Microbiology (MICRO)

20. Introductory Microbiology (4)
Not open to students with credit in MICRO 140. Prerequisites: CHEM 1A or 3A; CHEM 3B or 8; BIOSC 1A or BIOL 10 or BOT 10 or ZOOL 10. Introduction to microbiology; principles and selected applications. (3 lecture, 3 lab hours)

140. Microbiology (4)
Prerequisites: BIOSC 1A, 1B; CHEM 8 or 128A. Emphasis on prokaryotes (bacteria); microbial physiology, genetics, ecology, classification, and identification; applications of microbiology. Prerequisite to most upper-division microbiology courses. (2 lecture, 6 lab hours)

161. Microbial Physiology (4)
Prerequisite: MICRO 140. Structure, function, energy metabolism, growth, and regulatory mechanisms of microorganisms. (2 lecture, 6 lab hours)

171. Protozoology (3)
Prerequisites: BIOSC 130, 140A-B. The biology of protozoan organisms. (2 lecture, 3 lab hours)

181. Bacteriology of Human Disease (5)
Prerequisite: MICRO 140; PHYAN 160 recommended. Bacterial, etiological agents of human disease. (3 lecture, 6 lab hours)

185. Virology (4)
Prerequisite: MICRO 140; PHYAN 160 recommended. Inquiries into the unique nature of viruses; methods of analysis, structure, and replication. Virus-host interactions are described from bacterial, plant, and animal virus groups. Considerable emphasis is placed on diagnosis of viruses infecting humans including epidemiology and viropathology. (2 lecture, 6 lab hours)

(See also *BOT 142; ECOL 162; GENET 171; PHYAN 160; ZOOL 148*.)

Physiology/Anatomy/ Development (PHYAN)

33. Human Anatomy and Physiology (5)
Three units allowed for students with prior credit in human anatomy; 2 units allowed for students with prior credit in human physiology. An integrated study of the structure and function of the human body. (4 lecture, 3 lab hours) (Course fee, $25)

64. Functional Human Anatomy (3)
Not open to students with credit in PHYAN 33. Primarily for students in the health related and biological professions. The life continuum from conception to death. A systems approach to the gross and microscopic structures of the human body. (2 lecture, 3 lab hours) (Course fee, $25)

65. Human Physiology (5)
Not open to students with credit in PHYAN 33. College chemistry and human anatomy recommended. Homeostasis in the human body; how organ systems function to maintain life; dynamic and adaptive systems at the molecular, cellular, and organ level. (4 lecture, 3 lab hours)

110. Human Reproductive Physiology, Aging, and Death (3)
Human reproduction, structures, functions, and control systems; the relationship between sexual reproduction and aging; the physiology and aging of specific systems, such as the cardiovascular system; medical and cultural definitions of death. G.E. Integration IB.

130. Neuroanatomy (4)
Prerequisites: PHYAN 33 or 64 or 65. Macroscopic and microscopic study of the structure and functional relationships of the human nervous system. (3 lecture, 3 lab hours)

134. Histology (4)
Prerequisites: BIOSC 140A-B. Identification and study of vertebrate cells, tissues, and organs. (2 lecture, 6 lab hours) (Formerly PHYAN 133)

135. Vertebrate Embryology (4)
Prerequisites: BIOSC 1A, 1B. Morphogenesis of vertebrates from gamete formation through organogenesis, including physiological and experimental aspects of development. Laboratory emphasis on frog, chick, and pig. (2 lecture, 6 lab hours)

140. Neurophysiology (3)
Prerequisites: PHYAN 33 or 64 or 65 or 151 or BIOSC 140B. Function of the human nervous system with emphasis on molecular mechanisms of electrical and chemical signaling.

151. Comparative Animal Physiology (4)
Prerequisite: BIOSC 140A-B. Evolution of physiological systems; functional adaptations to different environments; physiological principles as applied to animals. (3 lecture, 3 lab hours)

158. Biological Membranes: Structure and Function (3)
Prerequisite: BIOSC 140A-B or CHEM 150 or 155. A study of the myriad of functions membranes perform with an emphasis on transport. General structural properties of membranes, including fluidity and asymmetry, and modification of structural building blocks which lead to membrane diversity.

160. Immunology (3)
Prerequisites: BIOSC 140A; BIOSC 140B. CHEM 150 or 155 highly recommended. Principles of mammalian immune response, featuring the molecular and cellular interactions involved in both humoral and cell-mediated immunity. Regulatory controls and adverse clinical conditions involving immune functions are addressed. Experimental basis of inquiry is emphasized.

160L. Immunology Laboratory (2)
Prerequisites: PHYAN 160 and either BIOSC 140B or MICRO 140. Experimental illustration of immune response; classical and contemporary immunology techniques; interpretation and presentation of experimental outcomes. (6 lab hours)

163. Advanced Human Physiology (3)
Prerequisites: BIOSC 140B and either PHYAN 65 or equivalent. Primarily for students in biology and in the health professions. Advanced study of the cardiovascular, respiratory, excretory, and digestive systems. Concepts explaining normal functioning will be emphasized, with presentation of supporting scientific data. Integration of function of organ systems will be illustrated through study of specific examples, such as exercise. (Formerly PHYAN 164)

165. Endocrinology (3)
Prerequisite: BIOSC 140A-B. A systems approach to the study of hormone synthesis, secretion, function as intercellular signals, and their role in both controlling and integrating normal physiological processes.

172. Pathophysiology (3)
Prerequisite: PHYAN 65 or equivalent or PHYAN 163. An application of anatomic and physiologic principles in the study of those disturbances that underlie the etiology and pathogenesis of human diseases.

(See also *BOT 130, 133, 137; GENET 172; MICRO 161.)*

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* Late afternoon, Saturday and/or overnight field trips may be required.