# HOST DEFENSES 2011

## REQUIRED TEXTS & READING ASSIGNMENTS

<table>
<thead>
<tr>
<th>Subject</th>
<th>Author(s)</th>
<th>Title</th>
<th>Edition</th>
<th>Publisher</th>
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<tbody>
<tr>
<td>Microbiology</td>
<td>Levinson, W.</td>
<td>Review of Medical Microbiology and Immunology, 11th Edition</td>
<td></td>
<td>McGraw Hill</td>
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<tr>
<td>Pathology</td>
<td>Kumar, Abbas &amp; Fausto</td>
<td>Pathologic Basis of Disease, 8th Edition</td>
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<td>Elsevier/Saunders</td>
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### Additional Recommended Texts

- **Excellent primer for students with little or no background in immunology.**
  - Abbas and Lichtman
  - Basic Immunology: Functions and Disorders of the Immune System; 3rd Edition
  - Saunders/Elsevier

- **Excellent alternative to Kumar et al.**
  - Rubin’s
  - Essential Pathology, 5th Edition
  - Lippincott, Williams & Wilkins

- **Supplementary textbook for pharmacology.**
  - Howland and Mycek.
  - Pharmacology, 3rd edition, 2006
  - Lippincott’s Illustrated Reviews
Reading Assignments for Pathology

Textbook:  Pathologic Basis of Disease, 8th Ed., Kumar, Abbas and Fausto

Week 1:
Topics: Cell injury, adaptations and cell death.
Kumar et al   Chapter 1, pp. 4-31.

Week 2:
Topics: Acute inflammation.
Kumar et al   Chapter 2, pp. 44-69.

Week 3:
Topics: Chronic inflammation.
Kumar et al   Chapter 2, pp. 70-75; Chapter 6, pp. 205-208; Chapter 8, pp. 366-372.

Week 4:
Topics: Hypersensitivity reactions; Allograft and rejection.
Kumar et al   Chapter 6, 226-230.

Week 5:
Topics: Thrombosis, hemostasis and shock.
Kumar et al   Chapter 4, pp. 111-132.

Week 6:
Topics: Neoplasia.
Kumar et al   Chapter 7, pp. 260-270; 276-308.

Reading Assignments for Immunology


Week 1:
Topics: The overall immune system; Innate immune responses; The complement system.
Parham  Chapter 1; Chapter 2, pp. 31-62; Chapter 9, 9.17 -9.19, pp. 272-275.

Week 2:
Topics: B cell development, antibody structure, function and diversity.
Parham  Chapters 3, 4, 6; Chapter 9, 9.1-9.16, pp.250-272
**Week 3:**
Topics: T cell development and effector function; TCR and MHC, antigen recognition.
Parham  Chapters 3, 5, 7, 8.

**Week 4:**
Topics: Hypersensitivity reactions; Allograft and rejection.
Parham  Chapter 12; Chapter 15, 15.1-15.22, pp. 455-481

**Week 5:**
Topics: TNF and TNF Receptor Family of Molecules; IFN and Other Cytokines.

**Week 6:**
Topics: Natural Killer Cells.
Parham  Chapter 2, 2.21-2.22; Chapter 10, 10.23-10.27

**Week 7:**
Topics: Tumor Immunology.
Parham  Chapter 16.

**Reading Assignments for Microbiology**

Textbook:  Levinson, W.
Review of Medical Microbiology and Immunology, 10th Edition
McGraw-Hill

*The (*) indicates chapters that cover specific organisms that you should learn about during the week.*

**Week 1:** Normal Flora/Basic Bacteriology (Structure, physiology & genetics)
Levinson  Chapters: 1, 2, 3, 5, 6*, 9, 13

**Week 2:** Upper and Lower Respiratory Infections
Levinson  Chapters: 3, 7, 15*, 19*, 23*

**Week 3:** Bacterial Genetics and Drug Resistance/TB and related Chronic Infections.
Levinson  Chapters: 4, 7, 10, 11, 12, 21*, 22*

**Week 4:** Wound infections and anaerobic bacteria
Levinson  Chapters: 14*, 15*, 17*, 22*

**Week 5:** Bacteremia, the enteric bacteria in GI and GU infections
Levinson    Chapters: 7, 8, 15*, 18*

**Week 6:** Sexually transmitted diseases, Introduction to Virology and viral pathogenesis, antibiotic susceptibility testing
Levinson    Chapters: 11, 16*, 24*, 25*, 41* (For references on viruses: 28-36)

**Week 7:** Mycology
Levinson    Chapters: 47-50

**Reading Assignments for Pharmacology**

Lange Medical Books/McGraw Hill

Chapters in Katzung cover more than one topic. Therefore, the same chapter is assigned on more than one week. **Please read the relevant parts for each week’s subjects. Assigned reading is for Katzung; If you wish additional information, the Lippincott review may be useful.**

**Week 1**
Topics: Dose Response & Selective Toxicity- part 1
Katzung Chapter 1, pp 1-8; Chapter 2; Chapter 3, p 49.

**Week 2**
Topics: Dose Response and Selective Toxicity – part 2
Drug Absorption, Distribution and Excretion
Drug Biotransformation

Katzung Reading for week 1 and
Chapter 1, pp. 8-13; Chapter 3 pp. 43-45, 48-49;

**Week 3**
Topics: Drug Interactions in Patients
Antibiotics
Pharmacokinetics

Katzung Chapter 66, pp. 1137-1138; Chapters 43-46; Chapter 3

**Week 4**
Topics: Pharmacokinetic analysis (conference/cases)
The Placebo Effect
Tolerance, Dependence & Withdrawal
Katzung Chapter 3; Chapter 5, p. 70; Chapter 22, pp379-380.

Week 5
Topics: Review of Pharmacologic Principles (conference)
Katzung Review reading listed above for weeks 1-4

Week 6
Topics: Anti-Neoplastic Drugs
Anti-Viral Drugs
Drug use in Pregnancy
Katzung Chapter 54; Chapter 49 and Chapter 59 pp. 1025-1032

Week 7
Topics: Anti-Fungal Drugs
How are Drugs Approved?
Katzung Chapter 48, Chapter 5
MICRO-ORGANISMS OF THE WEEK

These are the micro-organisms that students are expected to master with respect to their structures, physiology and pathogenesis

**Week 2:**  
*Streptococcus pyogenes, S. pneumoniae, Viridans group Streptococci, Haemophilus influenzae, Legionella pneumophila, Mycoplasma pneumoniae, non-pathogenic Neisseria spp.*

**Week 3:**  
*M. tuberculosis, M. leprae, M. avium-intracellulare, M. kansasii, Nocardia spp.*

**Week 4:**  
*Staphylococcus aureus, S. epidermidis, S. saprophyticus, Clostridium perfringens, C. tetani, C. botulinum, C. difficile, Bacteroides fragilis, Actinomycetes, Streptococcus anginosus*

**Week 5:**  
*E. coli, Salmonella, Shigella, Proteus, Vibrio, Campylobacter, Klebsiella/Enterobactor/Serratia, Pseudomonas, Enterococcus*

**Week 6:**  
*Treponema, Neisseria gonorrhoeae, N. meningitidis, Chlamydia trachomatis, herpes viruses and HIV*
**Pharmacologic Spotlights**

The following lists two drugs for which you will be responsible for learning the pharmacology each week in association with each PBL. Also listed are the chapters in Katzung in which you should look to find your information for each drug. Use the list “Key Categories of Pharmacologic Information” as a checklist for the categories you should consider.

**Week 1 – The Baker’s Wound:**

**Drugs:** Metformin (prototype biguanide)
- Glyburide (prototype sulfonylurea)
  (pp. 727-728, 737-742).

**Week 2 – Too Many Infections:**

**Drugs:** Ampicillin (prototype beta-lactam antibiotic)
- Phenobarbital (prototype CNS depressant)
  (pp. 407, 376-383)

**Week 3 – Mr. Tussis Persistent Cough:**

**Drugs:** Isoniazid
- Rifampin (major drugs of different classes used for TB treatment)
  (pp.823-826)

**Week 4 – Mr Aches’ Joint Pain:**

**Drugs:** Gentamicin (prototype aminoglycoside antibiotic)
- Acetaminophen (prototype non-opiate analgesic)
  (pp.635-636; 60-61)

**Week 5 – The Distinguished Scientist:**

**Drugs:** Ethanol (prototype CNS depressant)
- Alprazolam (prototype benzodiazepine)
  (Chapter 22)

**Week 6 – Mr. Enza’s Respiratory Problem:**

**Drugs:** Amantadine (prototype adamantine antiviral drug)
- Oseltamivir (prototype neuraminidase inhibitor)
  (pp.871-872)
**WEEKLY QUIZZES**

Quizzes will be given each week on Monday (*except for Memorial Day*). The quizzes will cover the material covered during the previous week including lectures, labs, small group conferences and the “Pharmacologic Spotlights” described above. The quizzes are meant to serve as a means for both the students and faculty to assess competence.

**STUDENT EVALUATION**

Successful completion of Host Defenses will require a passing grade in the following evaluative categories: information base (quizzes), professional performance (PBL & lab reports), and the Triple Jump Exam.