Note: These learning objectives are intended as a study guide. This is not intended to be the sole source of your studies. This is not necessarily a complete guide, use of the text, it's study outline and study questions, lecture notes and reading the book are strongly recommended. See bottom for lab final.

**Study Guide for Final Exam**

Chapter 20
Define the following terms:
- chemotherapy
- antimicrobial drugs
- synthetic drugs
- antibiotics

List several criteria used for measuring the value of antimicrobial drugs.
List and describe several actions of antimicrobial drugs:
- cell wall synthesis
- inhibition of enzymatic activity
- injury to plasma membrane
- nucleic acid synthesis inhibition
- protein synthesis

For multiple choice questions note basic category of mechanism, and if special spectrum for:
- acyclovir
- aminoglycosides
- bacitracin
- cephalosporin
- chloramphenicol
- chloroquine
- erythromycin
- ethambutol
- isoniazid
- ivermectin
- penicillin
- polymyxins
- praziquental
- semi-synthetic penicillin
- streptomycin
- sulfa
- tetracycline

Describe the mechanism of action in some detail for the antimicrobial drug of your choice.

Differentiate bactericidal and bacteriostatic.

Compare natural and semisynthetic penicillins.

Explain the function and problem with the β-lactam ring.

Compare broth dilution results of an antimicrobial agent for MIC and MBC as in your text's study questions.

Be able to describe the "tube dilution test" and the "agar diffusion method" (Kirby-Bauer test).

Be able to explain how plasmids have an affect on drug resistance.

In addition to the following, select one infectious disease that you can describe it's etiology, pathogenesis, transmission and treatment.

Chapter 21
Describe why skin is a good barrier to microbial growth.

Give mechanisms used by skin to inhibit microbes.

List normal flora of the skin.

Define the different types of lesions or rashes of skin.
- Vesicular
- Macular
- Papular
- Pustular
- Bullae

Define exantham and enantham.

Describe several mechanisms employed by the skin to prevent bacterial invasion.
Describe the causative agent and symptoms of the following diseases:

**Staphylococcus spp.**
- pimples
- abscess
- carbuncle
- impetigo
- scalded skin syndrome
- toxic shock syndrome

**Streptococcus pyogenes**
- Erysipelas
- Scarlet fever
- Impetigo

Describe the bacteria involved in Acne.

Describe *Pseudomonas* skin infections.

Describe the following viral skin diseases and note their etiologies:
- warts
- smallpox
- chickenpox
- measles (Rubeola)
- herpes zoster (shingles)
- German Measles (Rubella)
- cold sores (Herpes Simplex)

Define the following fungal skin diseases:
- Superficial Mycoses
- tinea pedis
- tinea capitis
- cutaneous mycoses
- candidiasis
- tinea cruris

Describe the following infections of the eye:
- conjunctivitis
- neonatal gonorrheal ophthalmia
- trachoma

Chapter 22
Differentiate between the Central Nervous system and the Peripheral nervous system.

Define the following terms:
- cerebrospinal fluid
- blood-brain barrier
- meningitis
- encephalitis

Describe and give the causative microorganism for the following nervous system diseases:
- Meningococcal meningitis
- *Hemophilus influenzae b*
- Meningitis
- Leprosy
- Poliomyelitis
- rabies (negri bodies)

List common etiologies of bacterial meningitis.

List common etiologies of viral encephalitis.
- Yellow Fever (Arboviruses)
- Encephalitis (more than one)

Compare the two forms of leprosy and how to test for them.

Describe the following Prion diseases:
- sheep scrapie
- Mad Cow
- Creutzfeldt-Jakob
- Kuru

Explain the difference between the Salk and Sabin vaccines.

Chapter 23
List the major components of the cardiovascular and lymphatic systems.

Describe and give the primary microorganisms responsible for the following wound diseases:
- gas gangrene
- tetanus

Define septicemia and puerperal sepsis.

Explain *Streptococcus pyogenes* role in puerperal sepsis.

Define endocarditis, and the different types of endocarditis.

Briefly describe and give the primary causative agent of the following cardiovascular and lymphatic systems:
- Rheumatic fever
- Tularemia
- Brucellosis
- Anthrax
- Infectious Mononucleosis
- Hepatitis (A, B and E )
Chapter 24
Differentiate between the upper respiratory tract and the lower respiratory tract.
List several examples of the normal flora of the respiratory system.
Describe and give the causative agent (etiopathy) for the following respiratory system diseases:
- Strep throat
- Scarlet fever
- Diphtheria
- Common cold
- Tuberculosis
- Pneumonia
- Legionnaires disease
- Viral pneumonia
Describe how plague is transmitted, a brief description of its pathogenesis, and how it impacted the world in the 1350’s.
Describe thoroughly the different types of flu and how they differ. Also explain why no effective cure or vaccine is available for flu.

Chapter 25
List and identify major divisions of the digestive tract.
Explain how the following antimicrobial features of the digestive system inhibit microbial infection:
- Saliva
- Lysozyme
- IgA
- HCl
- Normal flora
List several members of the normal flora of the digestive system, and where they inhabit the system.
Describe the process of plaque formation in the mouth, and how this leads to dental carries and periodontal disease, include the following terms:
- Sucrose
- Streptococcus mutans
- Dextran
- Lactobacilli
- Lactic acid
Describe and give the primary causative agent of the following diseases of the digestive tract:
- Botulism
- Staphylococcal food poisoning
- Salmonellosis
- Typhoid fever
- Bacillary dysentery
- Cholera
- Gastroenteritis
- Mumps
- Hepatitis A and B
- Measles
- Rubella
- Giardiasis
- Amoebic dysentery
- Tapeworm
- Trichinosis
- Intestinal roundworms
- Campylobacter
- H. pylori

Chapter 26
List the major components of the urinary and reproductive systems.
Compare the frequency of UTI’s in males and females.
Describe, give the location, and give the primary causative agent of the following urinary and reproductive systems:
- Cystitis
- Glomerulonephritis
- Gonorrhea
- Syphilis
- Nongonococcal Urethritis
- Genital Herpes
- Candidiasis
- Gardenella
- Trichomonas
- Warts

Lab Final:
Any lab completed since the last exam is fair game for the test.
Review the function for the following types of media (often used in the Unknown project):
- EMB
- PEA
- SIM
- BHI
- FTM
- TSA
Water quality – Colilert: note reactions and enzymes used to show water is contaminated.
MPN, be able to explain and use the MPN chart.
Snyder test: explain how the media is used to demonstrate a disposition for dental caries, note reaction, what is in the media that allows this to work. Compare your life experience with the results.