INTRODUCTION
The ultimate goal of public health activities is the fostering and maintenance of human health and the limitation of disease development. In the pursuit of knowledge on the many components that lead to this goal, public health students will benefit from an increased understanding of the nature of diseases that have a major impact on public health in terms of overall disease burden – both in the US and globally.

This introductory course will provide the students with insights into the biological basis and mechanisms of diseases of the immune, pulmonary, cardiovascular, hepatic, and endocrine system and into major infectious diseases. HIV/AIDS and tuberculosis will be portrayed in greater depth as exemplary infections with major global impact. The course will cover the physiology and function of major human organ systems and how they are affected by disease. Brief overview will be provided into the biological mechanisms of selected infectious pathogens (bacteria, viruses, protozoa and helminths) that underlie and cause the infectious diseases under discussion. Particular focus will be laid on human host immune mechanisms that prevent infections and disease or that contribute to and generate disease. A variety of health prevention options and recommendations, including technical approaches, will be reviewed and discussed in the context of the respective disease themes.

COURSE OBJECTIVES
Upon completion of this course, students will be able to:
1) Explain the physiology and mechanisms of major human organ systems including the immune system that are primarily affected by the diseases under discussion
2) Describe how noninfectious insults can cause disease of these systems
3) Illustrate how selected infectious pathogens are acquired, cause disease and alter and escape human immune responses
4) Describe the scope of and develop public health measures to alter disease-inducing life styles or exposures that are harmful to the human body
5) Make recommendations on how to prevent acquisition of infectious pathogens

Source of images, photos, graphs and tables
Images, photos, graphs and tables for the various classes will be taken from the respective book chapters, journal articles, own sources (previous lectures and research presentation material) and the online encyclopedia of medical images – images.MD

Grading:
Student class attendance and participation  5%
Midterm Exam  35%
Final exam  35%
Presentation and Homework  25%
Meeting of course participants and introduction into the course. Overview of the course and course requirements.

Theme 1. (second half of class) Dr. J-Y. Hong
Toxicity of major environmental pollutants, exposure to toxic substances in air, water, and soil

Literature used by Dr. Hong.

CLASS 2. January 27, 2010. Dr. S. Schwander

Theme 1. Principles of the immune system: humoral, adaptive, and innate immunity.

Assigned literature

Theme 2. Inflammation.

Assigned literature
- Kumar: Robbins and Cotran Pathologic Basis of Disease, 8th ed. Chapter 2, acute and chronic inflammation [UMDNJ library e-Book]


Theme 1. Dr. H. Kipen (first half of class)
Cardiovascular system: physiology, epidemiology, ischemic heart and cerebrovascular disease (CVD)

Assigned literature
- Coronary Heart Disease in Clinical Practice. by: Satish Mittal, MBBS (Chapters: Normal Status, Risk Factors, Risk Assessment, Atherogenesis, Prevention) [UMDNJ library e-Book]

Theme 2. Dr. S. Schwander (second half of class)

Assigned literature
- Oxford Handbook of Tropical Medicine, 2nd edition. Chapter 2E, acute respiratory infections/pneumonia [UMDNJ library e-Book]
- Mason: Murray & Nadel's Textbook of Respiratory Medicine, 4th ed [UMDNJ library e-Book]: from chapter 14, origin of pulmonary mononuclear and dendritic cells, functions of pulmonary macrophages and dendritic cells; from chapter 15, specific immune responses in the lung; from chapter 31, common cold, pneumonias, adeno and influenza viruses; from chapter, 32 pyogenic
bacterial pneumonias; from chapter 34, selected fungal infections; from chapter 36, chronic bronchitis and emphysema, chronic obstructive pulmonary disease.

CLASS 4. February 10, 2010, Dr. S. Schwander

Theme 1. Endocrine and hepatic system with disease examples (diabetes, obesity, connection with cardiovascular disease).

Assigned literature
- Greenspan's Basic & Clinical Endocrinology. Chapter 21, obesity and overweight, chapter 18, pancreatic hormones & diabetes mellitus (UMDNJ library e-Book)
- Maxcy-Rosenau-Last Public Health and Preventive Medicine, 15th Edition Robert B. Wallace, MD, MSc, BSM, Editor, chapter 64, diabetes (UMDNJ library e-Book)


Assigned literature
- Feldman: Sleisenger & Fordtran's Gastrointestinal and Liver Disease, 8th ed. from chapters 74, 75, 76 (hepatitis), 104 (infectious enteritis), 106 (infectious protozoa) (UMDNJ library e-Book)

CLASS 5. February 17, 2010, Dr. S. Schwander

Theme. Other communicable viral infections (not HIV): influenza, H1N1, SARS, aseptic meningitis. Antiviral immunity.

Assigned literature
- Kumar: Robbins and Cotran Pathologic Basis of Disease, 8th ed. Sections from Chapter 8 – General principals of Microbial pathogenesis & Infectious Diseases – Viral Infections (UMDNJ library e-Book)

CLASS 6. February 24, 2010, Dr. S. Schwander


Helminths (schistosomiasis, ascariasis, soil-transmitted helminth infections, onchocerciasis, lymphatic filariasis); protozoa (malaria, entameba, trypanosomiasis, leishmaniasis), bacteria (leprosy)

Assigned literature
- Review of medical microbiology and immunology, 10th ed., 2008 Warren Levinson. Chapters 51 (intestinal and urogenital protozoa) and 52: (blood & tissue protozoa)
Syllabus – ENOH 0560 - S. Schwander

- Cellular and Molecular Immunology by Abul K. Abbas, Andrew H. Lichtman and Shiv Pillai. Updated 6th ed. Chapter 15, immunity to parasites, pages 365-370

CLASS 7. March 3, 2010. Dr. S. Schwander
MIDTERM EXAM

CLASS 8. March 10, 2010. Dr. S. Schwander
Detailed disease example. HIV-1 infection/AIDS (epidemiology, transmission, risk factors, immunopathology and disease mechanisms, clinical presentation, resistance to antiretroviral therapy). Discussion of current goals in the HIV/AIDS research field.

- Lecture material from my immunology graduate course lectures at NJMS

Assigned literature
- Cellular and Molecular Immunology, by Abul K. Abbas, Andrew H. Lichtman and Shiv Pillai. Updated 6th ed. Chapter 20, acquired secondary immunodeficiencies pages 475-486
- Gates Foundation

CLASS 9. March 17, 2010. Dr. S. Schwander
Detailed disease example. Tuberculosis (epidemiology, transmission, risk factors, immunopathology and disease mechanisms, clinical presentation, resistance to antiretroviral therapy). Discussion of current goals in the Tuberculosis research field.

- Lecture material from my immunology graduate course lectures at NJMS and own research

Assigned literature
- Cellular and Molecular Immunology, by Abul K. Abbas, Andrew H. Lichtman and Shiv Pillai. Updated 6th ed. Chapter 15. Immunity to Intracellular Bacteria, pages 355-362
- Maxcy-Rosennau-Last Public Health and Preventive Medicine, 15th Edition Robert B. Wallace, MD, MSc, BSM, Editor, Chapter 12 I, tuberculosis, pages 248-257. [UMDNJ library e-Book]
- Interaction of Mycobacterium tuberculosis with the host: consequences for vaccine development, Jes Dieterich and T. Mark Doherty. APMIS 117: 440–457
  • http://www.who.int/tb/en/
  • http://www.stoptb.org/

**CLASS 10. March 24, 2010. Dr. S. Schwander**
*Student Presentations (articles) (first half of class)*

**Theme 1.** Sexually transmitted infections other than HIV/AIDS.
**Assigned literature**
  • *Oxford Handbook of Tropical Medicine, 2nd edition*. Chapter 2B HIV/sexually transmitted infections ([UMDNJ library e-Book](#))
  • *Maxcy-Rosenau-Last Public Health and Preventive Medicine, 15th Edition*. Robert B. Wallace, MD, MSc, BSM, Editor, Chapter 10 Epidemiology and Trends in Sexually Transmitted Diseases (pages 155-167) ([UMDNJ library e-Book](#))

**CLASS 11. March 31, 2010. Dr. S. Schwander**
*Student Presentations (articles) (first half of class)*

**Assigned literature**
  • *Mandell: Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases*, 7th ed. Part IV Special Problems. Section D, immunization
  • Recommended Adult Immunization Schedule, United States, 2009, *MMWR January 9, 2009 / Vol. 57 / No. 53.*
  • Recommended Immunization Schedules for Persons Aged 0 Through 18 Years — United States, 2009, *MMWR January 2, 2009 / Vol. 57 / Nos. 51 & 52.*
  • *Nature Reviews Microbiology* 4, 469-476 (June 2006)

**CLASS 12. April 7, 2010. Dr. S. Schwander**
*Theme 1.** Asthma, common allergic diseases (disease mechanisms and prevention approaches, patho-immunology, environmental factors, treatment).
**Assigned literature**
  • Middleton's allergy: principles & practice 6th ed. ([UMDNJ library e-Book](#))
  • *Cellular and Molecular Immunology*, by Abul K. Abbas, Andrew H. Lichtman and Shiv Pillai. Updated 6th ed. Chapter 19, immediate hypersensitivity, pages 442-460 ([UMDNJ library e-Book](#))
• Maxcy-Rosenau-Last Public Health and Preventive Medicine, 15th Edition Robert B. Wallace, MD, MSc, BSM, Editor, chapter 32, pulmonary responses to gases and particles (pages 691-703) (UMDNJ library e-Book)

Theme 2. Opportunistic Fungal Infections

Assigned literature
• Maxcy-Rosenau-Last Public Health and Preventive Medicine, 15th Edition Robert B. Wallace, MD, MSc, BSM, Editor, chapter 17, opportunistic fungal infections, pages 461-467. (UMDNJ library e-Book)

CLASS 13. April 14, 2010. Drs. N. Fiedler PhD and A. Tobia MD
Theme 1. Mental disease example: depression (organic basis, mechanisms, interventions).

Assigned literature
• Maxcy-Rosenau-Last Public Health and Preventive Medicine, 15th Edition Robert B. Wallace, MD, MSc, BSM, Editor, chapter 69, psychiatric disorders (UMDNJ library e-Book)

CLASS 14. April 21, 2010. Dr. S. Schwander
Theme 1. Field trip/visit: TB clinic or HIV/AIDS clinic or FXB Center and/or Film material - BBC reports, MDR/XDR TB and Lab visit.

Final discussion and questions

CLASS 15. April 28, 2010. Dr. S. Schwander
FINAL EXAM
UMDNJ-SCHOOL OF PUBLIC HEALTH

HONOR CODE

Each student bears a fundamental responsibility for maintaining academic integrity and intellectual honesty in his or her graduate work. For example, all students are expected to observe the generally accepted principles of scholarly work, to submit their own rather than another’s work, to refrain from falsifying data, and to refrain from receiving and/or giving aid on examinations or other assigned work requiring independent effort. In submitting written material, the writer takes full responsibility for the work as a whole and implies that, except as properly noted by use of quotation marks, footnotes, etc., both the ideas and the words used are his or her own. In addition to maintaining personal academic integrity, each student is expected to contribute to the academic integrity of the school community by not facilitating inappropriate use of her/his own work by others and by reporting acts of academic dishonesty by others to an appropriate school authority. It should be clearly understood that plagiarism, cheating, or other forms of academic dishonesty will not be tolerated and can lead to sanctions up to and including separation from the UMDNJ-School of Public Health.

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Acknowledged (Print Name)   Signature

Approved by Executive Council, UMDNJ-School of Public Health: February 11, 2008