

WWS 571c
Global Infection: Burden, Control and Public Policy
Fall 2007
Syllabus

Professor: Adel Mahmoud
Office: Lewis Thomas Lab 228
Phone: (609) 258-8557
Email: amahmoud@princeton.edu
Class: Wednesdays and Fridays 10:40 am to 12:00 pm.
Room: Robertson 011
Office Hours: TBA

Faculty Assistant: Ellen Brindle-Clark
Office: Lewis Thomas Lab 230
Phone: (609) 258-5419

Infectious diseases are major contributors to the global burden of illness in terms of morbidity and mortality. Over the past few decades and in spite of earlier achievements in controlling few major infections, the global effort is being undermined by the emergence and re-emergence of new pathogens, development of resistance in microbes and their vectors and the intentional use of microorganisms to cause harm. Furthermore, the available tools for prevention and control are not keeping pace with expanded threats.

Objectives:

This course has three objectives. First, it will explore the biological and epidemiological fundamentals of human-microbes interaction including dynamics of transmission of infectious agents in human populations. This knowledge will then be used to examine the impact of different disease control strategies on interruption of transmission and reduction of burden of illness. The second objective is to examine several model infectious diseases as case studies for policies impacting their endemicity, burden of illness and efforts to prevent and limit their spread. These will include examples of viral infections such as Poliomyelitis and HIV/AIDS, bacterial pathogens such as pneumococci and tuberculosis and protozoa such as malaria and neglected tropical diseases. The third objective is to examine the role of several international organizations, partnerships and philanthropy in developing and implementing programs for control of global infection.

Readings:

The purpose of the required reading list is to expose students to a selective range of studies and reviews used to explore the challenge of global infection and strategies and implementation plans for their control. The course is intended to facilitate students appreciation of biological and epidemiological findings and how they are used to develop and implement control policies for infectious disease. Emphasis will be placed on critical examination of the impact of these plans. The format of the class will combine lecture

presentation and discussion. It is essential therefore, that students come to class having completed the readings assigned for each week. Additional reading may be distributed in class.

The following topics and readings are designed to cover the three objectives of the course.

Date	Week	Topics	Papers
9/19	1	<ul style="list-style-type: none"> • Introduction and plan of course • Objectives: <ul style="list-style-type: none"> - Appreciation of global burden: epidemiology, biology - Case studies - Policy Choices for prevention or control; role of the international organizations • Infectious history • Host-bacterial mutualism • Spatial-transmission models 	Lederberg J. (2000) Infectious history. <i>Science</i> 288 : 287-293. Xu J & Gordon JI. (2003) Honor thy symbionts. <i>PNAS</i> 100 : 10452-10459. Riley, S. (2007) Large-scale spatial-transmission models of infectious disease. <i>Science</i> 316 : 1298-1301.
9/21		<ul style="list-style-type: none"> • Population biology, evolution and infectious disease • Origin of human pathogens • Co-evolution of pathogens and hosts 	Levin BR, Lipsitch M and Bonhoeffer S. (1999) Population biology, evolution, and infectious disease: Convergence and synthesis. <i>Science</i> 283 : 806-809. Wolfe ND, Dunavan CP and Diamond J. (2007) Origins of major human infectious diseases. <i>Nature</i> 477 : 279-283. Pearce-Duvert JMC. (2006). The origin of human pathogens: evaluating the role of agriculture and domestic animals in the evolution of human disease. <i>Biol. Rev.</i> 81 : 369-382. Grenfell BT, Pybus OG, Gog JR, <i>et al.</i> (2004) Unifying the epidemiological and evolutionary dynamics of pathogens. <i>Science</i> 303 : 327-332.
9/26	2	Fundamentals of Epidemiology <ul style="list-style-type: none"> • Micro-parasites and macro-parasites • Transmission models • Basic reproductive rate 	Anderson R.M., May R.M. (1991). A framework for discussing the population biology of infectious diseases. pp. 13-23. <i>In: Infectious Diseases of Humans: Dynamics and Control.</i> Oxford University Press, Oxford pp. 757. Anderson R.M., May R.M. (1991). The basic model: dynamics pp. 122-143. <i>In: Infectious Diseases of Humans: Dynamics and Control.</i> Oxford University Press, Oxford pp. 757. Breban R, Vardavas R, and Blower S. (2007) Theory versus data: How to calculate R_0 ? <i>PLoS ONE</i> 2 : e282.
9/28		Fundamentals of Immunology <ul style="list-style-type: none"> • Host response to 	Kawai T & Akira S. (2006). Innate immune recognition of viral infection. <i>Nat Immunol.</i> 7 : 131-137. Vivier E & Malissen B. (2005). Innate and adaptive immunity:

		infection <ul style="list-style-type: none"> ○ Innate ○ Adaptive <ul style="list-style-type: none"> • Recognition and mediators of resistance 	specificities and signaling hierarchies revisited. <i>Nat Immunol</i> 6 : 17-21.
10/3	3	Expanding Threats <ul style="list-style-type: none"> • Emergence and reemergence: reasons • Quantification • Social and environmental risk factors • predicting emergence and bioterrorism 	Weiss RA & McMichael AJ. (2004). Social and environmental risk factors in the emergence of infectious diseases. <i>Nat Med</i> 10 : s70-s76. Hui, EK-W. (2005) Reasons for the increase in emerging and re-emerging viral infectious diseases. <i>Microbes and Infect.</i> 8 : 905-916. Elder BD, Dukic VM, and Dwyer G. (2006). Uncertainty in predictions of disease spread and public health responses to bioterrorism and emerging diseases. <i>PNAS</i> 103 : 15693-15697.
10/5		<ul style="list-style-type: none"> • Development of resistance in microbes and vectors 	Levy SB & Marshall B. (2004) Antibacterial resistance worldwide: causes, challenges and responses. <i>Nat Med Suppl</i> 10 : S122-128. Nauen, R. (2007) Insecticide resistance in disease vectors of public health importance. <i>Pest Management Science</i> 63 :633-633.
10/10	4	<ul style="list-style-type: none"> • Approaches and impact of infectious disease control: • Basic Concepts • Case studies <ol style="list-style-type: none"> 1. Public Health: Guinea worm disease 2. Antibiotics: Acute Rheumatic fever 	Galvani A.P. and May R.M. (2005) Dimensions of superspreading. <i>Nature</i> 438 :293-295. Ruiz-Tiben E & Hopkins DR. (2006) Dracunculiasis (Guinea worm disease) eradication. <i>Adv Parasitol.</i> 61 : 275-309. Carapetis JR, McDonald M, and Wilson NJ. (2005) Acute rheumatic fever. <i>Lancet</i> 366 : 155-168.
10/12		<ol style="list-style-type: none"> 3. Prevention: Vaccines 	Ada G. (2007) The importance of vaccination. <i>Front Biosci.</i> 1 :1278-90. Kimman T.G., Boot H.J., Berbers G.A.M., <i>et al.</i> (2006) Developing a vaccination evaluation model to support evidence-based decision making on national immunization programs. <i>Vaccine</i> 24 :4769-4778.
10/17	5	<ul style="list-style-type: none"> • Smallpox: biology; epidemiology • Discovery of vaccine • Global eradication • New events 	Henderson DA, Inglesby TV, Bartlett JG <i>et al.</i> (1999) Smallpox as a biological weapon: medical and public health management. <i>JAMA.</i> 281 : 2127-2137. Henderson DA. (1999) Lessons from the eradication campaign. <i>Vaccine</i> 17 :s53-s55. Wiser I, Balicer RD, Cohen D. (2007) An update on smallpox vaccine candidates and their role in bioterrorism related vaccination strategies. <i>Vaccine.</i> 25 : 976-984. Centers for Disease Control and Prevention (CDC). (2007) Household transmission of vaccinia virus from contact with

10/19		<ul style="list-style-type: none"> • Polio: biology; epidemiology • Vaccine discovery • Eradication vs. control <ul style="list-style-type: none"> - Developed world - Developing world • The current challenge 	<p>military smallpox vaccinee--Illinois and Indiana, 2007. <i>MMWR Morb Mortal Wkly Rep.</i> 56: 478-481.</p> <p>Racaniello VR. (2006) One hundred years of poliovirus pathogenesis. <i>Virology.</i> 344: 9-16.</p> <p>Rabbins F.C. Reminiscences of a virologist pp. 121-134. <i>In: Polio.</i> Daniel TM & Robbins FC, eds. University of Rochester Press. Rochester, NY. 1997.</p> <p>Oshinsky D.M. Celebrities and Survivors. pp. 265-286. <i>In: Polio: An American Story.</i> Oshinsky, D.M. Oxford University Press. 2005. pp. 342</p> <p>Thompson KM, Tebbens RJ. (2007). Eradication versus control for poliomyelitis: an economic analysis. <i>Lancet.</i> 369: 1363-1371.</p> <p>Pallansch MA, Sandhu HS. (2006) The eradication of Polio--Progress and challenges. <i>N. Engl. J. Med.</i> 355:2508-2511.</p>
10/23	6	<ul style="list-style-type: none"> • Measles: biology; epidemiology • Measles elimination by vaccination <ul style="list-style-type: none"> ○ in USA ○ in Latin America ○ Global 	<p>Moss WJ, Griffin DE. (2006) Global measles elimination. <i>Nat Rev Microbiol.</i> 4: 900-908.</p> <p>Orenstein WA. (2006) The role of measles elimination in development of a national immunization program. <i>Pediatr Infect Dis J.</i> 25: 1093-1101.</p> <p>Acharya A, Diaz-Ortega JL, Tambini G, et al. (2002) Cost-effectiveness of measles elimination in Latin America and Caribbean: a prospective analysis. <i>Vaccine.</i> 20: 3332-3341</p> <p>Otten M, Kezaala R, Fall A, et al. (2005) Public-health impact accelerated measles control in the WHO African Region 2000-03. <i>Lancet.</i> 366: 832-839.</p>
10/25		<ul style="list-style-type: none"> • Influenza: biology; epidemiology • Old and new threats; control • Flu vaccines 	<p>Palese P. (2004) Influenza: old and new threats. <i>Nat Med.</i> 10: S82-87.</p> <p>Albert D.M.E. Osterhaus (2007) Editorial: Pre- or post-pandemic influenza vaccine? <i>Vaccine</i> 25:4983-4984.</p> <p>Vardavas R., Breban R., and Blower S. (2007) Can Influenza Epidemics Be Prevented by Voluntary Vaccination? <i>PLoS Computational Biology</i> 3:796-802.</p>
10/31	7	<ul style="list-style-type: none"> • Malaria: biology; epidemiology • Control: <ul style="list-style-type: none"> ○ insecticide ○ drugs ○ vaccine 	<p>[No authors listed] (2004) Why the world needs another malaria initiative. <i>Lancet.</i> 364: 389-390.</p> <p>Miller JM, Korenromp EL, Nahlen BL, W Steketee R. (2007) Estimating the number of insecticide-treated nets required African households to reach continent-wide malaria coverage targets. <i>JAMA.</i> 297: 2241-2250.</p> <p>Hampton T. (2007) Antimalarial Drugs – Here and On the Horizon. <i>JAMA</i> 297:2185-2186.</p> <p>Richie T. (2006) High road, low road? Choices and challenges the pathway to a malaria vaccine. <i>Parasitology.</i> 133: S113-144.</p>
11/7		<ul style="list-style-type: none"> • TB: biology; epidemiology 	<p>Meya DB, McAdam KP. (2007) The TB pandemic: an old problem seeking new solutions. <i>J Intern Med.</i> 261: 309-32</p>

		<ul style="list-style-type: none"> • Drug resistance • TB/HIV 	<p>Dorman SE, Chaisson RE. (2007) From magic bullets back to magic mountain: the rise of extensively drug-resistant tuberculosis. <i>Nat Med.</i> 13: 295-298.</p> <p>Charles M, Pape JW. (2006) Tuberculosis and HIV: Implications in the developing world. <i>Curr HIV/AIDS Rep.</i> 3: 139-144.</p>
11/14	8	<ul style="list-style-type: none"> • HIV biology; epidemiology • Origin of HIV • Control strategies <ul style="list-style-type: none"> - ART - Vaccines 	<p>The US Global AIDS Initiative: context and background. Pp33-48. <i>In: PEPFAR Implementation: Progress and Promise.</i> Committee for the Evaluation of the President's Emergency Plan for AIDS Relief (PEPFAR) Implementation, Jaime Sepulveda, Charles Carpenter, James Curran, <i>et al, eds.</i> The National Academies Press. Washington DC. 2007.</p> <p>Heeney JL, Dalglish AG, Weiss RA. (2006) Origins of HIV and the evolution of resistance to AIDS. <i>Science.</i> 313: 462-466</p> <p>Wools-Kaloustain K, Kimaiyo S, Diero L. <i>et al.</i> (2006) Viability and effectiveness of large scale HIV treatment initiatives in Sub-Saharan Africa: experience from Western Kenya. <i>AIDS.</i> 20:41-48.</p> <p>Russell S, Seeley I, Ezati E. <i>et al.</i> (2007) Coming back from the dead: living with HIV as a chronic condition in rural Africa. <i>Health Policy and Planning</i> pp.1-4.</p> <p>Garber DA, Silvestri G, Feinberg MB. (2004) Prospects for an AIDS vaccine: three big questions, no easy answers. <i>Lancet Infect Dis.</i> 4: 397-413.</p>
11/16		<ul style="list-style-type: none"> • Diarrhea; biology, epidemiology • Etiologies • Approach to Control <ul style="list-style-type: none"> - Disease: oral rehydration - Infection: antibiotics; vaccines 	<p>Rudan I, El Arifeen S, Black RE, Campbell H. (2007) Childhood pneumonia and diarrhoea: setting our priorities right. <i>Lancet Infect Dis.</i> 7:56-61.</p> <p>Genser B, Shina H, Teles CA <i>et al.</i> (2006) Risk factors for childhood diarrhea incidence: dynamic analysis of a longitudinal study. <i>Epidemiology</i> 17:658-667.</p> <p>Forsberg BC, Petzold MG, Tomson G, Allebeck P. (2007) Diarrhoea case management in low- and middle-income countries--an unfinished agenda. <i>Bull World Health Organ</i> 85: 42-48.</p> <p>Glass RI, Parashar UD, Bresee JS, <i>et al.</i> (2006) Rotavirus vaccines: current prospects and future challenges. <i>Lancet.</i> 368: 323-332.</p>
11/21	9	<ul style="list-style-type: none"> • Pneumonia: biology; epidemiology • Etiologies • Control <ul style="list-style-type: none"> - Antimicrobials - Vaccines 	<p>Steinhoff M, Black R. (2007) Childhood pneumonia: we must move forward. <i>Lancet.</i> 369: 1409-1410.</p> <p>Warlaw T, Salama P, Johanssen E and Mason E. (2006) Pneumonia: the leading killer of children. <i>Lancet</i> 368:1048-1050.</p> <p>Mulholland K. (2007) Perspectives on the burden of pneumonia in children. <i>Vaccine.</i> 25: 2394-2397.</p> <p>Chiang WC, Teoh OH, Chong CY, <i>et al</i> (2007) Epidemiology, clinical characteristics and antimicrobial resistance patterns of community-acquired pneumonia in 1702 hospitalized</p>

11/23		<p>children in Singapore. <i>Respirology</i>. 12: 254-261.</p> <p>Oosterhuis-Kafeja F, Beutels P, Van Damme P. (2007) Immunogenicity, efficacy, safety and effectiveness of pneumococcal conjugate vaccines (1998-2006). <i>Vaccine</i>. 25: 2194-2212.</p> <p>Neglected Tropical Diseases</p> <ul style="list-style-type: none"> • Biology: epidemiology • Approach to Control <ul style="list-style-type: none"> - Ivermectin - Praziquantel • Integrated Control 	<p>Trouiller P, Olliaro P, Torreele E, <i>et al.</i> (2002) Drug development for neglected diseases: a deficient market and public-health policy failure. <i>Lancet</i>. 359: 2188-2194.</p> <p>Molyneux DH. (2004) "Neglected" diseases but unrecognised successes--challenges and opportunities for infectious disease control. <i>Lancet</i>. 364: 380-383.</p> <p>Lammie PJ, Fenwick A, Utzinger J. (2006) A blueprint for success: integration of neglected tropical disease control programmes. <i>Trends Parasitol</i>. 22: 313-321.</p>
11/28	10	<ul style="list-style-type: none"> • Control of Infectious Diseases in Developed Countries <ul style="list-style-type: none"> - IOM Study - Learning from SARS - Nosocomial infections 	<p>Addressing the threats: Conclusions and recommendations. <i>In: Microbial threats to health: Emergence, detection, and response</i>. pp. 7-17. Smolinski MS, Hamburg MA, Lederberg J, <i>eds.</i> The National Academies Press. Washington DC.</p> <p>Rotz LD, Hughes JM (2004) Advances in detecting and responding to threats from bioterrorism and emerging infectious diseases. <i>Nature Medicine Supp</i>. 10:s130-s136.</p> <p>Smith RD. (2006) Responding to global infectious disease outbreaks: lessons from SARS on the role of risk perception, communication and management. <i>Soc Sci Med</i>. 63: 3113-3123.</p> <p>Naylor CD, Chantler C, Griffiths S. (2004) Learning from SARS in Hong Kong and Toronto. <i>JAMA</i>. 291: 2483-2487.</p> <p>Grundmann H, Aires-de-Sousa M, Boyce J, Tiemersma E. (2006) Emergence and resurgence of methicillin-resistant <i>Staphylococcus aureus</i> as a public-health threat. <i>Lancet</i>. 368: 874-885.</p>
11/30	10	<p>Control of Infectious Diseases: global perspectives</p> <ul style="list-style-type: none"> - International Health regulation - International agencies - Early warning 	<p>Baker MG, Fidler DP. (2006) Global public health surveillance under new international health regulations. <i>Emerg Infect Dis</i>. 12: 1058-1065.</p> <p>Lazcano-Ponce E, Allen B, Gonzalez CC (2005) The contribution of International Agencies to the control of communicable disease. <i>Ach. Med. Res</i>. 36:731-738.</p> <p>Guglielmetti P, Coulombier D, Thinus G, Van Loock F, Schreiner S. (2006) The early warning and response system for communicable diseases in the EU: an overview from 1999-2005. <i>Euro Surveill</i>. 11: 215-220</p> <p>Desenclos JC (2006) Are there new and old ways to track infectious diseases hazards and outbreaks? <i>Eurosurveillance</i>. 11:206-207.</p>

12/5	11	WHO Infection Dis. Programs <ul style="list-style-type: none"> • Expanded program on Immunization • Polio Campaign 	Keja K, Chan C, Hayden G, Henderson RH. (1988) Expanded programme on immunization. <i>World Health Stat Q.</i> 41 : 59-63. Bland J, Clements J. (1998) Protecting the world's children: the story of WHO's immunization programme. <i>World Health Forum.</i> 19 : 162-173. Cutts FT (1998) Advances and challenges for the expanded progression on Immunization. <i>British Med. Bul.</i> 54 :445-448. Thompson KM, Duintjer Tebbens RJ, Pallansch MA <i>et al.</i> . (2006) Development and consideration of global policies for managing the future risks of poliovirus outbreaks: insights and lessons learned through modeling. <i>Risk Anal.</i> 26 : 1571-1580.
	11	UNICEF Philanthropy	UNICEF's Role in Global Immunization. Global Immunization Vision and Strategy 2006-2015. http://who.int/vaccines-document/docsPDF/GIVS_final_EN.pdf . Cohen J. (2006) The New World of Global Health. <i>Science</i> 311 :162-167. Litzow J.M. and Bauchener H. (2006) The grand challenges of the Gates Foundation: what impact on global child health. <i>R. Soc. Med.</i> 99 :171-174.
12/12	12	<ul style="list-style-type: none"> • GAVI <ul style="list-style-type: none"> - Phase I progress - Phase II <ul style="list-style-type: none"> o Funding o Objectives - Assessments • Global Fund for HIV/TB/Malaria <ul style="list-style-type: none"> - Funding - assessment 	GAVI Alliance Progress Report 2006. http://www.gavialliance.org/resources/2006_Progress_Report.pdf Lu C, Michaud CM, Gakidou E, Khan K, Murray CJ. (2006) Effect of the Global Alliance for Vaccines and Immunisation on diphtheria, tetanus, and pertussis vaccine coverage: an independent assessment. <i>Lancet.</i> 368 : 1088-1095. Murray CJ, Shengelia B, Gupta N, Moussavi S, Tandon A, Thieren M. (2003) Validity of reported vaccination coverage in 45 countries. <i>Lancet.</i> 362 : 1022-1027. Bishai D, McQuestion M, Chaudhry R, Wigton A. (2006) The costs of scaling up vaccination in the world's poorest countries. <i>Health Aff.</i> 25 : 348-356. Feachem RG, Sabot OJ. (2006) An examination of the Global Fund at 5 years. <i>Lancet.</i> 368 : 537-540. Radelet S, Siddiqi B. (2007) Global Fund grant programmes: an analysis of evaluation scores. <i>Lancet.</i> 369 : 1807-1813.
12/14	12	Introduction of New Vaccines <ul style="list-style-type: none"> • Pneumoconjugate vaccine <ul style="list-style-type: none"> - Impact - Consequences • Human Papillomavirus 	Beutels P, Thiry N, Van Damme P. (2007) Convincing or confusing? Economic evaluations of childhood pneumococcal conjugate vaccination--a review (2002-2006). <i>Vaccine.</i> 25 : 1355-1367. Hanage WP, Huang SS, Lipsitch M, <i>et al</i> (2007) Diversity and antibiotic resistance among nonvaccine serotypes of streptococcus pneumoniae carriage isolates in the post

	vaccine - Impact - Social responses	heetaivalent conjugate Vaccine era. <i>JID</i> 195 :347-352. Joura EA, Leodolter S, Hernandez-Avila M <i>et al.</i> (2007) Efficacy of a quadrivalent prophylactic human papillomavirus (types 6, 11, 16, and 18) L1 virus-like-particle vaccine against high-grade vulval and vaginal lesions: a combined analysis of three randomised clinical trials. <i>Lancet</i> . 369 : 1693-1702. Kane MA, Sherris J, Coursaget P <i>et al.</i> (2006) Chapter 15: HPV vaccine use in the developing world. <i>Vaccine</i> . 24S3 : S132-S139. Charo RA. (2007) Politics, parents, and prophylaxis--mandating HPV vaccination in the United States. <i>N Engl J Med</i> . 356 : 1905-1908.
--	---	---

Requirements:

Students are expected to attend classes regularly and engage actively in class discussions, having reviewed carefully the assigned readings.

In addition, each student will be required to prepare the following.

1. Presentation to class: 30 minutes in length (20 minutes for presentation and 10 minutes for class responses). Examination of a specific public health issue related to one of the infectious diseases selected for case studies in class in weeks 5-9. **Students should discuss and decide on a topic with the instructor prior to October 12, 2007.**
2. Policy memo. Typed 2-3 pages, double spaced. Memo to the Minister/Secretary of health of a developing country of your choice that identifies a public health **EMERGING** issue that needs immediate attention. Explain why this should be considered a problem (and not just its normal endemic nature), provide concrete evidence to justify your concerns and outline one approach for solving or minimizing its impact. **This memo is due on November 23rd, 2007 by 5 pm.**
3. Final research paper: Chose a pressing public health problem related to infectious diseases in developed or developing countries. The spectrum of choices may include endemic, emerging or re-emerging infections, consequence of interventions such as antibiotic resistance or specific settings for the use of microbes for bioterrorism. It also may include responses to infectious disease prevention or control plans. You have two options for your research paper:
 1. Examine a specific public health issue with significant impact on a particular population e.g. age group, gender etc. Provide a detailed examination of evidence, quality of data, scientific information and gaps in evidence.
 2. Propose a plan to address a specific public health problem in a developed or developing country. Provide evidence for the importance of the public health problem, what sectors of population is affected and how to measure the impact of anticipated results.

One page proposal for final research paper should be submitted to Instructor electronically by November 30th 2007 at 5 pm.

Final research paper should be 12-15 pages double spaced and submitted electronically to Instructor by December 14th 2007 at 5 pm.

Course Grading:

1. Class Participation (20%). Students are expected to come to class prepared to discuss readings and participate in a dialogue to present ideas effectively and to reach closure on subjects debated.
2. Class presentation (20%)
3. Policy Memo (20%)
4. Final Research Paper (40%)

Grading Rubrics:

Criteria for Evaluating class presentation

A	<ul style="list-style-type: none"> • Clearly identifies purpose of presentation • Clearly presents methods used for data collection • Clearly demonstrates the analytical methods used in presentation • Comments on strength and weakness of approach used • Identifies policy implications of results • Stays within the 30 minute time allocation for presentation and class response
B	<ul style="list-style-type: none"> • Identifies purpose of presentation • Shows weakness in presentation of methods, data collection and/or analyses • Comments on the analytical methods used, but does not identify strengths and weaknesses • Comments on the policy implications
C	<ul style="list-style-type: none"> • Identifies purpose of presentation • Presentation of components are unclear • Describes results but relationship to hypotheses is not clear • Comments on the analytical methods are superficial or unclear • Critique of relationship between evidence and policy is weak.
D	<ul style="list-style-type: none"> • Shows effort to complete assignment but presentation and critique are unclear in all respects
F	<ul style="list-style-type: none"> • Shows no effort to complete assignment

Policy Memo

A	<ul style="list-style-type: none"> • Clearly identifies an emerging public health challenge (problem) in one country. • Provides concrete evidence about the likely effects of leaving the problem unsolved. • Provides concrete recommendations for solving the problem and why it was chosen. • Is organized and written logically and clearly.
B	<ul style="list-style-type: none"> • Satisfies the basic requirements of the paper. • Argumentation about the importance of solving the problem is not clear. • Contains writing and organization errors.

C	<ul style="list-style-type: none"> Identifies an emerging public health challenge but demonstrates unsatisfactory logic in explaining its importance in the country. Uses insufficient evidence to support argument.
D	<ul style="list-style-type: none"> Shows effort to complete assignment but fails to clearly identify an emerging public health challenge or provide evidence.
F	<ul style="list-style-type: none"> Fails to address basic requirements.

Final Research Paper

A	<ul style="list-style-type: none"> Documents a specific public health problem or a public health plan in a specific country with reference to at least 3 original sources Reviews literature on possible solutions to this problem; include at least 5 original references and critique of each Formulates specific policy recommendations Executive summary is concise and communicates recommendations clearly Demonstrates originality of thought Is well organized and clearly written.
B	<ul style="list-style-type: none"> Satisfies the basic requirements of the assignment Use of original sources is less than required Includes some gaps in evidence used to support arguments and policy recommendations Executive summary is not concise Write up shows few errors
C	<ul style="list-style-type: none"> Shows serious effort to identify problem but relies on secondary rather than primary sources Provides weak evidence to support recommendations and arguments Executive summary vague or missing Contains substantial organizational or writing errors
D	<ul style="list-style-type: none"> Shows effort to complete assignment but is seriously deficient in exploring literature, argument or recommendation
F	<ul style="list-style-type: none"> Fails to meet basic requirements of assignment

Summary Schedule and Grading

- 1. Class participation: be prepared to discuss reading assignment at all scheduled classes. 20% of final grade.**
- 2. Class presentation, weeks 5-9, 20 minutes presentation, 10 minutes discussion. 20% of final grade.**
- 3. Policy memo (2-3 pages). Due November 23rd, 2007. 20% of final grade.**
- 4. Research paper (12-15 pages). One page proposal due November 30th, 2007. Full research paper due December 14th, 2007. 40% of final grade.**

Office Hours:

Instructor will post office hours and will meet with students on request.