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Fall 9-1-2000

### PHAR 428.01: Chemotherapeutic Agents

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**EXAMS AND GRADING:**

First Exam: Monday, Oct. 9 . . . . . 50 points  
Second Exam: Monday, Oct. 30 . . . . . 70 points  
Third Exam: Monday, Nov. 27 . . . . . 80 points  
Final Exam: . . . . . 100 points  
10 Point Quizzes: Best 5 out of 6 scores . . . . . 50 points  
Total Points: 350 90-100% = A 80-89 % = B 70-79 % = C 65-69 % = D

- \* All EXAMS are comprehensive
- \* All exams and quizzes must be taken at scheduled times
- \* Instructor must be informed BEFORE missing a scheduled exam period and MUST be based on GOOD REASONS
- \* Missed exam periods must be made up within 2 days
- \* No make up quizzes

**STUDENT PERFORMANCE OBJECTIVES:**

- 1) Know the normal relevant biochemical pathways and the major biochemical mechanisms of action for the different classes of drugs
- 2) Know the biochemical mechanisms involved in the development of resistance to different classes of antimicrobial agents
- 3) Given a representative chemical structure or name of a drug, know its biochemical mechanisms of action and for development of resistance
- 4) Given a representative chemical structure or name of a drug, know its major chemical, pharmacologic, or therapeutic categorization
- 5) Given a representative chemical structure or name of a drug, know its major therapeutic uses and spectrum of activity
- 6) Given a representative chemical structure or name of a drug, know important aspects of its absorption, pharmacokinetics, and metabolism
- 7) Know important chemical features (i.e., polar or lipophilic properties, labile groups, etc.) that affect the absorption, distribution, metabolism, elimination, potency, stability, or formulation of a class of antimicrobial agents
- 8) Given the chemical structure of an antimicrobial agent, know important chemical changes that will predictably alter its properties (i.e., potency, duration of action, stability, etc.)
- 9) Given a representative chemical structure or name of a drug, know its most common or serious adverse or side effects

TEXTBOOK: Goodman & Gilman's The Pharmacological Basis of Therapeutics, Ninth Edition

**Reading****In Text**

1029-1032 I. General Considerations, Categorization, and  
1044 Sensitivity Testing of Antimicrobial Agents

The following areas will be covered for each outline topic below:

- General Chemical Structures and Properties of Agents
- Biochemical Mechanisms of Action for Agents
- Biochemical Mechanisms Involved in the Development of Microbial Resistance
- Important Aspects of Absorption, Distribution, Metabolism, and Elimination for Agents
- Antimicrobial Spectrum of Activity for Agents
- Important Adverse Effects and Drug Interactions for Agents

Reading  
In Text

- 1057-1065  
1065-1068
- 1073-1089  
1097-1098  
1089-1096  
1096-1097
- 1143-1147  
1103-1117  
1124-1130  
1135-1140  
1130-1135  
1141-1143  
995-998  
1148
- II. Antibacterial Agents**
- A. Sulfonamides and TRIMETHOPRIM
  - B. Quinolones, Fluoroquinolones
  - C. Beta-lactam Antibiotics
    - 1. Penicillins
    - 2. Beta-lactamase inhibitors (CLAVULANIC ACID, SULBACTAM, TAZOBACTAM)
    - 3. Cephalosporins
    - 4. Carbapenems (IMIPENEM), Carbacephems (LORACARBEF), Monobactams (AZTREONAM)
  - D. POLYMYXIN, VANCOMYCIN, TEICHOPLANIN, BACITRACIN
  - E. Aminoglycosides
  - F. Tetracyclines
  - G. Macrolides (ERYTHROMYCIN, AZITHROMYCIN, CLARITHROMYCIN)
  - H. CHLORAMPHENICOL
  - I. CLINDAMYCIN
  - J. METRONIDAZOLE
  - K. Streptogramins (QUINUPRISTIN, DALFOPRISTIN)
  - L. Oxazolidinones (LINEZOLID)
- 1155-1163
- III. Antitubercular Agents**
- \* ISONIAZID RIFAMPIN PYRAZINAMIDE ETHAMBUTOL \*
- 1175-1186
- IV. Antifungal Agents**
- \* AMPHOTERICIN B MICONAZOLE CLOTRIMAZOLE KETOCONAZOLE \*
  - \* FLUCONAZOLE ITRAZONAZOLE GRISEOFULVIN FLUCYTOSINE TERBINAFINE
- 1194  
1195
- 1191-1203
- 1209-1214
- V. Antiviral Agents**
- A. Review of Viral DNA and RNA Biochemical Processes
  - B. Chemistry, Biochemical Mechanisms of Action and Resistance Development
  - C. Major Pharmacokinetic Properties and Adverse Effects
  - D. Non-HIV Antiviral Agents
    - \* ACYCLOVIR CIDOFOVIR FAMCICLOVIR FOSCARNET GANCICLOVIR \*
    - \* PENCICLOVIR RIBAVIRIN TRIFLURIDINE VALACYCLOVIR CIDOFOVIR \*
    - \* ZANAMIVIR OSELTAMIVIR AMANTADINE RIMANTIDINE \*
- 1204-1209
- VI. HIV Antiviral Agents**
- A. Nucleoside Reverse Transcriptase Inhibitors
    - \* ZIDOVUDINE DIDANOSINE STAVUDINE ZALCITABINE \*
    - \* LAMIVUDINE ABACAVIR \*
  - B. Non-Nucleoside Reverse Transcriptase Inhibitors
    - \* NEVIRAPINE DELAVIRDINE EFAVIRENZ \*
  - C. Protease Inhibitors
    - \* SAQUINAVIR INDINAVIR RITONAVIR NELFINAVIR AMPRENAVIR \*
  - D. Drugs for Opportunistic Infections
    - \* PENTAMIDINE ATOVAQUONE \*
- 1215-1216
- 1216-1217
- 999-1001