Course Title: *Science Health and Technology* Spring 2005

Subtitle: ***Epidemic: Drugs, Disease, Money, and Culture***

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For full syllabus please see http://www.lang.edu/sts and click on faculty, my name, and the info link—will be updated for Spring 2005, but gives a good overview of readings etc.

Course Description:

During the last decade, advances in science and technology have emerged at rapid speed creating a wealth of resources that can be used for good or bad. Recent advances in biotechnology has created a confidence and optimism in Western healthcare. However, most of these breakthroughs have done little to save the lives of 75% of the world's population who continue to die of treatable infectious diseases. Despite the developments of new treatments, vaccines, and genomic information about pathogens and their hosts, the access gap between the "haves" and the "have nots" grows wider each day. In this course, we will review the interplay between infectious diseases, culture, social and economic development, human rights, technology, and conflict.

We will review five infectious diseases that have escaped our efforts of elimination. Three of these diseases have long histories: cholera, malaria, and tuberculosis. The fourth and fifth disease, AID and SARS, will serve as representatives of new diseases to come. Students will learn the science behind these diseases on a "need to know" basis and construct their own understanding of epidemics, patent law, and the access to essential drugs campaign by reading from a variety of literature sources and web-based databases. During the last part of the course, we will investigate the science and technology to develop, detect, and target infectious agents used in biowarfare. Some class sessions will involve situational dilemmas that will be solved through collaborations involving individuals with expertise in differing areas such as economics, politics, and cultural studies. Through selected readings and class discussions, you will gain an understanding of the complex interaction between host and pathogen, the biology and technology underlying infection, treatment, and prevention, and the socio-economic/political factors which influence disease progression. Because this field is fast-paced, readings and resources will be available and updated throughout the course via Portal course web page.

Course Expectations

You must have a current student I.D. and an activated New School computer account by the second week of class. We will use academic electronic databases at Bobst library for research. To help you with these resources I will provide a computer tutorial and it must be completed and e-mailed to me by February 6th. Since you will be writing analytical papers, a writing and research tutorial will also be provided early in the semester.

The grade for this course will be based on the following:

1. Three critical analysis report (5-7 pages) of a controversial issue that involves infectious diseases and development. Each report will contribute 25% of your course grade (75% total). This is a focused analysis not an overview or review of a disease or organization.
2. A 15-minute oral presentation of one of your critical analysis reports to the class and this will contribute 10% of your grade.
3. A simulated public hearing during which you will role-play a member of the community, a scientist, policy maker, or industry specialist who is presenting a short-range and long-range plan for an endemic disease. This interactive session will contribute 10% of your grade.
4. A final exam that will test your understanding of the relationships between science, development, and sustainability. This exam will contribute 5% of your grade.

Critical Analysis Report

Seventy-five percent of your grade will be based on three reports which are critical analyses of controversial issues. Your topic of controversy can be disease specific or concept specific but should relate to development and sustainability of developing countries. Examples of controversial issues will be presented in class. You must obtain permission to choose a topic of your own. Each report will be 5-7 pages double -spaced in length and the format should include the following:

a) an executive summary or abstract
b) a clear statement of a very focused controversial issue
b) background and arguments (with references) supporting alternate sides of the questions and their implications
c) your assessment of the arguments presented and a rationale supporting your particular point of view.
d) citations to relevant literature and a bibliography

Critical Analysis Report Presentations

You will choose to present your work from one critical analysis report. This oral presentation will allow students to share their research with one another and open up the course to different types of discussions. Each presentation will

a) be 15 minutes in length
b) be accompanied with copies of an executive summary, bibliography, and relevant handouts.
c) address questions from the audience for 5-10 minutes.

Please see these documents on the class portal site:

- Guidelines for Researching, Writing, and Presenting Critical Analysis Reports
- Guidelines for Presentations or Talks
- Computer Tutorial for conducting literature research in the library, using databases and bibliographic software (Refworks).

Textbooks:

All books are in the Fogelman Library on reserve and can be purchased at Barnes and Noble Bookstore. Those that are available as online books are not listed here. A reading packet will also be assembled for those of you who will not be purchasing books. The numbers of the packets will be available by email and by the first day of class and will contain the relevant sections of required reading. **The course packets will be available at East Side Copy on W. 13th Street between 5th Avenue and University Place**

Required:

Basch, Paul.1999. Textbook of International Health. Oxford University Press. NY, NY. A popular book for courses on international health it will serve as a backdrop.

Course Packet. A collection of articles and book chapters. The HHMI *Arousing the Fury of the Immune System,* and *The Race of the Lethal Microbes* will be in the inside pocket of the CP that will reside in my office(should you want to see the color images) and we will review relevant sections throughout the course.

Optional:

Zimmermans. 2002. *Killer Germs.* Contemporary Book, Inc., Chicago, Illinois. This book is for the non-scientist and is a very easy read. The style is conversational and simple. The authors do a fabulous job of covering the history of infectious agents.

Krasner R. 2003. The Microbial Challenge. ASM Press. This book is a textbook but has chapters on immunology, vaccine development and important public health partnerships.

Garrett, Laurie. 1994.The Coming Plague. HarperCollins Ltd. Canada. This text is actually a summary of Garrett's work while she was a fellow at Harvard School of Public Health. The book was on the New York Bestseller list.

Salyers, A. and Whitt, D., 2002. *Bacterial Pathogenesis A Molecular Approach.* ASM Press, Washington, D. C. Sections of this text will be placed in the course packet for those who do not want to purchase it, an d a copy will also be on reserve in the library.

General and Flexible Outline for Course

The course will cover the neglected diseases (TB, AIDS, malaria) as well as the very neglected diseases (African sleeping sickness, river blindness, cholera). Given recent news, we will also review bioterrorism, HPV, cholera and SARs. For a complete reading list please stop by Room 460 for a handout or email me.

Weeks 1-2: Background on Public Health and Infectious Diseases
Week 2: Research and Writing Tutorial Sessions after class and at other times
Week 3: HPV, SARS, West Nile proposal (interactive module)
Week 4-6: Tuberculosis
Weeks 7-9: HIV/AIDS
Weeks 10-12: Malaria
Week 13: Bioterrorism
Week 14: Very Neglected Diseases
Week 15-16: Cholera Symposium (interactive 2-week module)