularly in conflict areas and resource-poor countries. Scholars, students, house staff, and faculty from UCSF may pursue leadership positions in global health that can lead to stability, peace, and economic development through health. UCSF can prepare these learners to pursue such careers, thus providing public service and distinction to academia in general.

The reasons discussed above create an opportunity to develop a program of rigorous academic studies in global health sciences. As a premier university devoted solely to the health sciences, UCSF is uniquely positioned to develop a training program that will create a new discipline in global health that bridges the gap between Public Health and Medicine. This training brings to bear the expertise of the faculty in all four professional schools as well as the graduate programs in basic biomedical, social, and behavioral sciences; clinical science; epidemiology; and public health. The complexity of global health requires the contribution of several disciplines in which UCSF excels, as well as from disciplines available through our partnership with UC Berkeley (UCB).

Basic sciences have much to contribute to the understanding of the pathogenesis of microbial infections and in drug and vaccine development, particularly given that the major pharmaceutical companies in developed countries have not shown great interest in combating the great killer diseases in developing countries (malaria, tuberculosis, chronic diarrhea, parasitic infections, etc.). According to the Global Forum for Health Research (www.globalforumhealth.org/pages/index.asp), the public and private sectors spend more than US $70 billion annually on health research and development. An estimated 10% of this is used for research into 90% of the world's health problems. A
focus on research into health problems in the developing world is an essential step to closing this gap. Epidemiology and biostatistics, as well as clinical research and clinical trial methods, are of the utmost importance in the new field of global health sciences. Health economics and policy are central to the causes, effects, and potential solutions in global health. The next generation of researchers, clinicians, and policy leaders in global health need to be well-trained in how to draw upon and integrate skills, perspectives, and expertise provided by all these disciplines.

1.2.2 Institutional Strengths

UCSF has several programs, institutes, centers, and research units from which to draw faculty resources to form the new GGGHS. These are outlined below.

1.2.2.1 UCSF Global Health Sciences

In July 2003, Chancellor J. Michael Bishop established UCSF Global Health Sciences to serve as an umbrella organization to coordinate all the programs relevant to global health on the UCSF Campus. Heads of the centers and institutes involved in global health issues, under the chairmanship of Dr. Haile T. Debas, the Executive Director of UCSF Global Health Sciences and Dean Emeritus of the School of Medicine, planned the goals and objectives and outlined the educational and research agenda of the new organization.

The masters program (MS) in global health sciences proposed here is the most important educational initiative of Global Health Sciences, and it will be the first step towards a PhD program to follow. This new degree program is built on several other educational activities that are now in place.

- GHS in partnership with institutions in developing countries established a Fogarty International Center-supported “sandwich” training program leading to a UCSF Certificate in Global Health Sciences. Masters and PhD level students from abroad complete initial studies in their home universities but come to UCSF for the mid-portion of their training. They receive formal recognition and transcripts for their work here and then return to their home institutions to write their theses. The degrees awarded in this program are not from UCSF but from the home universities.
- The Global Health Clinical Scholars Program (GHCSP) involves resident trainees from Medicine, Surgery, Pediatrics, Orthopedic Surgery, Psychiatry, Family Medicine, Ophthalmology, Dermatology, Neurology, and possible other programs in didactic and experiential learning in global health. Scholars take from two to 12 months off from the clinical work to complete required courses and develop clinical, research, or service projects with our partner institutions abroad. They attend classes and seminars and engage in on-line case-based exercises. GHCSP extends over two to three years and aims to train individuals who plan a career in global health.
- The PhD Area of Concentration in Global Health admits students from any existing UCSF PhD program (basic sciences, nursing, health policy, etc.) to a special track in global health. PhD students in Chemistry and Chemical Biology, Sociology and Nursing participated in the first year of this program, which involves core courses in global health, mentoring, and research training for
problems of global significance. Depending on funding, this program may expand to approximately 15 students per year.

- The Area of Concentration in Global Health for Medical Students has been in existence for three years, with 10-15 students electing special curriculum, experiential learning, and engagement with a ‘legacy’ project. This is a project of lasting value such as a journal article, health program activity, new exchange program, or other product to be completed during medical school. They often opt for an extra year of study or research, and they may dedicate up to six months of elective time to work on their global health projects in their fourth year. They are often paired with UCSF faculty, researchers, and residents for these experiences. Students must take a global health core course in the fourth year and a course in Designing Clinical Research (DCR) through the Department of Epidemiology and Biostatistics (see below).

- Discussions are underway with the Schools of Pharmacy and Nursing for Areas of Concentration-like programs for their professional students.

Following are other institutional strengths at UCSF that will help support the proposed MS program.

1.2.2.2 UCSF Institute for Global Health (IGH)

The Institute for Global Health, a division of Global Health Sciences, is an organized research unit (ORU) within the School of Medicine that supports international health research and some teaching at the School of Medicine and the School of Public Health at UCB. IGH was founded in 1999 by Sir Richard Feachem, now on leave to head the Global Fund to Fight AIDS, TB, and Malaria. There are ten full-time faculty associated with the Institute and approximately 80 affiliated faculty members in the Schools of Medicine, Nursing, Pharmacy, Public Health (UCB), Engineering (UCB) and Business (UCB). IGH has a very close institutional relationship with Global Health Sciences, as well as with the AIDS Research Institute, the Department of Epidemiology and Biostatistics, the Center for AIDS Prevention Studies, and the Institute for Health Policy Studies. The School of Medicine and GHS are currently discussing how to integrate IGH into GHS while maintaining the ORU’s links with the School of Medicine; this issue will be resolved prior to the implementation of the MS program.

IGH interacts with the Center for AIDS Prevention Studies’ 18 year-old International Traineeships in AIDS Prevention Studies postdoctoral program, the postdoctoral program for domestic fellows in AIDS prevention studies (Traineeships in AIDS Prevention Studies), and the IGH postdoctoral program, which focuses primarily on international communicable disease control. Faculty members are engaged in a broad range of research activities with a primary focus on epidemiology and prevention of infectious and chronic diseases of major public health importance. Particular areas of research are infectious disease and AIDS, sexually transmitted diseases, tuberculosis and malaria epidemiology and prevention, international health policy, child survival, environmental health, and tobacco control.

The IGH will be a source of research project linkages and placements for the MS students as they pursue their experiential learning since IGH has linkages with several field sites for research and training activities. Students with interests in infectious diseases may be mentored by IGH faculty, and many of these faculty will be members of the Graduate Group in Global Health Sciences (GGGHS).
1.2.2.3 School of Medicine (SOM) Department of Epidemiology and Biostatistics
Training in Clinical Research (TICR) Program

The Department of Epidemiology and Biostatistics houses the Training in Clinical Research (TICR) Program. One of the great strengths of the TICR program is the quality, size, and diversity of the faculty. Among the 20 faculty members, seven have primary appointments in departments other than Epidemiology and Biostatistics. Many training programs at UCSF use TICR to provide formal didactic training to their fellows (either the entire curriculum or selected courses). This provides a steady stream of high-quality clinician-scientists embarking upon research careers, with disparate clinical backgrounds that foster multidisciplinary working relationships. Training also includes courses in scientific writing and research ethics.

The Department also supports the School of Medicine teaching programs focusing primarily on medical students. These include: 1) an elective course (Introduction to Global Health) taught each Winter quarter to mainly first-year health sciences students; 2) a required second-year course in public health and international health; 3) a fourth-year course in Designing Clinical Research (DCR) for the areas of concentration in Global Health and the Physician Investigator, Doris Duke Fellows, and undergraduate health sciences scholars.

The didactic training in clinical research methods integrated into the MS curriculum will draw from the successful DCR program. In addition, students interested in clinical research may be mentored by TICR faculty.

1.2.2.4 SOM Institute for Health Policy Studies (IHPS)

The Institute for Health Policy Studies is an organized research unit housed within the School of Medicine that supports health policy research. More than two dozen core faculty from over nine departments in the Schools of Medicine, Nursing, and Pharmacy focus on a wide range of policy-relevant questions relating to health, healthcare, and related issues. Topics range from access to contraceptives to care for the elderly, from birth outcomes to children’s health and chronic disease, from efforts to reduce tobacco use to improving quality of care in hospitals. Some IHPS faculty focus their research largely in international settings, while others focus on the US but often with international applications. For example, new approaches to measuring quality, paying healthcare providers, or assuring the quality of scientific research can be applied broadly. For more than two decades, IHPS has sponsored postdoctoral fellowship training, typically with 15-20 fellows per year with approximately 20% from other countries.

IHPS offers public seminars that will be appropriate to MS participants interested in health policy, particularly health financing and cost-effectiveness. Additionally, several IHPS faculty work in transdisciplinary global health, and they may become mentors for MS students as well as course leaders or guest lecturers in the proposed MS courses.

1.2.2.5 SOM Anthropology, History, and Social Medicine

This interdisciplinary department in the School of Medicine provides non-biomedical social science and humanities perspectives on health, illness, and disease. The Department has one joint doctoral program with UCB: Medical Anthropology (with the Department of Anthropology’s Program in Critical Studies in Medicine, Science, and the Body.) The UCSF History of Health Sciences doctoral program also collaborates with
the History of Science program at UCB. In addition, the Department is home to the Center for Humanities and Health Sciences, which is designed to foster intellectual interaction between students and faculty throughout the department, the four schools within UCSF, other UC Campuses, and other institutions. The Department is actively engaged in a new Global Health Diplomacy initiative.

Training in anthropology and ethnography will be essential parts of the MS curriculum, and faculty from this department will provide didactic and methodological instruction as a core part of the proposed MS courses.

1.2.2.6 School of Nursing (SON) Department of Social and Behavioral Sciences (SBS)

The Department of Social and Behavioral Sciences is one of four departments in the School of Nursing. SBS offers courses of study leading to a PhD in medical sociology, with major emphasis on the sociology of health, medicine, and healthcare systems, and also courses of study for nurses leading to an MS or PhD with a concentration in health policy.

Some faculty members in the SON are involved in global health work, and the interdisciplinary perspective provided as part of this work will be included within the MS curriculum.

1.2.2.7 SON Advanced Community Health and International Nursing

The Advanced Community Health and International Nursing specialty emphasizes program planning and the design of preventive strategies to maintain or improve the health of vulnerable populations and diverse communities. Coursework emphasizes: cross-cultural and international health issues; enhancing access to and improving communication among various community-based care systems; cultural diversity; population-level care; emergency preparedness; public policy; and health disparities among vulnerable and diverse individuals, families, communities, and society. Advanced practice nurses in this specialty work in public health departments, schools, faith-based programs, and a variety of public and private agencies in local, state, national and international settings.

Faculty from this specialty will contribute expertise on international nursing to the MS coursework and may assist in the development of field work projects.

1.2.2.8 School of Pharmacy (SOP) Department of Pharmaceutical Chemistry

The PhD program in Chemistry and Chemical Biology, which is part of the Program in Biological Sciences, provides a background in modern chemistry that includes molecular thermodynamics, bioorganic chemistry, computational chemistry, structural biology and cell biology. The interdisciplinary study of molecules in living systems at a health science campus helps to integrate the traditional disciplines of chemistry and biology.

Faculty from the Graduate Program will contribute expertise on drug development for diseases of global health importance. SOP faculty mentoring MS students on the development of their field project may include laboratory work as an aspect of that project.
1.2.2.9 SOP Global Health Education

Students in the School of Pharmacy are able to substitute experiential learning abroad for required domestic experiential learning as part of their regular curriculum. They also participate in elective courses in global health (Epi 180.10) offered in the medical school, and may receive funding from donor sources to support their work abroad. Curricula in the SOP reflect a movement towards more of a global health focus to provide interdisciplinary solutions to global health problems. The SOP has been consistently involved in development of GHS programs in research, training, and linkage building.

Students in the SOP interested in global health may elect to take the MS program as an extra year prior to completion of their pharmacy degree.

1.2.2.10 Program in Biological Sciences (PIBS)

The graduate faculty at UCSF created the Herbert W. Boyer Program in Biological Sciences to give students access to the broadest possible range of research and to encourage interactions across departments among faculty and students in all the basic science departments of the School of Medicine. PIBS has allowed the creation of interdisciplinary graduate curricula rather than limiting students to studies in conventional departments. PIBS currently consists of five distinct programs offering the PhD degree: Biophysics, Neuroscience, Chemistry and Chemical Biology, the Tetrad program composed of Biochemistry and Molecular Biology, Cell Biology, Developmental Biology, and Genetics; and one post graduate program in Molecular Medicine. While PhD programs differ in their emphasis and degree requirements, students admitted to any PIBS program can enroll in course work, attend retreats and carry out their dissertation research in any of the 150 labs affiliated with PIBS.

Exposure to basic science research through interaction with PIBS faculty will be important for the MS participants in that the program stresses translational application of such research activities and interdisciplinary learning across clinical and basic science arenas.

1.2.2.11 Center for Health and Community (CHC)

The CHC, a non-ORU center, was established to assess the challenges of the changing healthcare delivery environment and identify policies and interventions that will maximize the beneficial impact of the changing healthcare delivery system. The Center is comprised of interdisciplinary programs and individual faculty from all UCSF Schools who have been engaged in health services and policy-related research for many years. A major focus of the research is in health disparities worldwide. CHC programs offer graduate degrees in social and behavioral sciences related to health through the Department of Behavioral and Social Sciences and the Department of Anthropology, History, and Social Medicine.

Faculty from this Center will provide lectures and mentorship to students involved in the proposed MS program.

1.2.2.12 Center for Tobacco Control Research and Education (CTCRE)

The Center for Tobacco Control Research and Education is a campus-wide non-ORU center that provides a focal point for work of 30 faculty members from all four schools at UCSF and the School of Public Health at Berkeley; it aims to reduce the five million
deaths worldwide that tobacco and the tobacco industry cause each year. The work of
the Center spans policy and historical research, economics, public health interventions,
basic science (particularly around secondhand smoke and nicotine pharmacology) and
clinical inventions. The Center houses an interdisciplinary postdoctoral fellowship
program and has provided research opportunities for students in medicine and nursing,
as well as MPH and PhD students from Berkeley. The work is designed to inform and
improve the effectiveness of public health and clinical interventions to reduce tobacco
use. It works closely with the UCSF Library's efforts to collect and preserve millions of
pages of previously secret tobacco industry documents, such as those available at the
Legacy Tobacco Documents Library. The Center is a World Health Organization
Collaborating Center, and Center faculty are involved in tobacco control efforts
worldwide.

Faculty members affiliated with the CTCRE have an increased interest in global tobacco
control and would welcome MS students to design projects on this important global
health issue. Mentorship and library resources would be offered to interested MS
participants.

1.2.2.13 Graduate Program in Biomedical Sciences (BMS)

The BMS program trains students in the application of molecular, cellular, and
biochemical techniques to the investigation of how mammalian cells, tissues, and organs
function in health and disease. It is uniquely fashioned to give graduate students fluency
in the principles of tissue and organ architecture, development, and function. In all
cases, this is done in the context of the underlying basic biology. Formal coursework
provides a foundation in Genetics, Molecular Biology, Macromolecular Structure &
Function, and Cell Biology. In addition, a two-quarter course covers Tissue and Organ
Biology, including an introduction to tissue architecture in a laboratory setting that allows
students to become familiar with normal and disease states in both experimental animal
models and humans themselves.

Interaction with faculty involved in this program will be of interest to some of the
participating MS students. Research linkage between clinical practitioners and laboratory
scientists will be encouraged as part of the GGGHS goals. BMS faculty mentoring MS
students on the development of their field project may include laboratory work as an
aspect of that project.

1.2.2.14 Summary of Strengths

UCSF has undisputed strength in basic sciences, clinical research and sciences,
epidemiology, and health policy research. Although it does not have a school of public
health, a large group of faculty from all four schools at UCSF is involved in disciplines
germane to global health, and together, they examine public health questions throughout
the world with a research budget that exceeds $100 million. UCSF has graduate
programs in basic sciences, clinical research, anthropology, and history of health
sciences that along with students and clinical trainees from the professional schools
(Medicine, Pharmacy, Dentistry, and Nursing) can be a source of students and
resources for a new graduate program in global health sciences. There are prominent
fellowship programs with their own courses, such as at CAPS and IHPS.

UCSF also has a number of centers and organized research institutes whose work is
directly relevant to global health. These include the Institute for Health Policy Studies,
the AIDS Research Institute, the Institute for Global Health (a joint Organized Research Unit with UC Berkeley), the Center for Health and Community, the Center for Tobacco Control Research and Education, the Sandler Center for the Basic Research in Parasitic Diseases, the Program for the Pathogenesis of Microbial Infection, the Center for Drug Design and Development, and the Proctor Foundation for Eye Diseases.

UCSF and the UCB School of Public Health have active collaborations involving global health, such as joint teaching in Epidemiology by both UCSF and UCB, joint grant applications for external funding, and joint programs in training medical students (the Joint Medical Program and the MD/MPH Program). Faculty members from both institutions are discussing the formation of a Graduate Group in Epidemiology in preparation for a possible joint PhD program. The new MS program will be differentiated from UCB School of Public Health Programs in that there will be a much more in-depth interdisciplinary approach to the course work, involving economics, anthropology, sociology, political science, and development sciences, and less focus on particular vertical disease-oriented programs. The MS is meant to provide future leaders in the health sciences with learning germane to global health and not to one specific discipline. The experiential learning and rigorous evaluation will be an added and unique feature for the MS degree in global health sciences.

UCSF clearly has the intellectual capital and programmatic resources to initiate an MS program in global health sciences that will attract current professional students, residents, and others at UCSF, as well as new scholars from throughout the UC system and internationally. What is missing is a cohesive academic organizational home for global health sciences. The proposed Graduate Group, curriculum, and improved interdisciplinary academic coordination will help provide such an organizational home. The proposed MS program will be a building block to an eventual PhD in Global Health Sciences and a possible fifth school on global health for the UCSF campus.

1.3 Timetable for Development of the Program, Including Enrollment Projections

We have developed a new overall curriculum in Global Health Sciences. We propose approval of the Graduate Group, which will have degree-granting authority within the Graduate Division. GHS plans for students to matriculate into the program beginning in fall of 2008. The program anticipates initially enrolling ten students per year, mainly selected from UCSF candidates, and increasing to a total of 30 students when the program is in full operation within three years. Two-thirds of these students will be medical students, residents, and other scholars who will take a year out from their normal professional training. After the startup period, there will be students who are solely enrolled in the program as a terminal degree, adding approximately ten new graduate students. Funding from the UCSF campus and donor funds is committed for startup to support administrative and faculty time (total faculty FTE = 2.65). The Graduate Group will implement a planned and coordinated faculty development initiative to ensure the full involvement of course leaders in the pedagogic approach and multidisciplinary nature of the program. The proposed timeline for developing the MS program is shown in Table 1.
<table>
<thead>
<tr>
<th>Date</th>
<th>Proposal</th>
<th>Budget</th>
<th>Graduate Group</th>
<th>Faculty</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>8/06</td>
<td>Draft proposal</td>
<td></td>
<td>Recruit Graduate Group</td>
<td></td>
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<tr>
<td>9/06</td>
<td>Submit draft to Graduate Division</td>
<td></td>
<td>Grad group preliminary meeting</td>
<td></td>
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<tr>
<td>10/06</td>
<td>Submit to Graduate Council</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11/06</td>
<td>Revise</td>
<td></td>
<td>Development of curriculum framework</td>
<td>Recruitment of course leaders</td>
<td></td>
</tr>
<tr>
<td>12/06</td>
<td>Revise</td>
<td></td>
<td></td>
<td>Confirmation of course leaders</td>
<td></td>
</tr>
<tr>
<td>1/07</td>
<td>Submit for approval by Grad Council</td>
<td>Budget submission to budget office</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4/07</td>
<td>Submit to Academic Senate Coordinating Committee</td>
<td>Coordinating Committee approval</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>5/07</td>
<td>Submit to Academic Senate</td>
<td>Academic Senate approval</td>
<td></td>
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<tr>
<td></td>
<td>Submit to Chancellor</td>
<td>Chancellor Approval</td>
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<tr>
<td>6/07</td>
<td>Submit to CCGA</td>
<td>Begin national search for Program Director</td>
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<tr>
<td>9/07</td>
<td>CCGA approval</td>
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<tr>
<td>10/07</td>
<td>Office of the President approval</td>
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<td></td>
<td>Recruit students</td>
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<tr>
<td>11/07</td>
<td></td>
<td></td>
<td>Appoint Program Director</td>
<td>Begin faculty development planning and workshops</td>
<td></td>
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<tr>
<td>12/07</td>
<td></td>
<td></td>
<td>Establish Graduate Group Committees</td>
<td>Website &amp; Portfolio design &amp; programming begins</td>
<td></td>
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<tr>
<td>1/08</td>
<td></td>
<td></td>
<td></td>
<td>Finalize course content</td>
<td>Applications due</td>
</tr>
<tr>
<td>2/08</td>
<td></td>
<td></td>
<td>Review applications</td>
<td>Faculty and course development</td>
<td>2008 class admitted</td>
</tr>
</tbody>
</table>
Recruitment of students will begin with communications to faculty within the four UCSF schools and graduate division. We intend to start with 10 students in 2008 drawn from existing students and residents.

1.4 Relationship of the Proposed Program to Existing Programs on Campus and to Campus Academic Plan

1.4.1 Overview

The proposed multidisciplinary program includes the establishment of a new Graduate Group in Global Health Sciences (GGGHS) whose membership includes faculty from four UCSF Schools (Medicine, Nursing, Pharmacy, and Dentistry), several departments, and the UCB School of Public Health. The proposed bylaws for the GGGHS are shown in Appendix 1. The GGGHS Executive Committee will come from the GGGHS according to the bylaws and will lead the GGGHS. The Executive Committee will assure that where there is programmatic overlap, the program will make maximal use of existing resources and attempt to avoid duplication.

The proposed program is fully consonant with the UCSF Academic Mission statement: “…to attract and educate the nation’s most promising students to future careers in the health sciences and healthcare professions…”; “to encourage and support research and scholarly activities to improve our basic understanding of the mechanisms of disease…and “to serve the community at large through educational and service programs that take advantage of the knowledge and skills of UCSF faculty, staff and students”.

1.4.2 Relationship of the Program to the Training in Clinical Research Program and Department of Epidemiology and Biostatistics

Matriculating students will be expected to demonstrate a strong understanding of clinical and epidemiological research through prior experience or successful completion of a research training course like the TICR program. GHS will draw from existing TICR materials to integrate material on training in clinical research into the MS courses such that all students obtain competency in these skills early in the program. In addition, interaction with clinical researchers through the GHS seminar and project mentorship will enhance student skills in research design and execution as they approach their independent field work and resulting project at the end of the program.
1.4.3  Relationship of the Program to the Program in Biomedical Sciences (BMS)

Students may work with faculty mentors from the BMS Graduate Program or the Chemistry and Chemical Biology Programs to develop and complete their field projects, which may include laboratory work at UCSF. There are many faculty at UCSF active in this area, including those working on malaria, tuberculosis, leishmaniasis, sleeping sickness, chlamydia, and other diseases of importance in developing nations.

1.4.4  Relationship of the Program to Institute for Health Policy Studies (IHPS)

IHPS is in the process of converting many of its postdoctoral seminars on health policy issues, methods, and research strategies to more formal transdisciplinary courses. Seminars that remain open will be available to appropriately prepared GHS students. IHPS faculty research programs may also provide appropriate settings and data for student research projects.

1.4.5  Relationship of the Program to Institute for Global Health (IGH)

Dr. George Rutherford, Director of IGH, has indicated that IGH faculty who are members of the GGGHS will be available to advise the GHS MS students and to provide mentoring. They will also help to arrange research projects in developing countries and assist in the development and coordination of MS projects. Additionally, given its ties with UCB, IGH GGGHS faculty may be called upon to assist GHS students in accessing appropriate UCB faculty mentors.

1.4.6  Relationship of the Program to Global Health Sciences

Dr. Haile Debas, Director of UCSF Global Health Sciences (GHS), has agreed that GHS will provide financial and human resources to administer this new graduate program.

1.4.7  Relationship of the Program to the SOM Dean’s Office of International Programs and the Global Health Area of Concentration for Medical Students

The School of Medicine Dean’s Office of International Programs (OIP) administers student study abroad programs mainly for UCSF medical students and occasionally for students from the Schools of Pharmacy, Nursing, and Dentistry. Students seek opportunities to work on research or program activities as part of an Area of Concentration (AoC), and projects undertaken by MS students in the GHS Program may provide opportunities for such AoC activities. Medical students who elect this program (15-20 per year) complete didactic work during their first year, have an initial experience abroad during the summer break between the first and second year, and complete a substantive project abroad (at least two months with a definable ‘legacy’ project) during the third or fourth year of medical school. Students are required to work with experienced faculty members who have ongoing projects abroad, many of whom will be participants in the new GGGHS. UCSF encourages Global Health AoC students to take an extra year, either for advanced degree study or applied research experience. Examples of advanced study include an MPH at UCB or another school of public health, the UCSF Masters in Clinical Research or an MSc degree at the London School of Hygiene and Tropical Medicine. Some students may also elect to pursue the GHS MS. Thus, medical student education will be linked to the new program, both through potential projects for student participation and by providing an opportunity for students to pursue an MS in Global Health Sciences.
1.5 Relationship of the Program with Other University of California Institutions

To our knowledge, the proposed program is unique, offering a novel training opportunity that does not currently exist in the University of California system. Although the training includes elements of current programs offering advanced degrees at UCSF, it differs importantly from these programs in its goal of bringing together expertise in basic sciences, clinical research, and policy work to improve the health of vulnerable people in developing countries around the world. GHS students will have formal coursework in the broader issues of global health (see GHS course curriculum) and thus will become a unique generation of students ready to apply skills from basic science and clinical research to policy formulation to address the most pressing health problems in the world. Experiential learning abroad will be a key component of this training. Combined with clinical applications, integrated approaches across disciplines can improve outcomes through a more comprehensive, science-based approach.

As there are no other Masters programs in Global Health Sciences in the UC system, in the second and following years of the program, we will open the recruitment to other health sciences schools in the UC System. There is a concerted effort by the Office of the President (Gretchen Kalonji, International Strategy Coordinator) to internationalize education and academic linkages throughout UC, and thus UCSF and its MS in Global Health will be well positioned to support these system-wide approaches. The masters degree program will have a multidisciplinary focus that combines public health, development, economics and international relations with strong training in basic and clinical sciences.

1.5.1 Relationship with UCB Schools (SPH, Haas School of Business, International and Area Studies)

It is clear that UCSF does not have the complete faculty expertise needed to mount a truly interdisciplinary GHS degree program, as expertise in some of the subjects (e.g. area studies, economics, health systems) may not be found within the UCSF faculty. Hence, the GHS graduate program will draw on partnerships with faculty from the UCB School of Public Health (SPH), the Haas School of Business, the Goldman School of Public Policy, the Boalt Hall School of Law, and the International and Area Studies. Faculty from these programs will be called upon to teach on either a regular or occasional basis. Some will also be members of the GGGHS. UCSF and UCB leadership will need to consider carefully the opportunities for joint research and training grant applications.

The School of Public Health at UCB offers an area of emphasis in international health for MPH students (in essence, a minor), but has no specific degree program in global health. UCB doctoral students studying in a wide variety of disciplines, from epidemiology to microbiology to demography, may be working on international health topics. These programs tend to be discipline-specific rather than focusing on a larger transdisciplinary view of global health sciences like the MS. The proposed MS will provide substantive international field learning experiences as well as focused mentorship by faculty with a broad view of global health. Several IGH faculty members have joint appointments at UCB and will coordinate relationships with UCB faculty to assure the uniqueness of the GHS MS program.
1.6 Administration and Governance of the Program

1.6.1 Administration of the Program
The MS program will be administered by UCSF Global Health Sciences. As the
sponsoring institute, GHS will recruit faculty into the GGGHS, provide necessary
administrative space, and organize administrative support for the program, thus
integrating the MS program with other ongoing GHS activities (see Section 6.1 for further
details).

1.6.2 GHS MS Program Governance
The GGGHS will be the overall governing group for the MS program and planned PhD
program to follow. This is a multidisciplinary and broadly inclusive academic group,
encompassing all UCSF schools and members from multiple departments. The group is
unique at UCSF in its inclusion of faculty in the basic sciences, health policy, clinical
medicine, and clinical research from across the professional schools as well as from the
UCB School of Public Health.

The governing body of the GGGHS is the Executive Committee, which will be composed
of a Chair, four faculty, and three ex officio members according to the bylaws (Appendix
1). The Executive Committee will establish and maintain liaison with the Schools,
departments, organized research units and the Graduate Division.

The Interdisciplinary Curriculum Committee (see membership Appendix 5) has
developed the framework of the MS curriculum and recruited the initial members of the
Graduate Group. Upon formation of the GGGHS, the Interdisciplinary Curriculum
Committee will disband and be replaced by the Curriculum Committee of the GGGHS
described in the bylaws. The Curriculum Committee will oversee the development and
implementation of all MS courses.

The GGGHS will also include an Admissions Committee responsible for overseeing
recruitment, applications, and admission to the MS degree program.

A core working group of the GGGHS will consist of the executive, curriculum and
admissions committees (as outlined in the by-laws), and the course leaders. This group
will have the active and primary responsibility for the overall scope and breadth of the
program. The core group will bring program issues that need more global discussion to
the attention of the entire GGGHS membership.

1.7 Plan for Evaluation of the Program
The Executive Committee will initially review the program mid-year in the first year of the
program and then every year thereafter to help refine and improve the program. The
reviews will include anonymous student evaluations as well as interviews with faculty,
current students, and graduates of the program. This will permit adjustments to the
program as it matures.

In addition, the Graduate Council and the Graduate Division will conduct an Academic
Program Review of the program every five years. This review will include a review of
program faculty to assess adherence to criteria for GGGHS membership. These are
spelled out in the bylaws (Appendix 1). This review includes, but may not be limited to, assessment of the level of participation in the following areas: student works in progress seminars and annual program retreats; teaching in MS courses; sponsoring students in research projects abroad; and other program functions (such as committee service, supervision of student qualifying exams, etc).

Finally, the internal review will include an assessment of the career outcomes of the graduates of the program. At two and five years post graduation, each graduate will be requested to submit a *curriculum vitae* (for extracting current position, peer reviewed publications, grant funding, projects abroad, etc) and to complete a survey assessing the impact of the program on their current skills and expertise, and how the program affected their career choice and ability to obtain a desired job. This may be linked to the new “ISIS” database system under development by the Office of Educational Technology within the School of Medicine. This system will permit tracking of students after graduation and even later in their career pathways, permitting long-term evaluation of the value of a program such as the MS in terms of career development and professional satisfaction.
SECTION 2. PROGRAM

2.1 Candidates for the Masters Degree in Global Health

Initially, the MS program will focus on currently enrolled professional and academic doctoral students and residents at UCSF. Once the program is underway, students will be recruited from other professional schools and from incoming experienced professionals or residents. In following years, we will recruit similar students from within the UC health sciences schools as well as nationally and internationally through website advertising, journal publications, and at scientific meetings such as the American Public Health Association and the Global Health Council.

Requirements for admission are:

- Graduation from or enrollment in an advanced health sciences degree
- Satisfaction of entry requirements for a health sciences professional school

Priority will be given to students who:

- Demonstrate the capacity to undertake clinical or epidemiological research, through past experience or academic preparation, such as successful completion of UCSF course Epi 150.03 or 150.04, Designing Clinical Research (strongly recommended for UCSF applicants);
- Have relevant experience with underserved populations in the United States or internationally; and
- Demonstrate proficiency in a language other than English (see 2.2 below)

Applicants with advanced professional degrees or in advanced degree programs do not need to take the GRE. Students admitted to the program for a terminal degree must take the GRE. Foreign applicants will be eligible under the same conditions, but they must take the Test of English as a Foreign Language (TOEFL) with a minimum acceptable score of 550 (paper version) or 213 (computer version), or the IELTS exam with a minimum score of 7, or have demonstrated proficiency in English by completing one year of full-time study with a minimum GPA of 3.2 in an accredited University in the U.S.

2.2 Foreign Language Requirement

Applicants are strongly encouraged to demonstrate intermediate proficiency in at least one language other than English. If approved by the Admissions Committee, a candidate may make arrangements for language study concurrent with the MS program.

2.3 Program of Study

2.3.1 Plan for a Masters Program

The MS in Global Health Sciences will conform to the Masters of Science Plan II, which requires 36 units of coursework and a comprehensive examination.
2.3.2 Unit Requirements

The minimum University of California requirements for a masters degree are three quarters in residence and 36 units of study. Given the length of prior education of most students, this intensive 12-month program will meet the educational objectives of the MS degree. The feasibility of a two-year degree program that allows for larger independent projects will be assessed after the successful implementation of the one-year MS.

2.3.3 Required Courses

The purpose of an MS degree in GHS is to give students who have already had substantial academic or professional development the skills and knowledge for a successful career in global health practice or research.

The one-year degree program will consist of three quarters of didactic instruction surrounding one quarter of field experience at an international partner institution. MS coursework will consist of a series of highly interdisciplinary courses centered on the major content areas coupled with a longitudinal seminar focusing on skill development and individual projects.

The curriculum committee charged with creating the masters degree courses began its deliberations with the definition of the skills, attributes and knowledge of a hypothetical Global Health Sciences MS graduate. Such an individual would be on a career pathway toward leadership in one of several disciplines in global health such as clinical research, epidemiology, development, economics, policy, education, or project management. Students starting the degree course will likely be undifferentiated in their career goals, but as the course progresses, especially after the formative field work experience, students will become more focused on their career. Courses in the final (Summer) quarter are designed to consolidate this development and guide students through a comprehensive, career-building experience using the learned material from prior quarters. The seminar, as a forum for field work reports, will provide useful feedback from faculty and peers, identify strengths or gaps in knowledge, and give students the tools they will need (e.g. grant-writing, data analysis, strategic planning) for a career in applied global health.

The curriculum is designed to emphasize the distinct aspects of global health as compared with public health. Thus, for example, the content and seminars will address health disparities and the roles of poverty, social class, and control in the causal pathway to illness. Throughout the didactic courses the ethics of cross-cultural research and development aid will be debated. The emerging role of health diplomacy exemplifies the uniqueness of global health. The courses will address disparate health aspects of different geographic areas (e.g. the one-child policy of China; falling fecundity in southern Europe, the influence of prior colonization in Africa and Latin America). Throughout the courses and the accompanying seminars, faculty will emphasize the transdisciplinary nature of global health issues so that students comprehend the many perspectives of global health problems and their solutions.

Table 2 outlines specific skill-based goals for the program along with expected outcomes and competencies, learning methods, and means of assessment to gauge those outcomes. Each didactic course is designed to map to these competencies, attitudes and skills.
<table>
<thead>
<tr>
<th>Goal</th>
<th>Outcome (knowledge, skills and attitudes)</th>
<th>Learning Method(s)</th>
<th>Assessment (formative and summative)</th>
<th>Competency</th>
</tr>
</thead>
</table>
| Graduates will understand historical, political, scientific, and    | By the end of the program graduates will be able to:                                                   | • Small group seminars                                       | • Learning portfolio documenting completed work in each of four areas (needs assessment, strategic | • Conduct needs assessment  
| practical approaches to existing and emerging major global health   | • Synthesize clinical, epidemiological, historical, political, economic, and sociological information on| • Didactic sessions                                         | planning, budget, and program evaluation).   
| problems                                                           | major global health problems                                                                            | • Case based tutorials and projects                          |                                                                                                  | • Develop strategic, evidence-based approaches to major global health problems  
|                                                                     | • Exercise leadership in analysis, policy development, and program implementation                        | • Independent research                                       |                                                                                                  | • Develop comprehensive budgets for program implementation  
<p>|                                                                     | • Apply these skills in their field project                                                            |                                                              |                                                                                                  | • Conduct and interpret program evaluation                                                                                                     |
|                                                                     |                                                                                                        |                                                              |                                                                                                  |                                                                                                                                                                                                        |
| Graduates will understand the cultural, social, economic, and       | By the end of the program graduates will be able to:                                                   | • Didactic sessions                                         | • Learning portfolio                                                                           |                                                                                                                                                                                                        |
| environmental determinants of global health and of health disparities| • Understand the positive and negative roles of development, education, political structure and         | • Seminars                                                  | demonstrating skills in the core competencies                                                    |                                                                                                                                                                                                        |
|                                                                     | economics in global health disparities                                                                | • Field work (including ethnographic research)               |                                                                                                  |                                                                                                                                                                                                        |
|                                                                     | • Interpret and analyze global environmental determinants and their effect on health                    |                                                              |                                                                                                  |                                                                                                                                                                                                        |
|                                                                     | • Understand the pervasive roles of poverty and culture as determinants of global health                 |                                                              |                                                                                                  |                                                                                                                                                                                                        |</p>
<table>
<thead>
<tr>
<th>Goal</th>
<th>Outcome (knowledge, skills and attitudes)</th>
<th>Learning Method(s)</th>
<th>Assessment (formative and summative)</th>
<th>Competency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduates will master principles of measurement and analysis</td>
<td>By the end of the program graduates will be able to: • Apply integrated knowledge from the fields of epidemiology, biostatistics, and clinical research methods to solve practical global problems • Apply cost-benefit analysis, macroeconomic analysis, and cost-of-illness analysis to global health problems and interventions</td>
<td>• Didactic classes • Case studies • Seminar discussions</td>
<td>• Learning portfolio • Examinations to assess content mastery • Scholarly project</td>
<td>• Interpret and use epidemiologic data in describing the burden of disease, risk factors, disease impact, and disease trends • Interpret and use economic analyses in cost-benefit, cost-effectiveness, cost-of-illness studies • Interpret and use macroeconomic analyses to understand global disease burdens, impacts on health budgets and GDP, and economic justifications for program interventions</td>
</tr>
<tr>
<td>Graduates will have a firm grasp of ethical issues involving global health practice, research, and governance</td>
<td>By the end of the program graduates will be able to: • Understand the principles of global health governance, international laws and treaties, health systems, and ethical responsibilities of global health leaders • Conduct ethically sound research in international settings • Develop international agreements with ethically sound content</td>
<td>• On-line basic courses • Didactic lectures on bioethics • Seminar discussions • Case studies</td>
<td>• Learning portfolio • Scholarly project</td>
<td>• Apply bioethical principles to program plans • Successfully obtain human subjects clearance for global health research protocols both in the US and abroad • Prepare an analysis of ethical aspects of policy implementation, research, or a commercial endeavor in a developing country</td>
</tr>
<tr>
<td>Graduates will develop global health leadership skills</td>
<td>By the end of the program graduates will be able to: • Set priorities for small or large organizations • Manage change and conflict resolution at the interpersonal and organizational level • Demonstrate cultural sensitivity and diplomacy as administrators, scientists, and teachers</td>
<td>• Case based learning; • Speaking and presentation training; • Writing workshops • Guest speakers who have been in leadership positions</td>
<td>• Learning Portfolio • Small group projects • Field work • 360 degree evaluations (students, faculty, community leaders)</td>
<td>• Management and administration of small and large groups • Oral and written communication skills • Conflict and change management skills</td>
</tr>
</tbody>
</table>
Reporting to the Program Director, two faculty members will coordinate each course to ensure maximum integration of disparate content and disciplinary areas into a cohesive whole. These course co-leaders will develop the course content, drawing from their respective areas of expertise and integrating the material under the guidance of the Program Director and the GGGHS Curriculum Committee. All MS faculty will participate in faculty development workshops and will make use of the Course Development and Assessment Tool (CODAT) to structure courses in a unified, integrated, and rigorous manner (Appendix 2). The Program Director will work with the faculty from each block to facilitate coordination of content and approaches beyond the individual course level.

The following blocks of courses comprise the proposed MS in Global Health Sciences.

- **Principles of Global Health (Fall Quarter)**
- **Global Health and Disease (Winter Quarter)**
- **Global Health Practice Seminar (Fall, Winter, and Summer Quarters)**
- **Global Health Field Work (Spring Quarter)**
- **Applied Global Health (Summer Quarter)**

The 30 units of didactic courses will be distributed throughout Fall, Winter, and Summer quarters. Each of these blocks will integrate content, disciplines, and competencies to enable students to master key knowledge and skills (Table 3). The courses are structured to ensure that students appreciate the cross-cutting contribution of economics, demographics and anthropology to global health. Course leaders are selected for their diverse expertise with the express intent of integrating transdisciplinary perspectives. The Fall and Winter blocks of courses provide an intensive immersion into the content and methods of global health science. The block on Principles in Global Health includes a focus on research methods. During Spring Quarter, students will earn six units for international field work. In the final quarter, students will integrate the material covered in the previous courses with the knowledge and perspective gained from their field experiences. The Global Health Practice Seminar will run throughout the students' time on campus, emphasizing the application of critical skills to the development and completion of the field work project. For further detail on course content, see Section 5: Courses.
<table>
<thead>
<tr>
<th>Table 3: Proposed Courses, Content, Skills, and Assessments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Block Title</strong></td>
</tr>
<tr>
<td>Introduction to Global Health</td>
</tr>
<tr>
<td>Global Health Practice Seminar</td>
</tr>
<tr>
<td>Quarterly focus areas:</td>
</tr>
<tr>
<td>Case studies of successful interventions</td>
</tr>
<tr>
<td><strong>Courses</strong></td>
</tr>
<tr>
<td>Principles of Global Health</td>
</tr>
<tr>
<td>Social, Economic, and Cultural Determinants of Health</td>
</tr>
<tr>
<td>GHS 204: Global Health Field Work</td>
</tr>
<tr>
<td>Global Health Field Work</td>
</tr>
<tr>
<td>201B: Vincanne Adams, Daniel Dohan</td>
</tr>
<tr>
<td><strong>Faculty</strong></td>
</tr>
<tr>
<td><strong>Key content</strong></td>
</tr>
<tr>
<td>Malaria, TB, vaccines, AIDS, parasitic diseases</td>
</tr>
<tr>
<td>Cancer, heart disease, health risk behaviors, injuries, mental health, maternal &amp; child health; environmental degradation; migrant populations</td>
</tr>
<tr>
<td>Project work, minimum two months in the field.</td>
</tr>
<tr>
<td>Evaluation of intervention impact, program evaluation, cost benefit and cost effectiveness evaluation of interventions; quantitative analysis of data</td>
</tr>
<tr>
<td><strong>Cross-cutting themes</strong></td>
</tr>
<tr>
<td>Environmental degradation, water supply, climate change, occupational hazards, conflict, refugee health</td>
</tr>
<tr>
<td>Information technology and learning resources; measurement and evaluation; career tracks in global health</td>
</tr>
<tr>
<td><strong>Key skills</strong></td>
</tr>
<tr>
<td>Qualitative research methodologies</td>
</tr>
<tr>
<td>Team building and leadership Data management</td>
</tr>
<tr>
<td><strong>Course assessment</strong></td>
</tr>
<tr>
<td>Assignments to integrate and apply course knowledge to field study</td>
</tr>
<tr>
<td>Portfolio of course projects and seminar assignments and reflections</td>
</tr>
<tr>
<td><strong>Program assessment</strong></td>
</tr>
<tr>
<td>Qualifying exam: scholarly project proposal</td>
</tr>
<tr>
<td>Comprehensive exam: scholarly project report</td>
</tr>
<tr>
<td>Field project report presentation</td>
</tr>
</tbody>
</table>
2.3.4 Pedagogy

2.3.4.1 Learning Approach

The overall pedagogical approach of the MS program will be case-based learning, rooted in the presentation of actual cases, research papers, or appropriate problem scenarios for critical analysis, solution, and discussion directly related to the content of the course. Under faculty guidance, students will work collaboratively to address a case, with access to computer based resources or textual material provided in the syllabus for each course.

Selection of the case-based problems will emphasize the transdisciplinary nature of global health, such that a given problem can be viewed from multiple perspectives in several disciplinary contexts. The course leaders will determine the main teaching method. The following general teaching format is envisioned for the content courses (GHS 201, 202, and 205):

1. One and a half hours of seminar time for every two hours of lecture. Lectures will present the topics, highlighting the diverse disciplinary perspectives of the content. The seminars will build on previously learned material such that the problems presented to students will progressively increase in complexity and difficulty.
2. In the seminars, students (one selected to lead the seminar) will discuss, debate, role play, etc. an actual assigned case based on the topic of the week in a small group format. One (or more) faculty members from the team of course leaders, postgraduates, or visiting faculty will facilitate the seminar.
3. Students will be expected to spend approximately three hours per week in independent work for each hour of lecture, reading and preparing from a comprehensive selection of resource material. Records of this learning experience will be kept in the ePortfolio (See Section 2.6.2 below).
4. The emphasis will be on student-led, self-directed, case-based learning along with improving skills in leadership, teamwork, critical analysis and communication.
5. Course leaders will maintain and update a relevant list of required and recommended reading material, including books, periodicals, reports, and websites.

2.3.4.2 Student Assessment

Assessment will take place on two levels: within the MS courses themselves and on an overall competency-based programmatic level.

2.3.4.3 Grading

Letter grades will be assigned for the content courses (GHS 201, 202, and 205) in accordance with Graduate Division requirements for a specified number of courses needing such grades. The Field Work and Practice Seminar (GHS 203 and 204) will be pass-fail-honors.

2.3.4.4 Competency-based Assessment

Student progress will ultimately be determined by competency assessment rather than by grades, and the GGGHS faculty will further refine standards for competencies that all
graduates will achieve (shown in Table 2). A curriculum designed to foster self-directed learning and mastery of concepts will be ineffective if assessment only focuses on factual recall. The MS Program therefore includes a student-centered, student-driven approach to assessment with strong support from advisers who know the students well and who guide them throughout the year as self-directed learners.

The Program will use an electronic Student Portfolio approach, where students gather a broad range of evidence from course assignments and self-reflection over their four quarters of learning. Each student will meet with his/her mentor and the Seminar Coordinator at least once per quarter for a minimum of 30 minutes to review the Portfolio. Mentors’ posting on the portfolio will provide information for further evaluation by the Seminar Coordinator as to students’ progress. Prior to such a meeting, students will ensure their assignments are complete, address self-reflective questions, and document their progress on their scholarly project. Mentors will review students’ progress, learning plans, and outcome measures for achieving the specified competencies. Mentors will also hold one office hour per week to review student Portfolios upon request.

Student evaluation within the Global Health Practice Seminar will consist of a review of the Portfolio each of the three didactic quarters by mentors and the Seminar Coordinator. The mentor and Seminar Coordinator will assess evidence of student progress in professional development, critical thinking, and problem-solving related to global health sciences to determine if a level of achievement sufficient for continuation has been attained. Course leaders for GHS 201, 202 and 205 will review the contents of students’ portfolios specific to their course once per quarter. See Appendix 6 for further details on the Portfolio.

Along with the proposed qualifying and comprehensive examinations (See Sections 2.9.1 and 2.11 below), students will be expected to write reflective essays on how the evidence in their portfolio demonstrates their development as global health learners. Beyond achieving a defined level of mastery of each of the core competencies, students will also be able to use their reflective ability to assess their own strengths and weaknesses and become effective life-long learners.

2.3.4.5 Program Assessment

A rigorous course evaluation will include feedback from students (questionnaire and interview) and participating faculty to adjust and refine the curriculum and teaching methods. Electronic, on-line evaluation (eVALUE) will be developed to assess the quality of individual course content. A longitudinal study will be developed to regularly assess the impact of the MS Program on career choices, productivity, and leadership placement of graduates.

2.3.5 Specific Fields of Emphasis

There will be no formal content tracks as part of the MS degree, as all students will engage in the same curriculum. Within the Global Health Practice Seminar (GHS 203) students will have the opportunity to focus on particular topics and to coalesce into areas-of-emphasis sub-groups that will interact with relevant members of the graduate group. Potential areas of emphasis include:

- Global health practice, including principles of clinical management in resource-poor settings, health policy, disease specific training, and laboratory experience.
• Cultural and social determinants of health, largely behaviorally and culturally focused, with ethnographic training and qualitative research training.
• Assessing health policies; measuring health interventions and outcomes; organizing and financing health programs; and implementation and assessment of health systems, drawing largely on epidemiology, economics, policy analysis and program evaluation.
• Development, international relations, and area studies; health diplomacy, governance in global health, and political economy.

The Seminar Coordinator of the Global Health Practice Seminar (GHS 203) will assign responsibilities to other GGGHS faculty, course leaders, and students to develop content and conduct the seminars based on the interests of the students. The Program Director will work closely with course coordinating teams to assure that content and goals for each course map to the core competencies of the overall degree program. The Seminar will also provide an opportunity for the students to develop leadership and communication skills. The seminars will be held weekly for three of the four quarters, and the Seminar Coordinator will develop a schedule for the seminars by the beginning of each quarter.

2.3.6 Licensure Requirements

None

2.4 Field Work

Students are required to develop a longitudinal project, including one quarter of field work (GHS 204, six units) in a developing country, as part of their requirements for the MS degree. They will present the results of this project in their last quarter as part of the comprehensive examination. Identification of the project and field site will be encouraged in the first part of the program with the help of their mentor, or even as part of the application if possible. Students will work with specific GHS international partners and chosen mentors, and the field experiences will be organized to ensure maximum benefit to the students without causing a burden on the developing country host institution and in-country hosts. The UCSF mentor (a member of the GGGHS), the Mentorship Director and the Program Director will oversee the field research and, along with the student, will develop specific competencies to be achieved in the field work. These will be recorded by the student in his/her e-portfolio for later assessment. Field supervision/mentorship will be an integral part of this experience. The field work projects will be designed as part of longitudinal collaborations between GHS and international partners, ensuring that the students’ time in the field benefits not only the student but also the local institution.

2.5 Qualifying Examination

2.5.1 Written Qualifying Examination

At the midpoint of the second quarter of their MS program, students will submit a scholarly project proposal demonstrating their ability to identify a significant research or policy question relevant to global health and to design a methodology for addressing the question. The project will be developed with the specific field site in mind. The proposal will include the context of the problem, the conceptual and theoretical framework guiding
the project, and the proposed methodology. A committee of three faculty will assess the qualifying exam. The committee will be composed of the student’s mentor, one of the course faculty (appointed by the Program Director), and one at-large faculty member from the GGGHS. Each student will submit a list of three to five potential GGGHS faculty to fill this slot, and the Program Director will select one. In this way, faculty members will not be overused and there will be a conscious effort to assure interdisciplinary capacity by committee members. After the faculty committee determines the student has passed the qualifying examination, students will file for advancement to candidacy with the Graduate Division.

2.5.2 Oral Qualifying Examination

GHS MS students will not take oral qualifying examinations.

2.6 Thesis

GHS MS students will not be required to write theses.

2.7 Comprehensive Examination

The MS in Global Health will use a Comprehensive Examination to evaluate the candidates for the MS degree. Upon returning from field study and the execution of his/her scholarly project, each student will produce a scholarly project building on their qualifying exam. This will entail a written proposal of no more than 30 pages addressing the context, framework, methodology, results, discussion, and implications of his/her project. Students will also give oral presentations of their projects. These written and oral products should demonstrate the student’s mastery of the field and the ability to think critically as well as the core competencies noted in Table 2. The faculty committee composed of the mentor, one course leader, and one at large faculty that assessed the qualifying exam will also assess the comprehensive exam. They must achieve consensus to recommend students for graduation.

A student who fails the comprehensive exam is allowed to resubmit their work no earlier than the following quarter, and must meet with their faculty committee in the interim to address the reasons for failure and for remedial action.

2.8 Explanation of Special Requirements

Because field projects will be based in developing countries, this will necessitate sustained residence for up to three months abroad (minimum requirement two months). Close supervision by committee faculty will be maintained through telephone, email, and occasional site visits. In addition, funding for the study and support for travel and living expenses will be provided. Given the short period of time for field work, the student must have clearly defined objectives for the project that reflect desired program competencies. The faculty committee will approve these outcomes prior to the student’s departure. In addition, there will be an on-site collaborator to whom the student will have a reporting relationship. Part of the value of this field work is to learn how to work with international partners under conditions of equity and mutual respect. This on-site collaborator will be consulted on the student’s progress and will be invited to submit an evaluation of the student’s work in the field site.
2.9 Relationship of Masters and Doctoral Programs
The program is designed for students desiring an MS degree. This degree may be a stepping stone to a planned PhD program in GHS to be considered by the Graduate Group after the MS program is firmly established. The MS is considered more of a professional development program that prepares graduates for leadership positions, while the PhD will be focused on transdisciplinary research, with increased emphasis in basic sciences, translational research, clinical research, and technology development.

2.10 Special Programs for Careers in Teaching
There are no special teaching career development programs in the MS in Global Health Sciences. However, there are several opportunities available through the Office of Medical Education for faculty development courses and programs that are open to students. If they are interested in career development as academic professionals, such courses and opportunities will be encouraged by the Program Director.

2.11 Normative Time from Matriculation to Degree
Generally, students will complete the written qualifying examination (the scholarly project proposal) by the end of their second quarter and complete field work in the third quarter. During this time, the faculty committee chaired by the student’s mentor will monitor the student and track progress toward degree completion. Students will communicate with their committee and mentor by email, telephone and, when possible, meetings in the developing country. They will return for a final quarter of didactic instruction and comprehensive exam. The degree will be awarded only after successful completion of the comprehensive exam, typically 12 months after matriculation.
SECTION 3. PROJECTED NEED

3.1 Student Demand for the Program

There is significant interest in training for research in Global Health. There are now more than 100 programs that support global health education in some form among the 150 or so medical schools in the United States. The American Medical Students’ Association and the International Federation of Medical Students have provided resources in response to growing student demands. At UCSF, the Office of International Programs was established to support medical student needs in this area, and the Schools of Pharmacy and Nursing have expanded international education and research opportunities for their students. There is extraordinarily high interest in global health among entering medical students; 71 of the 120 entering UCSF students reported for the elective Topics in Global Health, offered in each Winter Quarter, and more than 30 have indicated interest in or have elected to complete the Global Health Area of Concentration. Increasingly, Area of Concentration students are encouraged to take an extra year of study, which might include a degree program such as the MS in GHS, and thus there is a need for such didactic and practice based activities. In 2006, the Global Health Clinical Scholars Program was launched in response to house staff interest in global health research and practice.

Among other graduate students, fellows, and other students, there is considerable interest in GHS. For example, research fellows at UCSF increasingly seek formal training such as that proposed in the MS program and opportunities to conduct research abroad. The interests of professional school students and others can be best addressed as part of the interdisciplinary GHS masters program proposed.

3.2 Opportunities for Placement of Graduates

Positions for specialist researchers and advisors in global health are available in the US National Institutes of Health (NIH); the Fogarty International Center of the NIH; the US Centers for Disease Control and Prevention (CDC); the US Department of Defense; the World Health Organization, the World Bank; the Bill and Melinda Gates Foundation; the Global Fund to Fight AIDS, TB, and Malaria; UNAIDS; and multiple pharmaceutical companies, to name a few. Those with concurrent professional degrees and the MS will be well placed for these positions, and even better placed than those with MPH or PhD degrees in basic sciences only. Graduates may also seek academic careers and pursue funding from the US Government, international agencies, foundations and the private sector to support their future research careers. Numerous US-based research universities now have active international health programs, and increasingly, partnerships are established by these Universities with developing country institutions to help build capacity and to solve globally important health problems such as HIV/AIDS, tuberculosis, malaria, and cardiovascular disease.

3.3 Importance to the Discipline

Developing the skills specific to the solution of major global health problems requires specialized training and a broad-based, multidisciplinary perspective. The proposed GGGHS will provide training critical to improving the health of people in developing nations. It will involve cross-disciplinary training to help researchers understand both the
technical and social context in which the answers to global health problems can be approached. The program will expand UCSF’s leadership role in international research, drawing on existing and new connections in developing countries. UCSF will thus harness the enthusiasm of learners at several levels in the health sciences to develop new opportunities and information sources through their work in the MS program around the globe.

UCSF will develop leaders in research as well as leaders in institutions that depend on science to contribute to the comprehensive agendas for global health. These uniquely trained individuals will come armed with intensity and a broad range of information that will set them apart as researchers and socially committed scientists.

3.4 Ways the Program Will Meet the Needs of Society

The program will serve two main general purposes:

1) It will prepare specialized researchers and leaders with a broad base of knowledge and skills directed towards improving health in developing countries, and
2) It will direct resources towards the pursuit of scholarly work by its graduates.

The program graduates will help solve some of the pressing health problems of developing countries and minimize the impact of emerging epidemics, thereby contributing to economic and political stability throughout the world. The humanitarian value of all work undertaken by Graduate Program participants will be emphasized.

These individuals can expect to attain leadership positions in academia and may go on to provide leadership in agencies such as the NIH, CDC, WHO, and World Bank. Armed with experiences and technical abilities unlike that found in more limited research training programs, graduates will be uniquely prepared to solve large, trans-border global health problems.

3.5 Relationship of the Program to Research and/or Professional Interests of the Faculty

The UCSF faculty has been surveyed to assess their interest in international research and for their support to potential MS students in the new GHS program. A survey of preliminary interest in the School of Medicine in 2003 showed that greater than 10% of the total full time faculty (over 150 individuals) have an active interest in global health. Subsequent inquiries and contacts with UCSF Global Health Sciences initiated by faculty throughout the institution (Schools of Pharmacy and Nursing as well as Medicine) show an even higher level of interest in participating in GHS programs. Recently, the School of Medicine surveyed all full-time faculty members as to their interest in spending some time overseas teaching, doing research or clinical work. More than 400 faculty members responded in the affirmative. This group of faculty will be an important source of mentors for the MS students and as potential members of the GGGHS.
3.6 Program Differentiation

There are no other similar programs such as this within the UC system. Masters in Public Health degrees may have an international area of focus (such as at UCB), but these programs do not include the interdisciplinary research skill training and leadership development inherent in the proposed MS in GHS. The proposed program also has much more extensive overlap with development, economics, and international relations fields than does the more traditional MPH program. Other graduate groups at UCSF focus on the basic sciences, and the MS in GHS will include courses from some of these fields. In addition to the basic science area, there will be an emphasis on quantitative work in epidemiology, biostatistics, and economics. The transdisciplinary nature of the proposed MS differentiates it from programmatic specialty masters programs at UCSF and from the MPH degree at UCB and other schools of public health. The proposed program will produce leaders and not program managers; it will produce thinkers and not simply analysts; and it will produce scholars who can call on extensive mentorship and field experience to inform their future career tracks.
SECTION 4. FACULTY

Faculty members from all Schools at UCSF and many departments, centers, and organized research units are part of the multidisciplinary Global Health Sciences Program. The faculty listed in Appendix 3 represent those who have been invited to be founding members of the Graduate Group in Global Health Sciences.

Other faculty members will be admitted to the Graduate Group according to the Bylaws (Appendix 1). A wide range of faculty members at UCSF have indicated their enthusiasm for the program and their willingness to serve on qualifying committees and as research mentors.

4.1 List of Faculty Members, Ranks, and Highest Degrees

The List of Graduate Group members, ranks, and highest degrees is shown in Appendix 3a. Biosketches including professional qualifications and recent publications are included in Appendix 3b. These individuals have been recruited to the GGGHS from the faculties from all four UCSF health sciences schools as well as from UCB (especially in fields that are not well-represented at UCSF). Members of the GGGHS must meet the criteria set out in the proposed bylaws (Appendix 1).

4.2 Commitment Letters from Faculty

The teams of course leaders will have primary responsibility for organizing, assuring quality and consistency, and evaluating the MS courses (see Sections 2 and 6 for details.) Letters of support from these faculty are included in Appendix 3c.

4.3 Letters of Departmental, School, and Program Support

Letters of support from the Deans of the relevant Schools at UCSF, UCB, and the chairs of the departments related to the proposed program are included in Appendix 4.
SECTION 5. COURSES

5.1 Description of Proposed New Courses

Each entry below contains a course description suitable for entry into the university course catalogue under the proposed Global Health Sciences heading (GHS designation subject to approval of the Committee on Courses), plus an entry of core knowledge and competencies to be gained from each course. Each narrative will be developed and integrated more fully by the course co-leaders, and all course faculty will work together to ensure optimal distribution of critical material throughout the quarters. Appendix 7 contains draft Course Forms for each proposed course.

5.1.1 Fall Quarter Block: Introduction to Global Health

GHS 201A and GHS 201B will initiate students into the MS program by addressing the broad scope of global health from an interdisciplinary perspective and providing the basic tools for global health research. Epidemiology, development studies, economics, and anthropology make up the major disciplinary approaches within the courses. Students will complete the courses with a grasp of the emergence and current status of the field and the major quantitative and qualitative tools of global health research. Students will be exposed to important public health challenges and learn key strategies for responding to them. Throughout the quarter, students will be made aware of the ethical issues that underlie global health work.

5.1.1.1 GHS 201A Principles of Global Health

GHS 201A will form the backbone of the Masters in Global Health. It will lay out the principles and scope of global health from an interdisciplinary perspective and providing the essential background for the other courses. Students will learn about the emergence of global health, the key players and their agendas, and international legal frameworks and treaties. The course will compare and contrast health systems internationally and assess the implications of the brain drain from developing to developed countries. Students will be exposed to major public health challenges and learn key strategies for responding to them. This course will also review the principles of epidemiology and clinical methods for observational studies.

5.1.1.1.1 Course Credit

- Four units over the course of one quarter
- Three hours of lecture per week
- Two hours of seminar plus one hour independent portfolio work per week

5.1.1.2 Course Objectives

Upon completion of this course students will be able to:
- Describe the principles and scope of global health
- Identify and appreciate the key players, institutions, political bodies and philanthropies that contribute to health promotion, their policies, achievements and failures
- Compare and contrast different international health systems, policies and frameworks
- Recognize major global health threats and challenges and critically appraise public health strategies to respond to them
• Appreciate the socio-cultural complexity of global health work and promote a sound ethical approach
• Understand the principles of observational epidemiological studies, including methods, sources of error, and limitations of study designs
• Assess the relevance of methodological approaches to particular research questions, comparing and contrasting the design and applicability of research techniques from epidemiology, economics, and anthropology
• Design scientifically sound studies that apply a specific quantitative or qualitative methodology to an issue of global health relevance

5.1.1.3 Course Content

Context of global health
• Emergence of global health: international to global health: definitions, scope and principles; global health as it applies in developing and developed countries.
• Development context for global health: health and poverty; health as a component of development; epidemiological transition; health related development strategies and targets: Poverty Reduction and Millennium Development Goals; dynamics of international aid
• Globalization: global governance structures; global markets, communication and information technology; mobility and cross-cultural interaction; environmental changes; impacts on health

Architecture of global health and strategies for working in global health:
• Global health governance: key players, their agendas, roles and responsibilities (i.e. international agencies, donors, NGOs, public private partnerships, ministries of health; academic institutions, the pharmaceutical industry, etc)
• Legal framework and health-related international treaties and agendas: human rights, IPR, tobacco, drug development, distribution of essential drugs, brain drain, human trafficking
• International collaboration: priorities; types of international projects; management of projects, principles and ethics; evaluation; sustainability and potential for scaling-up
• Global public-private partnerships (Global Fund, GAVI, Gates)

Health systems performance
• Health system performance frameworks: stewardship, resources, delivery and financing; equity in access and outcome; health sector reform; comparative analyses of different systems
• Program evaluation: methodologies; information systems; practical applications
• Human resources for health: analysis of the crisis and critique of approaches to resolving it; the role of international health professionals

Global public health
• Principles of public health and its importance globally: primary health care; international disease prevention and control; prevention strategies;
• Principles of epidemiology (review): design of observational studies; limitations and sources of error; critical analysis of the literature
• Applying the principles to major public health challenges in developing countries: maternal and child health; reproductive health and contraceptive technology; communicable and non-communicable conditions; water and sanitation;
Preparing for and dealing with major global public health threats: population movement; humanitarian emergencies (e.g. Katrina, Mexico-California migration, Tsunami, Rwanda/Kosovo/Darfur, Avian flu)

Ethical issues working in global health
- 10/90 gap and health equity
- Distributive justice, rationing scarce resources; health disparities
- Informed consent procedures and cross-cultural ethics
- Collaboration and inclusion of local research scientists (teaching scientific method across cultures)
- R&D Foci, new drugs, current state of technology and technology transfer
- Intellectual property rights, WTO, pharmaceutical companies

5.1.1.2 GHS 201B Social, Economic and Cultural Determinants of Health

This course recognizes the interconnection between the culture and wealth of societies in relation to global health. It is designed as an introduction to the roles played by social, economic and cultural factors in global health sciences both in high-income societies (immigrant and cross-cultural medicine) and in low- and middle-income countries. It reviews the history of health systems development (from international health to global health sciences) and maps out a broad set of questions about the achievements and failures of health development efforts in relation to culture and social factors.

Qualitative research methodologies will be presented as critical tools of global health practice. This course also aims to provide students with the fundamentals needed to understand the economic and demographic issues that influence global health policy. The course will examine population structure and the health consequences of varied reproductive rates, aging and demographic change in different geographic regions. The course will expose students to the economic and health consequences of fertility, migration, rates of birth and death, and the specific tools used to study these issues. The course will rely heavily on actual health measurements in varied social and cultural contexts.

5.1.1.2.1 Course Credit

- Four units over the course of one quarter
- Three hours of lecture per week
- Two hours of seminar plus one hour independent portfolio work per week

5.1.1.2.2 Course Objectives

Upon completion of this course students will be able to:
- Learn the development of varied health delivery systems with special emphasis on low and middle-income countries. Understand the roles of geography, politics and history.
- Understand the social and cultural determinants of health from an anthropological perspective, including issues of: ethnic identity and race; family and kinship; gender; economics and informal markets; religion and belief systems; and shamanism/traditional healers.
- Understand how cultural and social determinants have been treated both as obstacles and as resources for health development, citing examples of each.
Appreciate the application of anthropological field methods to health policies and interventions at the global and community levels. Cite specific examples of policies and interventions that worked or failed using anthropological research.

Understand the variations in world health by geographic region

Appreciate the geopolitical, demographic and economic determinants of health in different regions

5.1.1.2.3 Course Content

Health systems development
- Pre-war, post war, de-colonization, globalization
- Models: transitions from vertical programs to integrated health
  - From primary health care to social marketing
  - People-centered development to neo-liberal development
  - Health development to Global Health Sciences
- Post cold-war health and development in newly emerging economies
- Impact of religion on health and development
- Role of health economics and econometrics in health systems, including: cost of care, system financing (patient, government, international), role of insurance, economic incentives, cost-control, non-medical costs of illness
- Macroeconomics and health development:
  - Econometrics, cost-effectiveness and cost-benefit analysis, DALYs, QALYs
  - Comparative health systems; manpower, infrastructure and leadership

Society, culture, and health
- Politics and history
- Identity, language and race/ethnic relations
- Kinship and social structure
- Informal markets, local healers and health seeking behavior
- Religion and belief systems

Culture and health: translating cultural competence
- Social determinants/culture as obstacle vs. resource for health
- Social determinants/culture as obstacle vs. resource for healthcare utilization
- Lessons from history
  - Risks of ignoring culture/social issues
  - Risks of incorporating culture/social issues

Anthropology field studies
- Quantitative approaches and the translation of knowledge to action (epidemiological methods in anthropology)
- Quantitative research methodologies, field epidemiology
- Methods of qualitative research: interviews, oral histories, focus groups, data collection, research assistants
- How anthropological knowledge of cross-cultural variability can be used to improve the measurement and development of epidemiological variables
- How best to communicate research results to policy-makers and the public when both anthropologic and quantitative descriptions are used
- Bridging conceptual and experimental work (e.g. the merging of epidemiological and ethnographic information useful in design of health systems)
- Case examples of this in action
Informed consent procedures and cross-cultural ethics
Collaboration and Inclusion of local research scientists (teaching scientific method across cultures)
Tailoring research protocols to local/national needs
Collaborative pedagogy –partnerships and exchange programs, distance learning
Integrated intervention efforts (combining local and imported models for intervention)
Health Diplomacy: political tool to stabilize conflict and pursue equity
Stigmatization, politicization of health, and the resentment of foreign aid

5.1.2 Winter Quarter Block: Global Health and Disease

These courses offered in the Winter quarter provide an immersion in the critical issues of health and disease, approaching both communicable and non-communicable diseases from the perspectives of biology and medicine, public and environmental health, and economics and demography. Students will focus on disease determinants and disease control on various scales, including global, regional, and community. The courses will emphasize the impact of environmental and demographic changes on the burden of disease and challenge students to apply this knowledge to health interventions. Case studies will illustrate issues of disease surveillance and control, highlighting current practices in global health and major factors in the design of health interventions. Building on the previous quarter’s focus on health systems, this course will identify systemic approaches to disease and assess international health efforts using a broad approach to health.

5.1.2.1 GHS 202A Communicable Disease of Global Importance

This course approaches the global burden of communicable disease from the perspectives of epidemiology, medicine, and economic analysis. It will cover the basic principles of infection and immunity, the pathogenesis and major types of communicable infections, and the public health control of major communicable diseases. The costs and benefits of interventions will be discussed from an economic, political, and medical perspective. Using selected case studies the course will address observational investigations and surveillance as well as drug, vaccine, diagnostic and device trials in the developing world.

5.1.2.1.1 Course Credit

- Four units over the course of one quarter
- Three hours of lecture per week
- Two hours of seminar plus one hour independent portfolio work per week

5.1.2.1.2 Course Objectives

At the completion of this course the student will be able to:

- Understand the principles of infection, immunity, microbial ecology and pathogenesis
- Appreciate the global scope and burden of disease and the distribution of communicable disease by region and socioeconomic status
- Know the major communicable diseases of global importance, including geographical distribution, main clinical and diagnostic features
Understand the principles of communicable disease control including vectors, environmental modification, and vaccines
Cite examples of effective communicable disease interventions. Analyze selected disease interventions from a biological, cultural, and economic vantage, considering the major actors involved, the decision-making process, outcome, and cost-benefit analysis.

5.1.2.1.3 Course Content

Basic concepts in communicable diseases
- Ecology and life cycle of microorganisms
- Host-parasite interactions
- Pathogenesis – host factors, parasite factors, basic immunology
- Microbial replication and dissemination

Pathogens of major medical importance
- HIV and sexually transmitted infections
- Malaria
- Tuberculosis and leprosy
- Childhood vaccine preventable diseases and Expanded Programme on Immunizations
- Acute respiratory infections and influenza
- Enteric infections
- Viral hepatitis
- Major zoonoses including hemorrhagic fevers
- Emerging infections as a result of travel and environmental change (e.g. Lyme disease, SARS, spongiform encephalitis, West Nile fever)

Disease control and interventions
- Disease prevention: primary, secondary, tertiary
- Principles of health promotion
- Outbreak investigations
- Engineering intervention
- Biomedical intervention: drugs and devices and the Essential Drugs Program
- Biomedical prevention: vaccines
- Behavioral, social and policy intervention
- National, bi-lateral, and multilateral initiatives
- Paradigms for disease control
- Bioterrorism
- Global health interventions

5.1.2.2 GHS 202B Non-Communicable Disease of Global Importance

This course will cover the major non-infections diseases. It will emphasize the health consequences of environmental degradation, under nutrition, maternal and child care, and common or emerging chronic diseases. The course will also cover the major environmental determinants of ill health on various scales – global; regional; and community. It will explore (1) the health consequences of climatic change such as global warming; drought; floods, and natural disasters; (2) man-made environmental degradation and the health consequences of conflict, migration, energy demand, air pollution, and deforestation; and (3) the relevance of biodiversity, ecology, and pest
control for the sustainability of food supply. Using case studies and selected interventions, students will learn how different countries cope with chronic illness, scarce resources, and disease control at the national, community and individual levels.

5.1.2.2.1 Course Credit
- Four units over the course of one quarter
- Three hours of lecture per week
- Two hours of seminar plus one hour portfolio work per week

5.1.2.2.2 Course Objectives
At the conclusion of the course the student should be able to:
- Appreciate the global scope and burden of non-communicable diseases (NCDs)
- Understand the major environmental factors that contribute to NCDs and examine proposals to mitigate environmental degradation as it relates to health
- Understand the “epidemiological transition” and the influences of globalization, urbanization and poverty on NCD burden and dynamics
- Appreciate the interconnection between NCDs and development and the role of international organizations, governments, NGOs and communities in NCD control
- Be able to integrate knowledge of NCDs into a larger picture of global health and disease control

5.1.2.2.3 Course Content
Basic concepts in non-communicable diseases
- Epidemiology and global burden of disease for key NCDs
- Behavioral risk factors for NCDs
- Genetic, environmental, social, and other risk factors for NCDs
- Concepts of NCD prevention: primary, secondary, and tertiary
- The impact of globalization

Public health approaches to non-communicable diseases
- Disease surveillance and estimating the burden of disease
- Behavioral, social and policy interventions
- National initiatives (focusing on non-US programs)
- Biomedical prevention: drugs and devices
- Engineering interventions
- Global Health Initiatives (WHO, UNICEF, World Bank, Oxford Health Alliance)
- Media and advocacy approaches

Understanding specific key target diseases in the context of developing countries
- Cancers in the Developing World
- Infectious and non-infectious origins of cancer
- Cardiovascular diseases
- Injuries
- Mental health (especially depression)

Understanding key lifestyle and environmental risk factors and control paradigms for NCDs
- Tobacco
- Alcohol
- Overweight, diet, nutrition
- Lack of Physical Activity
- Unsafe roads, vehicles and drivers
- Urbanization
- Environment, climate change and human health
- Clean water and sanitation.
- Food security
- Appropriate use of fuel
- Effects of conflict and migration on environmental health

5.1.3  GHS 203 Global Health Practice Seminar

The seminar will be tailored as primarily a case-based approach to learning about global health interventions on subjects of interest to the students. There are three sections to the seminar (Fall, Winter, and Summer), and each quarterly section will have individual content developed by the Seminar Coordinator and the students collaboratively to assure that the specific needs of students in the practical application of competencies are met. To the extent possible, seminar content will map to the courses being taught in the given quarter and current events so that new curricular material will be relevant to seminar topics. It is in the seminar that scholarly project plans will be developed during Fall and Winter quarters before the outcomes are presented in oral form during the Summer quarter.

The major evaluation will be through the self-learning tool (ePortfolio), which will be reviewed by the student, the student's mentor, and the Seminar Coordinator at least once per quarter. A formal evaluation will be required at the completion of the Winter and Summer quarters.

5.1.3.1  Course Credit

- Three units per quarter Fall and Winter quarters, four units Summer quarter
- Three hours in-class plus six hours independent portfolio work per week. Student presentations will take place during the Summer quarter seminar.

5.1.3.2  Course Objectives

Upon completion of this course, students will be able to:
- Understand the application of epidemiologic, anthropologic, economic, and qualitative assessment tools to the study of major global health problems
- Incorporate an ethical approach to planning global health interventions
- Incorporate material from the content courses into development of a field work project to be conducted in the Spring Quarter
- Deliver a professional presentation on the outcomes and potential applications of field work project and demonstrate proficiency in oral communication
- Comprehend practical limitations of, risks to, and opportunities for collaborative work in global health research, service, or policy work
- Demonstrate the attitudes and skills appropriate to leadership and mastery of global health problems and their solutions

5.1.3.3  Course Content

- Leadership and communication
- Critical analysis and problem-solving skills
• Appropriate use and evaluation of learning resources
• Successful and unsuccessful interventions
• Integrating knowledge, research and policy
• Designing research, programs, and policy projects
• Project analysis, write-up, and presentation
• Career development

5.1.4 GHS 204 Global Health Field Work

Students will enroll in this course while completing their independent project in an international setting. They will be based within a partner institution to complete the project developed over the previous two quarters. Students will be responsible for continually assessing their own progress and discussing with their mentors their own work and the application of their didactic learning to their particular setting. They will spend at least two months abroad.

5.1.4.1 Course Credit

• Six units over the course of one quarter
• Minimum 180 hours independent field work

5.1.4.2 Course Objectives

Upon completion of this course, students will be able to:
• Complete an independent project of their own design in a global health setting
• Demonstrate the knowledge, behaviors and attitudes listed in Table 2 as applied to field work
• Assess their role in a global health institution and determine potential career opportunities based on this role

5.1.4.3 Course Content

• Execution of independent project of student’s devising within the context of an existing collaborative project
• Self-evaluation throughout the course of the project

5.1.5 Summer Quarter Block: Applied Global Health

This quarter will integrate students’ experiential learning within the framework of global health practice by focusing on program impact and evaluation. Utilizing tools of measurement and assessment, students will evaluate the impact, cost-benefit, and cost-effectiveness of interventions ranging from disease control to eradication while including biomedical, behavioral, and environmental interventions. Students will situate their own projects and experience within this framework, considering the policy implications of research findings and the role of organizations involved in global health (academic, philanthropy, industry, and national and multilateral agencies) in linking the production, assessment, and application of global health knowledge.

5.1.5.1 GHS 205 Measurement and Policy in Global Health

5.1.5.1.1 Course Credit

• Four units over the course of one quarter
• Three hours of lecture per week
Two hours of seminar plus one hour portfolio work per week

5.1.5.1.2 Course Objectives

Upon completion of this course, students will be able to:
- Cite specific examples of analyses needed for interventions that mitigate ill health
- Describe surveillance systems and databases used in global health; be able to access these databases for secondary analysis and studies
- Understand quantitative approaches to program evaluation and monitoring
- Conduct detailed quantitative measurement projects using epidemiologic, economic, and ethnographic data
- Cite specific examples of policy change and interventions that mitigate ill health
- Describe the policy process, including identification of policy issues, policy stakeholders and decision-makers, processes to make and implement policy, current major health policies, and the role of formal policy analysis
- Characterize for several specific settings and health issues how economic, demographic, and policy issues affect the formulation and resolution of resource allocation problems
- Analyze the policy and economic aspects of health interventions
- Assess the progression of global health knowledge from research to intervention, and the integration of economic and political considerations in this process
- Describe job access points in global health in a variety of different settings
- Situate an independent project within the scope of global health practice

5.1.5.1.3 Course Content

Health economics
- Healthcare costs and financing: global patterns in levels and types of expenditures and in financing sources and mechanisms. Cost-control mechanisms and economic incentives. Key data and methods.
- Econometric techniques
- Resource allocation: context in which resource allocation problems occur, theories and tools to assess and resolve

Interactions of economics, demographics, and policy
- Case examples: AIDS, birth control, tobacco control,
- Resource allocation example: improving perinatal services and outcomes
- Characterize the challenges of scaling up of global health programs, citing specific examples of successes and failures and taking into account logistical, cultural, political, and economic incentives and barriers
- Culturally sensitive reporting on program effectiveness: presenting results for maximum impact.

Health Policy
- Definition and scope of health policy
- Policy processes: identification of issues, participants and stakeholders, deliberation and decision, implementation, refinement
- Review of selected major global health policies: AIDS, malaria, tobacco, drug licensing
- Formal policy analysis: quantitative and qualitative, description and examples

Career tracks in Global Health Sciences
- Understand the major career opportunities in Global Health (NGO, governmental, philanthropy, etc.)

5.2 Course Staffing

Each course will be developed and administered by a team of two course leaders supported at 15% time each. An average of one outside guest speaker will be invited for each course per year. The Seminar Coordinator will oversee the integration of course material throughout the program and will be supported at 20%.
SECTION 6. RESOURCE REQUIREMENTS

6.1 FTE Faculty and Staff

Figure 1 below depicts the organizational relationships among the following MS faculty and staff.

6.1.1 Program Director

The Program Director will be a 0.70 FTE recruited through a national search. This individual will have overall responsibility for the Program as well as actively teach. The Program Director will play a key role in coordinating the Global Health Practice Seminar. He/she will need to have extensive connections within the UCSF community, international recognition for research and experience, and extensive networks abroad to assist with placements of students and development of partnerships necessary for this multidisciplinary program. The remainder of the salary support will be provided by the Department in which the recruitment will take place. It is envisioned that GHS will work with key Departments to identify suitable candidates who can fill academic roles for the Department and lead the MS program. An MD with advanced training in public health, research, or other appropriate fields will be recruited jointly with appropriate Departments.

6.1.2 Mentorship Director

This individual will devote 0.25 FTE to mentor, identify mentors, assure quality of mentorship, and support mentors who work with the MS students. All students will require a mentor, and these will be recruited primarily but not exclusively from the GGGHS. The candidate for this position will be a respected leader and experienced educator with research interests and networks in global health. He/she should be recruited from the UCSF community and thus have good working knowledge of UCSF procedures, faculty, and programs.

6.1.3 Course Leaders

The teams of course leaders will consist of existing UCSF or UCB faculty members who commit to develop, teach, and coordinate the new GHS courses listed above (a total 1.70 FTE to be distributed among them.) Faculty will receive 0.15 FTE support for each course they teach. The Seminar Coordinator will receive 0.20 FTE since this course spans the didactic portion of the entire program. The remainder of the faculty’s support will come from research, teaching, and clinical work in their respective departments. The Program Director will coordinate with the Curriculum Committee of the GGGHS to replace faculty as needed.

6.1.4 Field Site Mentors

On-site mentors will be compensated by GHS, commensurate with their level of supervisory responsibilities and commitment to the program.

6.1.5 Administrative Coordinator

This individual will be a full time Analyst V, with 0.50 FTE of support coming from the MS program. He/she will be recruited from within the UCSF community and will have experience in admissions, recruitment, selections, and registration of potential students.
This individual will have primary responsibility for advising on admissions policies and procedures, screening candidates, compiling admissions packages, and assisting the Executive Committee of the GGGHS in selecting students. In addition, this individual will have primary responsibility for budget development and monitoring, overseeing website maintenance, and ensuring communication, and integration with other GHS resources. He/she must insure compliance with all UCSF policies and procedures. The Administrative Coordinator will be a full time appointment with the remaining 0.50 FTE of the support for this individual provided by GHS, thereby integrating the supervision and coordination of all GHS educational program administrative activities.

6.1.6 Administrative Analyst II

This individual will devote 0.75 FTE to support the Administrative Coordinator, Program Director, and Mentorship Director. The remaining 0.25 FTE salary will be provided by GHS so as to integrate this individual with other educational activities of GHS. The key responsibilities of this support position include:

- Educational technology and related support: compiling syllabi, supporting iRocket, supporting faculty evaluations (eValue), arranging rooms, scheduling seminars, and communicating with students;
- GGGHS support: keeping minutes of GGGHS meetings and disseminating communications regarding the GGGHS and its various committees, and recording Faculty activities;
- Admissions Committee support: including tracking and communicating with applicants, coordinating interviews, and maintaining meeting minutes;
- Student Liaison: will be the point of contact between students, faculty and administrators for programmatic questions and will serve as the resource person for all other UCSF related business and issues.

6.1.7 Programmer Analyst II

A 0.50 FTE programmer will work with faculty and students to provide web based e-learning tools and programming required to develop and maintain an electronic portfolio system and establish the eValue system for the MS degree.
Figure 1: Organizational Chart, MS Program in Global Health Sciences
6.2 Library Acquisitions

There are no anticipated additional costs for library acquisitions, as most of the books and journals necessary for the graduate program are already available in the library or online. These materials are essential to the on-going research of many of UCSF’s existing faculty and students.

6.3 Computing Costs

Costs for MS program specific instructional learning resources including the ePortfolio and the eValue systems at UCSF will be budgeted as basic program costs. The individual research laboratories or research units will provide support for GHS MS students if they are working on projects within those units. GHS will provide three computer workstations for student use; all students will receive the standard desktop support available from the Interactive Learning Center of the UCSF Library.

6.4 Equipment

Equipment costs are borne by the individual research laboratories or research units and will not be substantially increased by the addition of GHS MS students. Equipment for the administration of the program will be provided by GHS.

6.5 Space and Other Capital Facilities

Space at GHS (Laurel Heights, currently) will be provided by GHS to house new faculty and administrative support personnel for this program. In addition, shared cubicles will be available for participating students, plus a common room to accommodate a learning community of scholars who are both enrolled in the program and who come from partner institutions abroad.

6.6 Other Operating Costs

6.6.1 Guest Lecturers

Guest lecturers from partner institutions abroad or from other academic or research institutions will enrich the teaching program. Faculty will invite on average, one outside guest lecturer per quarter. Expenses include honorarium, economy travel, per diem, and expenses and will be covered by the program and occasionally by existing endowed lectureships (e.g., Pablo Lucia Endowed Lectureship in International Health).

6.6.2 Incidental Expenses

Brochures and advertising, syllabi, teaching materials, subscriptions, software, and other educational support costs will be covered by fees as the program becomes self-sufficient.

6.6.3 Field Experience Support

Travel and living costs will be provided to students and field faculty mentors as part of the field work experience. In some cases, these costs may be built into research project
funding, but approximately $6,200 per student will be provided by the program for travel expenses, to plan research activities, and to support the students during field work.

6.7 Resources to Support the New Program

6.7.1 Resource Plan

We plan to begin this program with 10 students in Year I, increasing to 20 students in Year II and 30 Students in Year III. Consistent with a conservative planning model, the student enrollment plateaus in Year III but actual experience may show a demand that justifies a larger student enrollment. The student tuition fees will be set at $30,650 for the one-year program. The growth in the fees is projected over a five-year program and the budget development schedule includes an annual 3% increase to accommodate anticipated salary increases and other annual cost adjustments. Donor funds will be used to offset individual student tuition and fees and the actual program costs. The program will achieve a break even point in Year 5 through the combination of donor grants, gifts and individual student tuition and fees.

6.7.2 Campus Resources

The MS is being proposed as a self-supporting program at this time. It is anticipated that the demand for the program will grow, therefore it would be prudent to allow for the possibility of proposing State support for the MS program some time in the future.

6.7.3 Reallocation Effects on Existing Programs

Because the MS is a self-supporting program, we anticipate no reallocation effects on existing programs.

6.7.4 Impact on Contributing Programs

Faculty participating in the GGGHS will increase their commitment to mentoring, but this will be done in the context of their ongoing projects, with additional research help provided by the students during their course of study and perhaps afterward in their ongoing collaborative relationships. Faculty and Deans have expressed significant support for development of this new program, as it is in alignment with strategic directions of their schools in global health expansion as well as the strategic directions for the UC system as a whole.

6.7.5 FTE Distribution among Contributing and New Programs

Distributed among the four schools and various graduate programs will be 1.70 FTE, depending on the commitment of faculty to be course leaders. In addition, 0.70 for the Program Director will reside in one of the Departments as well as 0.25 FTE for the Mentorship Director. The beneficiary departments will not be identified until these individuals are selected, but it is anticipated they will be from the School of Medicine.
SECTION 7. GRADUATE STUDENT SUPPORT

7.1 Stipends

Students concurrently enrolled in the MS program and in an Accreditation Council for Graduate Medical Education (ACGME) approved fellowship position (for Residency programs) will receive the appropriate residency level stipend funding provided by their fellowship. MS students who are not fellows will not receive stipend support for the MS. This policy is commensurate with the Masters of Advanced Studies in Clinical Research Program. All students will receive living expense support during field work (see 7.3 below.)

7.2 Research Support

GHS has budgeted basic support for international projects during the field study. If students require additional funds, they may work with the Mentorship Director to identify potential sources within and outside of UCSF, such as through the OIP.

7.3 Travel and Residence Abroad

The costs of travel, insurance/visa, project and residence abroad to complete the field study requirement will be provided by the program ($6,200 per student). This will normally encompass spring quarter, but some field activities may require preliminary visits to develop projects. Students will be registered for field study units during spring quarter and will be supervised by on-site mentors supported by GHS.

7.4 Health and Other Benefits

All graduate students will be provided with a comprehensive health plan and other benefits in accordance with UCSF Graduate Division policies. This plan will assure Evacuation Insurance and Repatriation Insurance for work abroad.

7.5 Proposed Funding Plan

A detailed five-year funding plan has been developed. The first five years will enjoy extramural support through a combination of private grants and gifts. The initial funding will enable a break even point at Year 5 such that the program could continue on student tuition fees. However, the expectation is that continued fund raising and success in obtaining traineeships and other contracts and grants, will build a scholarship pool and direct costs offsets. This will enable the program to remain attractive and competitive with other similar programs expected to develop.
SECTION 8. CHANGES IN SENATE REGULATIONS

No changes in Senate Regulations are required for this degree program.