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Spring 1-2003

PHAR 328.01: Antimicrobial Agents

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Freeman, David S., "PHAR 328.01: Antimicrobial Agents" (2003). *Syllabi*. 4290.
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EXAMS AND GRADING:

First Exam: Tuesday, MARCH 4 50 points
 Second Exam: Thursday, APRIL 3 70 points
 Third Exam: Thursday, MAY 1 80 points
 Final Exam: 100 points
 10 Point Quizzes: Best 5 or 6 out of 6 scores . . 50 or 60 points
 Total Points: 350, or 360 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

REQUIRED TEXT: Goodman & Gilman, "The Pharmacological Basis of Therapeutics", Tenth Edition

Reading in Text

1143-1159 **I. General Considerations, Categorization, and Sensitivity Testing of Antimicrobial Agents**
 Table 43-1

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

II. Antibacterial Agents

- 1171-1179 A. Sulfonamides and TRIMETHOPRIM
1179-1183 B. Quinolones, Fluoroquinolones
1184-1185 C. NITROFURANTOIN and METHENAMINE
D. Beta-lactam Antibiotics
1189-1205 1. Penicillins
1214-1215 2. Beta-lactamase inhibitors (CLAVULANIC ACID, SULBACTAM, TAZOBACTAM)
1206-1213 3. Cephalosporins
1213-1214 4. Carbapenems (IMIPENEM), Carbacephems (LORACARBEF),
Monobactams (AZTREONAM)
1261-1266 E. SPECTINOMYCIN, POLYMYXIN, VANCOMYCIN, TEICHOPLANIN, BACITRACIN
1219-1234 F. Aminoglycosides
1239-1246 G. Tetracyclines
1250-1256 H. Macrolides (ERYTHROMYCIN, AZITHROMYCIN, CLARITHROMYCIN)
1246-1250 I. CHLORAMPHENICOL
1256-1258 J. CLINDAMYCIN
1258-1259 K. Streptogramins (QUINUPRISTIN, DALFOPRISTIN)
1260-1261 L. Oxazolidinones (LINEZOLID)
1105-1108 M. METRONIDAZOLE

III. Anti-mycobacterial Agents

- 1273-1282 A. Drugs for Tuberculosis
* ISONIAZID RIFAMPIN PYRAZINAMIDE ETHAMBUTOL *
1286-1288 B. Drugs for Mycobacterium Avium Complex

IV. Antifungal Agents

- 1295-1300 A. AMPHOTERICIN B and FLUCYTOSINE
1301-1305 B. Imidazole and Triazole Antifungal Agents (azoles)
* KETOCONAZOLE ITRACONAZOLE FLUCONAZOLE VORICONAZOLE *
1305-1306 C. GRISEOFULVIN and TERBINAFINE and CASPOFUNGIN
1307-1310 D. Topical Antifungal Agents
* CLOTRIMAZOLE MICONAZOLE TOLNAFTATE NAFTIFINE *
* NYSTATIN UNDECYLENIC ACID *

V. Antiviral Agents

- 1313-1317 A. Overview of Viral DNA and RNA Biochemical Processes
1317-1319 B. Overview of Biochemical Mechanisms of Action and Resistance Development
1317-1328 C. Non-HIV Antiviral Agents
* ACYCLOVIR VALACYCLOVIR CIDOFOVIR DOCOSANOL *
* FAMCICLOVIR PENCICLOVIR FOSCARNET GANCICLOVIR *
* VALGANCICLOVIR TRIFLURIDINE VIDARABINE *
1329-1332 D. Antiinfluenza Agents * AMANTADINE RIMANTIDINE OSELTAMIVIR ZANAMIVIR *
1332-1340 E. Other Antiviral Agents

VI. HIV Antiviral Agents

- 1349-1353 A. Overview of HIV Infection
1353-1360 B. Nucleoside Reverse Transcriptase Inhibitors * ZIDOVUDINE DIDANOSINE
STAVUDINE ZALCITABINE LAMIVUDINE ABACAVIR TENOFOVIR *
1360-1363 C. Nonnucleoside Reverse Transcriptase Inhibitors
* NEVIRAPINE DELAVIRDINE EFAVIRENZ *
1364-1373 D. Protease Inhibitors
* SAQUINAVIR INDINAVIR RITONAVIR NELFINAVIR AMPRENAVIR *

1076, 1109-1111

E. Drugs for Opportunistic Infections

* ATOVAQUONE PENTAMIDINE *