

# Veterinary Biomedical Science (V\_BSCI)

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**V\_BSCI 5011: Veterinary Anatomy**

In-depth study of the structure of the horse, ox, sheep, goat, pig and avian species. (Instructional periods 3 and 4).

**Credit Hours:** 3

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**V\_BSCI 5012: Veterinary Anatomy with Laboratory**

Continuation of V\_BSCI 5011. In-depth study of the structure of the horse, ox, sheep, goat, pig and avian species. (Instructional periods 3 and 4).

**Credit Hours:** 3

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**V\_BSCI 5020: Teratology**

A survey of abnormal vertebrate development across organ systems through mechanistic, anatomical, and clinical perspectives. Graded on A-F basis only.

**Credit Hours:** 0.5

**Prerequisites:** 1st year Veterinary students

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**V\_BSCI 5021: Teratology**

A survey of abnormal vertebrate development across organ systems through mechanistic, anatomical, and clinical perspectives. Graded on A-F basis only.

**Credit Hours:** 0.5

**Prerequisites:** 1st year Veterinary students

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**V\_BSCI 5051: Veterinary Gastrointestinal Physiology**

(cross-leveled with V\_BSCI 8421). Continuation of V\_BSCI 5504. Physiology of the gastrointestinal tract, exocrine pancreas and liver. Lecture and lab designed to emphasize principles important to the practice of veterinary medicine. Graded on A-F basis only.

**Credit Hours:** 2

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**V\_BSCI 5052: Veterinary Endocrinology and Reproductive Physiology**

Continuation of Veterinary Biomedical Science 5051. Comparative endocrinology and reproductive biology. Graded on A-F basis only.

**Credit Hours:** 2

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**V\_BSCI 5100: Veterinary Neuroscience**

A laboratory and lecture-based course emphasizing the applied anatomy and physiology of the nervous system of domestic animals. Instructional period 2. Graded on A-F basis only.

**Credit Hours:** 2

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**V\_BSCI 5500: Veterinary Anatomy with Laboratory**

Correlative study of the anatomy of domestic and laboratory animals in which the developmental and gross anatomy are integrated. A segment is devoted to neuroanatomy. Dissection includes the dog, cat and common laboratory animals. (Instructional periods 1 and 2).

**Credit Hours:** 4

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**V\_BSCI 5502: Histology and Embryology with Laboratory**

An integrated study of vertebrate body plan formation and development and the subsequent form and function of the derived anatomical structures. Graded on A-F basis only.

**Credit Hours:** 3

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**V\_BSCI 5503: Histology and Embryology with Laboratory**

An integrated study of vertebrate body plan formation and development and the subsequent form and function of the derived anatomical structures. Graded on A-F basis only.

**Credit Hour:** 1.5

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**V\_BSCI 5504: Veterinary Physiology**

This course is designed to provide an opportunity and motivation for the student to acquire an understanding of the physiological principles on which rational therapy in medical practice is based. Topics include: Cellular Neurophysiology, Muscle, Cardiovascular, Renal and Respiratory Physiology. The course also encourages the student to apply these principles in solving problems so that it becomes habitual for him or her to think in terms of "mechanisms of action" as he or she approaches a problem in disturbed physiology.

**Credit Hours:** 5

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**V\_BSCI 5506: Veterinary Molecular and Cellular Biology**

A comprehensive course overviewing molecular and biochemical issues of cell function especially as related to medicine and the underlying molecular causes of disease.

**Credit Hours:** 4

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**V\_BSCI 5507: Veterinary Pharmacology with Laboratory**

General principles of pharmacy, pharmacokinetics, and pharmacodynamics, with emphasis on drugs affecting the central and autonomic nervous system, cardiovascular and hematologic systems.

**Credit Hours:** 3

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**V\_BSCI 5508: Veterinary Pharmacology**

Continuation of V\_BSCI 5507. Antiseptics, autocoids, hemostatics and anticoagulants, fluid and electrolytes, reproductive, endocrine, and gastrointestinal drugs.

**Credit Hours:** 2

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**V\_BSCI 5509: Veterinary Toxicology**

Local and various systemic clinical responses of domestic animals to foreign chemicals including metals, pesticides, water-and food-borne agents, biotoxins, industrial and plant toxins. The principles, mechanism(s) of action, diagnosis, prevention and treatment of chemical intoxications are also presented.

**Credit Hours:** 3

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**V\_BSCI 7120: Principles of Toxicology**

(same as V\_PBIO 7120). This course will provide an introduction to the general principles of toxicology, including the history and scope of the field; risk assessment and management; mechanisms of toxicity; the disposition of toxicants, non-target organ-directed toxicity; toxic responses of specific target organs/systems; an overview of a number of specific classes of toxic agents, including pesticides and metals; and various toxicological applications, such as environmental, forensic, and occupational toxicology. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Completion of an undergraduate degree in biochemistry, biology or equivalent; admission to program

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**V\_BSCI 7333: Veterinary Cell Biology**

(cross-leveled with BIOMED 4333, VET\_TCH 4333). Course material stresses cell biology as related to animal health and medical issues. A comprehensive course overviewing molecular and biochemical issues of cell function especially as related to medicine and the underlying molecular causes of disease. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

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**V\_BSCI 8085: Problems in Veterinary Biomedical Science**

Selected problems and/or topics for advanced study in special areas to meet needs of individual students.

**Credit Hour:** 1-99

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**V\_BSCI 8090: Research in Veterinary Biomedical Science**

Open to graduate students with requisite preparation. Research expected to be presented as a thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**V\_BSCI 8100: Veterinary Neuroscience**

A laboratory and lecture based course emphasizing the applied anatomy and physiology of the nervous system of domestic animals. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to first year veterinary students or graduate students

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**V\_BSCI 8200: Multidisciplinary Approaches to Biomedical Sciences**

The goal of this course is to aid the student in developing a multidisciplinary philosophy to problem solving in biomedical research. Methods used in molecular, biochemical, cellular, tissue, organ, and whole animal studies will be emphasized.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**V\_BSCI 8410: Seminar in Veterinary Biomedical Science**

Presentation and discussion of investigations and topics in veterinary anatomy-physiology or related fields, by qualified students, instructors, and guests.

**Credit Hour:** 1

**Prerequisites:** departmental consent

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**V\_BSCI 8420: Veterinary Physiology**

This course is designed to provide an opportunity and motivation for the student to acquire an understanding of the physiological principles on which rational therapy in medical practice is based. Topics include: Cellular Neurophysiology, Muscle, Cardiovascular, Renal and Respiratory Physiology. The course also encourages the student to apply these principles in solving problems so that it becomes habitual for him or her to think in terms of "mechanisms of action" as he or she approaches a problem in disturbed physiology.

**Credit Hours:** 5

**Prerequisites:** BIOCHM 4270 and BIOCHM 4272

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**V\_BSCI 8421: Veterinary Physiology**

Continuation of V\_BSCI 8420. Physiology of the gastrointestinal tract, exocrine pancreas, liver, endocrine system and reproduction.

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**Credit Hours:** 4

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**V\_BSCI 8509: Veterinary Toxicology**

Local and various systemic clinical responses of domestic animals to foreign chemicals including metals, pesticides, water-and food-borne agents, biotoxins, industrial and plant toxins. The principles, mechanism(s) of action, diagnosis, prevention and treatment of chemical intoxications are also presented. Graded A-F only.

**Credit Hours:** 3

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**V\_BSCI 9090: Research in Veterinary Biomedical Sciences**

Research in Veterinary Biomedical Sciences. Graded on S/U basis only.

**Credit Hour:** 1-99

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**V\_BSCI 9425: Microvascular Physiology**

(same as MPP 9434). An in-depth study of microcirculatory structure and function in various organs with emphasis on understanding the mechanisms involved in the regulation of local blood flow, nutrient supply, lymphatic function, and tissue fluid balance.

**Credit Hours:** 4

**Prerequisites:** V\_BSCI 8420 and V\_BSCI 8421 or equivalent and instructor's consent

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**V\_BSCI 9435: Molecular Exercise Biology**

(same as MPP 9435). Integrated adaptations of adipose tissue, blood vessels, bone, brain, heart, immune, liver, microbiome, and skeletal muscle to physical training during life. Lifecourse emphasis will be placed upon the role of physical activity during growth and aging in increasing and decreasing, respectively, cardiovascular fitness and strength fitness. The roles of the level of cardiovascular and strength fitness in slowing the onset of chronic diseases and death will be one outcome of the curriculum. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Introductory physiology and molecular biology

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**V\_BSCI 9462: Hormone Action**

(same as BIOCHM 9462). A lecture course with weekly assigned readings. Topics will include: a description of selected polypeptide, steroid and other hormones and their biological effects; receptors; second messengers; protein phosphorylation in hormone mediation; growth factors; cellular oncogenes.

**Credit Hours:** 2

**Prerequisites:** BIOCHM 7272

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**V\_BSCI 9467: Neural Cardiorespiratory Control**

(same as MPP 9437). Course objectives include developing a general understanding of CNS mechanisms in the regulation of the cardiovascular and respiratory system, including autonomic, neurohumoral and body fluid homeostatic mechanisms, gaining knowledge of the major advances and topics in the field and becoming familiar with some of the methods used to study CNS cardiorespiratory regulation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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