

# BASIC SCIENCES (BAS01-DN)

## BAS01-DN 1508 Bldg Blocks of Life (3 Credits)

*Typically offered Fall*

This course provides basic foundational knowledge of the biochemical structures, properties, and functions of proteins, enzymes, carbohydrates, lipids, nucleic acids, vitamins, hormones, and pertinent antibiotics/antagonists. The major metabolic pathways and their functions are described and integrated to achieve an appreciation of the dynamics of metabolic regulation and control within cells, as well as between cells, organs, and organ systems within the whole body. The biochemistry and molecular biology of genetic informational inheritance; its storage, retrieval, expression, utilization; and its repair in normal health is stressed. Diseases due to inborn errors of metabolism and protein function, and certain environmental diseases are examined; and several clinical case studies integrate foundational knowledge of biochemistry into an orderly progression of critical thinking that competent clinicians are mindful of in obtaining differential diagnosis, design of treatment strategies, follow-up, and consultation with other health professionals. The course is offered as an on-line course, where all students will be expected to progress through each teaching module in sequential order. This course is open only to students in the Doctor of Dental Surgery program.

**Grading:** Dental Graded

**Repeatable for additional credit:** No

## BAS01-DN 1509 Cellular Organelles and Functions (2.5 Credits)

*Typically offered Fall*

This course provides a basic understanding of the structure and function of cells. Each of the basic organelles are described and their functions are presented in a manner that allows the student to understand how the cell functions as an individual, free-standing unit and as a component of groups of cells (tissues). Where appropriate, a comparison is made between eukaryotic cells (those with a true nucleus) and prokaryotic cells (bacteria). The course will also provide information on cellular processes such as gene regulation, cell motility, apoptosis, cell adhesion, and signal transduction. In addition, the course provides an understanding of the patterns and processes of Mendelian and molecular genetics and the control of cell cycling, especially as it pertains to tumor biology. This course will form the underlying basis for the Basic Tissues and Body and Disease courses, among others. This course is open only to students in the Doctor of Dental Surgery program. Core curriculum.

**Grading:** Dental Graded

**Repeatable for additional credit:** No

## BAS01-DN 1510 Basic Tissues (2 Credits)

*Typically offered Fall*

The Basic Tissues course covers the following topics: epithelium, soft connective tissue, cartilage, bone, muscle, blood and bone marrow, and clotting. The course is integrated and presents the traditional microscopic anatomy, as well as biochemical, molecular, physiological, and pathological aspects (for illustrative purposes) of these tissues. The course consists of a series of lectures, clinical case presentations (CCPs), and online laboratory modules. Lectures describe structure-function relationships based upon information from light and electron microscopy, histochemistry, autoradiography, cell and molecular biology, and other areas. Correlations with clinical dentistry are stressed in the areas of tissue structure and function. Discussions of the processes of histogenesis and repair are included. CCPs emphasize the need to learn about the basic tissues so that areas of clinical dentistry can be understood properly. Laboratory modules will consist of in-depth discussions of digital photographic images which complement certain material presented in lecture. This course is open only to students in the Doctor of Dental Surgery program. Core curriculum.

**Grading:** Dental Graded

**Repeatable for additional credit:** No

## BAS01-DN 1511 Embryology (1 Credit)

The Embryology course begins with a discussion of general concepts in human embryology and culminates with in-depth discussions of both prenatal and postnatal craniofacial development. Emphasis is placed upon the oral health implications of concepts in human developmental biology. The course is organized into three units: 1. General Embryology; 2. Prenatal Craniofacial Development; 3. Postnatal Craniofacial Growth and Development. This course is open only to students in the Doctor of Dental Surgery program. Core curriculum.

**Grading:** Dental Graded

**Repeatable for additional credit:** No

## BAS01-DN 1608 Head and Neck Anatomy (5.5 Credits)

*Typically offered Fall*

The teaching of gross anatomy is soundly based on the principles that 1) function is best grasped with a solid grounding in structural anatomy, and 2) recognition of the abnormal and the treatment of disease progress from a knowledge of the normal. In recognition of the needs of the dental profession the course is focused primarily on the gross anatomy of the head and neck. Limited exposure to thoracic, abdominal, pelvic, and forelimb anatomy is provided. In this course, gross anatomy is presented to the students through lectures, study of digitized plastinations, model skulls, digital media, and the introduction of clinical examples and discussions. Clinical application of anatomical detail is introduced and emphasized. This course is open only to students in the Doctor of Dental Surgery program. Core curriculum.

**Grading:** Dental Graded

**Repeatable for additional credit:** No

## BAS01-DN 1610 Principles of Pharmacology (1 Credit)

The Principles of Pharmacology course provides a basic understanding of drug administration, pharmacokinetics, pharmacodynamics, drug interactions and adverse drug reactions. This course is open only to students in the Doctor of Dental Surgery program. Core curriculum.

**Grading:** Dental Graded

**Repeatable for additional credit:** No

**BAS01-DN 1613 Craniofacial Biology (2 Credits)****Typically offered Fall**

Craniofacial Biology presents the cell and molecular biology, histology and physiology of oral tissues that have direct relevance to the understanding and practice of dentistry. The course builds upon the concepts presented earlier in the first-year basic science curriculum and serves as a bridge to courses in pathology and clinical sciences that follow in the DDS curriculum. The course is organized into two major themes: development of oral tissues and induced regeneration of select oral tissues: periodontium, bone, dental pulp, or whole teeth. The course also includes several clinical case presentations (CCP) to highlight the significance of the material presented. This course is open only to students in the Doctor of Dental Surgery program. Core curriculum.

**Grading:** Dental Graded**Repeatable for additional credit:** No**BAS01-DN 1614 Microbiology and Infectious Diseases (4 Credits)**

This course serves as an introduction to the microbial organisms that cause most of the infections in man: bacteria, viruses, and fungi, with an emphasis on bacteria. Students will learn the principles of the infectious disease process with respect to the properties of infectious agents, modes of transmission, manifestations of infections and their prevention and treatment. Students will identify not only infectious diseases of the oral cavity but oral and systemic manifestations of other infectious diseases as well. This course will further describe the virulence factors of microbial agents that enable them to cause disease in humans. The course covers the major infectious diseases in humans, including the methods used for their identification in the clinical lab. Modes of transmission are described, as well as treatments and prevention. A brief overview serves to introduce the student to selected infectious diseases of protozoa. This course is open only to students in the Doctor of Dental Surgery program. Core curriculum.

**Grading:** Dental Graded**Repeatable for additional credit:** No**BAS01-DN 1615 Introductory Neuroscience (1.5 Credits)**

Introduction to Neuroscience is a comprehensive biomedical course that is designed to provide students with a breadth of knowledge and the fundaments of how the Nervous System is organized and works in health and disease. The course brings together neuroanatomy, neurohistology, neurophysiology, and an introduction to the principles of neurological examination and to the general approach regarding neurological disorders. Discussions and applications place the emphasis on analytical skills, integration, critical thinking and problem solving in clinically relevant contexts. This course is open only to students in the Doctor of Dental Surgery program. Core curriculum.

**Grading:** Dental Graded**Repeatable for additional credit:** No**BAS01-DN 1617 Biomedical Foundations of Dentistry 1 (0.5 Credits)**

The goal of the course is to 1) help students retain foundational knowledge from completed courses and 2) apply foundational knowledge to clinical cases. Students will complete weekly quizzes made up of clinical cases and integrated questions, as well as stand-alone questions. This is the first part of a multi-part course series designed to prepare students to challenge the Integrated National Board Dental Examination at the end of their third year of study. This course is open only to students in the Doctor of Dental Surgery program. Core curriculum.

**Grading:** Dental Pass/Fail**Repeatable for additional credit:** No**BAS01-DN 2517 Biomedical Foundations of Dentistry 2 (0.5 Credits)**

Continuation of BAS01-DN 1617. The goal of the course is to 1) help students retain foundational knowledge from completed courses and 2) apply foundational knowledge to clinical cases. Students will complete weekly quizzes made up of clinical cases and integrated questions, as well as stand-alone questions. This is the second part of a multi-part course series designed to prepare students to challenge the Integrated National Board Dental Examination at the end of their third year of study. This course is open only to students in the Doctor of Dental Surgery program. Core curriculum.

**Grading:** Dental Pass/Fail**Repeatable for additional credit:** No**BAS01-DN 2617 Biomedical Foundations of Dentistry 2 (0.5 Credits)**

Continuation of BAS01-DN 2517. The goal of the course is to 1) help students retain foundational knowledge from completed courses and 2) apply foundational knowledge to clinical cases. Students will complete weekly quizzes made up of clinical cases and integrated questions, as well as stand-alone questions. This is the third part of a multi-part course series designed to prepare students to challenge the Integrated National Board Dental Examination at the end of their third year of study. This course is open only to students in the Doctor of Dental Surgery program. Core curriculum, 4-year program.

**Grading:** Dental Pass/Fail**Repeatable for additional credit:** No**BAS01-DN 3517 Biomedical Foundations of Dentistry 3 (0.5 Credits)****Typically offered Fall**

Continuation of BAS01-DN 2617. The goal of the course is to 1) help students retain foundational knowledge from completed courses and 2) apply foundational knowledge to clinical cases. Students will complete weekly quizzes made up of clinical cases and integrated questions, as well as stand-alone questions. This is the fourth part of a multi-part course series designed to prepare students to challenge the Integrated National Board Dental Examination at the end of their third year of study. This course is open only to students in the Doctor of Dental Surgery program. Core curriculum, 4-year program.

**Grading:** Dental Pass/Fail**Repeatable for additional credit:** No**BAS01-DN 3617 Biomedical Foundations of Dentistry 3 (0.5 Credits)**

Continuation of BAS01-DN 3517. The goal of the course is to 1) help students retain foundational knowledge from completed courses and 2) apply foundational knowledge to clinical cases. Students will complete weekly quizzes made up of clinical cases and integrated questions, as well as stand-alone questions. This is the fifth part of a multi-part course series designed to prepare students to challenge the Integrated National Board Dental Examination at the end of their third year of study. This course is open only to students in the Doctor of Dental Surgery program. Core curriculum, 4-year program.

**Grading:** Dental Pass/Fail**Repeatable for additional credit:** No

**BAS01-DN 4517 Biomedical Foundations of Dentistry 4 (0.5 Credits)**

Continuation of BAS01-DN 3617. The goal of the course is to 1) help students retain foundational knowledge from completed courses and 2) apply foundational knowledge to clinical cases. Students will complete weekly quizzes made up of clinical cases and integrated questions, as well as stand-alone questions. This is the fifth part of a multi-part course series designed to prepare students to challenge the Integrated National Board Dental Examination at the end of their third year of study. This course is open only to students in the Doctor of Dental Surgery program.

Core curriculum, 4-year program.

**Grading:** Dental Pass/Fail

**Repeatable for additional credit:** No

**BAS01-DN 4525 Independent Research Program (1 Credit)**

*Typically offered Fall*

This research program is designed to provide selected students with the opportunity to be involved in a research project being conducted at NYU College of Dentistry. This course is open only to students in the Doctor of Dental Surgery program. Elective.

**Grading:** Dental Pass/Fail

**Repeatable for additional credit:** No