

HOST DEFENSES 2011

REQUIRED TEXTS & READING ASSIGNMENTS

Immunology	Parham, P. The Immune System, 3rd Edition Garland Publishing
Microbiology	Levinson, W. Review of Medical Microbiology and Immunology, 11 th Edition McGraw Hill
Pathology	Kumar, Abbas & Fausto Pathologic Basis of Disease, 8 th Edition Elsevier/Saunders
Pharmacology	Katzung Basic & Clinical Pharmacology, 11 th edition Lange Medical Books, McGraw-Hill

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; 3 rd Edition Saunders/Elsevier
Excellent alternative to Kumar et al.	Rubin's Essential Pathology, 5 th Edition Lippincott, Williams & Wilkins
Supplementary textbook for pharmacology.	Howland and Mycek. Pharmacology, 3 rd 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

Textbook: "The Immune System, 3rd edition, Peter Parham, Garland Science

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.
Parham Chapter 2, 2.20; Chapter 3, 3.16; Chapter 13, 13.1-13.3, 13.9-13.24.

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

Main textbook and Review book: Katzung, Bertram G. Basic & Clinical Pharmacology, 11th edition, 2009 Lange Medical Books/McGraw Hill
 Supplementary review book: Lippincott's Illustrated Reviews, Pharmacology, 4th edition, Harvey, RA, Champe, PC, 2009.

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*, *Actinomyces*, *Streptococcus anginosus*

Week 5:

E. coli, *Salmonella*, *Shigella*, *Proteus*, *Vibrio*, *Campylobacter*, *Klebsiella/Enterobacter/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)
(pp. 774-780)
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)
(pp. 807-812)
Acetaminophen (prototype non-opiate analgesic)
(pp.635-636; 60-61)

Week 5 – The Distinguished Scientist:

Drugs: Ethanol (prototype CNS depressant)
(Chapter 23)
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**.