

# VIBS - VET INTEGRATIVE BIOSCI (VIBS)

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## VIBS 102 Scientific Notations on Neuroscience Overview

**Credit 1. 1 Lecture Hour.** Survey of neuroscience on the basic neuroscience core ideas and neurological disorders; includes in-class scientific writing practice. **Prerequisite:** NRSC-TPC majors only; concurrent enrollment in VIBS 101 or NRSC 101.

## VIBS 111 Biodefense, Biosecurity and Bioterrorism

**Credit 1. 1 Lecture Hour.** Concepts presented in all aspects of bioterrorism, local state and federal agencies, definition of all levels of bioagents, detection methods, bioagent dissemination, genetic modification of bioagents, vaccination strategies, health system preparedness. **Prerequisites:** Freshman or sophomore classification; or approval of instructor.

## VIBS 201/NRSC 201 History of Neuroscience

**Credit 1. 1 Lecture Hour.** Wide spectrum of neuroscience discovery beginning at the turn of the 20th Century; emphasis on key discoveries and their rationale, experimental design, experimental methods, major findings and interpretation of results. **Prerequisites:** Sophomore classification. **Cross Listing:** NRSC 201/VIBS 201.

## VIBS 204 Fundamentals of Food Toxicology and Safety

**Credits 3. 3 Lecture Hours.** Toxicity and safety of various foods and food additives, ingredients and contaminants; occurrence, control and prevention of food transmitted diseases. **Prerequisite:** Sophomore classification and CHEM 101.

## VIBS 210 Twenty-first Century Global One Health

**Credit 1. 1 Lecture Hour.** In depth presentation of concepts of surveillance, epidemiology and resistance, tropical medicine and One Health, climate change and One Health, conservation medicine and One Health and protection science policy and One Health. **Prerequisites:** BIMS 101; BIMS 110, VIBS 111, or equivalent; freshman or sophomore classification.

## VIBS 211 Twenty-first Century Biological Threats

**Credit 1. 1 Lecture Hour.** In depth presentation of different forms of bioterrorism, agroterrorism, sociological perspectives, surveillance, dual use research, advanced vaccine development, global health security and career opportunities. **Prerequisites:** BIMS 101; BIMS 110, VIBS 111, or equivalent; freshman or sophomore classification.

## VIBS 222 Great Poisonings of the World

**Credits 3. 3 Lecture Hours.** Exploration of the effect of intentional and accidental man-made and natural poisonings on humans and the environment and their impact on public policy. **Prerequisite:** Freshman or sophomore classification.

## VIBS 243 Introductory Mammalian Histology

**Credits 2. 1 Lecture Hour. 2 Lab Hours.** Biological aspects of the human body by integrating histology and anatomy and physiology; emphasis on the transition of cell and tissue organization to organ systems that comprise mammalian organisms; builds upon concepts introduced in lower-level biology and builds a foundation to succeed in upper-level histology, anatomy and physiology.

## VIBS 277/NRSC 277 Essential Neuroscience - From Molecules to Nervous Systems

**Credits 3. 3 Lecture Hours.** Neuroscience from the molecular to system levels; fundamental principles and knowledge of neuroscience; current research information on neuroscience. **Prerequisites:** Sophomore classification and approval of instructor. **Cross Listing:** NRSC 277/VIBS 277.

## VIBS 285 Directed Studies

**Credits 0 to 4. 0 to 4 Other Hours.** Directed studies in specific problem areas of veterinary anatomy and public health. **Prerequisites:** Freshman or sophomore classification and approval of department head.

## VIBS 289 Special Topics in...

**Credits 1 to 4. 1 to 4 Lecture Hours. 0 to 4 Lab Hours.** Selected topics in an identified area of veterinary anatomy or topics not covered in other courses. May be repeated for credit. **Prerequisites:** Freshman or sophomore classification and approval of instructor.

## VIBS 305 Biomedical Anatomy

**Credits 4. 2 Lecture Hours. 4 Lab Hours.** Comprehensive mammalian gross anatomy, using the dog and goat as model species; and introducing horse, cat, and ox structures where appropriate; includes laboratory dissection, prepared specimen examination, anatomical nomenclature, and the application of anatomy to clinical situations; general basic physiology will be presented to relate structure to function. **Prerequisites:** Grade of C or better in BIOL 112 and CHEM 228; junior or senior classification or approval of instructor.

## VIBS 310 Biomedical Writing

**Credit 1. 1 Lecture Hour.** Mechanisms by which knowledge is shared among researchers, clinicians and other science professionals, then disseminated to the general public; an assortment of written assignments to develop writing skills specific for communicating scientific concepts to a variety of audiences. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisite:** Grade of C or better in BIOL 112, CHEM 228, PHYS 202 and MATH 142 or 151; junior or senior classification.

## VIBS 311 Biomedical Explorations through Narrative

**Credit 1. 1 Lecture Hour.** Familiarization with the writing style required for biomedical and health science; instruction in writing styles and appropriate techniques to increase and strengthen writing abilities. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisite:** Grade of C or better in BIOL 112, CHEM 228, PHYS 202 and MATH 142 or 151; junior or senior classification.

## VIBS 343 Histology

**Credits 4. 3 Lecture Hours. 3 Lab Hours.** Normal tissues of vertebrates including histogenesis of some; histogenesis and organography of mammalian tissues. **Prerequisites:** BIOL 112; CHEM 228; junior or senior classification; BIMS major with a minimum overall 2.5 Texas A&M GPA.

## VIBS 401/NRSC 401 Developmental Neurotoxicology

**Credits 3. 3 Lecture Hours.** Effects of exposure to toxic substances on the developing nervous system; content to include mechanisms of toxicity of substances potentially devastating to the developing nervous system including lead, mercury and other heavy metals, alcohol, nicotine (smoking), pesticides, flame retardants, and others. **Prerequisites:** Junior or senior classification; VIBS 277/NRSC 277 or NRSC 277/VIBS 277.

**Cross Listing:** NRSC 401/VIBS 401.

## VIBS 407/NRSC 407 Core Ideas in Neuroscience

**Credits 2. 2 Lecture Hours.** General overview of selected core ideas across the full spectrum of neuroscience. **Prerequisite:** Junior or senior classification; background in science courses recommended. **Cross Listing:** NRSC 407/VIBS 407.

## VIBS 408 Neuroscience and Religion

**Credits 3. 3 Lecture Hours.** Emphasis on the biology of the human mind in the context of religious implications. **Prerequisites:** Junior or senior classification; concurrent enrollment in NRSC 407/VIBS 407 or VIBS 407/NRSC 407.

## VIBS 411 Tumor Cell Biology and Carcinogenesis

**Credits 3. 3 Lecture Hours.** Principles of tumor biology; role of gene-environment interactions; molecular mechanisms regulating cancer initiation and progression; therapeutic treatment of cancer. **Prerequisites:** BIMS 320/GENE 320 or equivalent; junior or senior classification.

## VIBS 413 Introduction to Epidemiology

**Credits 3. 3 Lecture Hours.** Study and measurement of disease and health in populations; examples from literature and current events; emphasizes concepts and appreciation for epidemiologic approaches and applications in life. **Prerequisite:** Junior or senior classification.

## VIBS 420 Computer Applications in Public Health Research

**Credits 3. 2 Lecture Hours. 3 Lab Hours.** Introduction to the use of computers for public health research applications, including word processing, spreadsheets, data base management and telecommunications. **Prerequisites:** Senior classification or approval of instructor; BIMS major with a minimum overall 2.5 Texas A&M GPA.

## VIBS 422 Endocrine Toxicology

**Credits 4. 4 Lecture Hours.** Impacts of endocrine toxicology on endocrine system; prevalence, environmental and occupational use and disposal of environmental endocrine disrupting chemicals (EDCs); structure, toxicokinetics and mechanism of action of EDCs; effects of EDCs on the development and function, disorders and diseases of the endocrine and reproductive organs. **Prerequisites:** Senior classification; approval of instructor.

## VIBS 424/VTPP 424 Biomedical Neuroendocrinology and Endocrine Disorders

**Credits 3. 3 Lecture Hours.** Neuroendocrine (hypothalamus-pituitary) control of puberty, menstruation, ovulation, pregnancy, labor, lactation, female reproductive cycles, male reproductive functions, thyroid and parathyroid, adrenal and kidney, diabetes, obesity, sleep, memory, learning and aging and their endocrine disorders; overview on biosynthesis, transport and signaling of peptide and neuropeptide hormones, steroids and prostaglandins. **Prerequisites:** Honors, junior or senior classification, or approval of instructor. **Cross Listing:** VTPP 424/VIBS 424.

## VIBS 426/ENTO 426 Methods in Vector-Borne Disease Ecology

**Credits 3. 1 Lecture Hour. 5 Lab Hours.** Methodological understanding of how vector-borne diseases are studied in the field and laboratory; hands-on exploration of the ecology disease systems in a one health framework; concepts of design, execution and presentation of research projects; outdoor field work and bio-safety level 2 laboratory. **Prerequisites:** Junior or senior classification and approval of instructor. **Cross Listing:** ENTO 426/VIBS 426.

## VIBS 443 Biology of Mammalian Cells and Tissues

**Credits 4. 3 Lecture Hours. 3 Lab Hours.** Molecular phenomena placed in context with tissues, organs and organ systems; cell and tissue structures visualized by light microscopy and electron micrographs for functional relationships; clinical correlations reveal relevance of histology in specific disease states; conceptual thinking exercises facilitate problem solving skills. **Prerequisites:** Junior or senior classification in life sciences and interest in health related careers.

## VIBS 445 Learning and Applying Peer Teaching Principles in Biomedical Anatomy

**Credits 3. 2 Lecture Hours. 4 Lab Hours.** Application of peer teaching techniques in an undergraduate lab course; discussion of current pedagogical theories and practices; focus on using effective communication in the classroom; development of personal teaching philosophy, assessments and learner-centered engagement strategies. **Prerequisite:** Grade of B or better in VIBS 305 and approval of instructor.

## VIBS 447 Neurophysiology of Music

**Credits 2. 2 Lecture Hours.** Exploration of the heritability and genetics of musical talent, the physiology and physics of hearing, and the neurophysiology of processing sound using primarily German and Austrian compositions. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisite:** Junior or senior classification.

## VIBS 450/NRSC 450 Mammalian Functional Neuroanatomy

**Credits 4. 3 Lecture Hours. 2 Lab Hours.** Functional morphology of the domestic animal and human brain using gross specimens, microscopic sections, interactive computer-, DVD- and video-assisted instructional programs supplemented with clinical case studies. **Prerequisites:** Junior or senior classification; BIMS, biology, biochemistry, or psychology majors, or neuroscience minors with overall 3.5 Texas A&M GPA; or approval of instructor. **Cross Listing:** NRSC 450/VIBS 450.

## VIBS 456 Science in Cinema and Society

**Credits 3. 3 Lecture Hours.** Examination of the role science depicted in popular culture plays in shaping basic science literacy. **Prerequisites:** VIBS 310; majors only; junior or senior classification; approval of instructor.

## VIBS 485 Directed Studies

**Credits 0 to 4. 0 to 4 Other Hours.** Directed individual study of a selected problem in veterinary anatomy (with emphasis on neuroscience, cell biology, reproduction, developmental biology, marine mammal anatomy) approved by instructor or selected problems in veterinary public health (with emphasis on food safety, toxicology, epidemiology, informatics, zoonoses). **Prerequisites:** Junior or senior classification and approval of instructor.

## VIBS 489 Special Topics in...

**Credits 1 to 4. 0 to 4 Lecture Hours. 0 to 4 Lab Hours.** Selected topics in an identified area of veterinary anatomy (with emphasis on neuroscience, cell biology, genetics, reproduction, developmental biology, marine mammal anatomy) or selected topics in veterinary public health, epidemiology, zoonoses, food hygiene, food toxicology and mycotoxicology. May be repeated for credit. **Prerequisites:** Junior or senior classification and approval of instructor; BIMS major with a minimum overall 2.5 Texas A&M GPA.