Z 319. *CRITICAL THINKING AND COMMUNICATIONS IN THE LIFE SCIENCES. (3 Credits)
Teaches students the practice of biological science. Topics cover scientific theory, written and spoken communications, ethics and critical evaluation. (Writing Intensive Course) CROSSLISTED as BI 319.
Attributes: CWIC – Core, Skills, WIC
Prerequisites: (BI 211 with C- or better or BI 211H with C- or better) and (BI 212 [C-] or BI 212H [C-]) and (BI 213 [C-] or BI 213H [C-]) and (ST 351 [D-] or ST 351H [D-]) and ST 352 (may be taken concurrently) [D-]
Equivalent to: BI 319

Z 349. *BIODIVERSITY: CAUSES, CONSEQUENCES, AND CONSERVATION. (3 Credits)
The earth's biodiversity is a precious inheritance that is threatened by an unprecedented extinction crisis. This course examines the evolutionary and ecological processes that have created this unique diversity of life, the importance of biodiversity in maintaining the earth's ecosystems, and methods used to conserve biodiversity for future generations. (Bacc Core Course)
Attributes: CGSI – Core, Synth, Global Issues

Z 350. ANIMAL BEHAVIOR. (3 Credits)
Concepts of behavior; sensory receptors, internal mechanisms governing responses; learning and habituation; social organization and communication.
Prerequisites: (BI 211 with C- or better or BI 211H with C- or better) and (BI 212 [C-] or BI 212H [C-]) and (BI 213 [C-] or BI 213H [C-]) or (BI 204 [C-] and BI 205 [C-] and BI 206 [C-])

Z 361. INVERTEBRATE BIOLOGY. (3 Credits)
Exploration of the diversity and evolutionary relationships among major invertebrate phyla with an emphasis on morphological features, functional aspects, and life history for each phylum.
Prerequisites: (BI 211 with C- or better or BI 211H with C- or better) and (BI 212 [C-] or BI 212H [C-]) and (BI 213 [C-] or BI 213H [C-]) or (BI 204 [C-] and BI 205 [C-] and BI 206 [C-])

Z 362. INVERTEBRATE BIOLOGY LABORATORY. (2 Credits)
Morphology and anatomy of representative invertebrates introduced in Z 361; diversity within phyla. Study is by dissections and both microscopic and macroscopic examination; field trip fee. Lab fee. Lec/ lab.
Prerequisites: ((BI 211 with C- or better or BI 211H with C- or better) and (BI 212 [C-] or BI 212H [C-]) and (BI 213 [C-] or BI 213H [C-]) or Z 361 (may be taken concurrently) [C-])

Z 365. BIOLOGY OF INSECTS. (4 Credits)
Introduction to the study of insects, focusing on the biological attributes responsible for the success and dominance of insects. Emphasis on taxonomy, morphology, behavior, ecology, and coevolutionary interrelationships. Required field trips. Lec/lab.
Prerequisites: (BI 211 with C- or better or BI 211H with C- or better) and (BI 212 [C-] or BI 212H [C-]) and (BI 213 [C-] or BI 213H [C-]) or (BI 204 [C-] and BI 205 [C-] and BI 206 [C-])

Z 371. VERTEBRATE BIOLOGY. (3 Credits)
Overview of vertebrate origins and phylogeny integrating several disciplines (anatomy, ecology, genetics, developmental biology, physiology, behavior, and evolution) to explore the structural and functional adaptations and evolutionary history of vertebrates. Lec.
Prerequisites: ((BI 211 with C- or better or BI 211H with C- or better) and (BI 212 [C-] or BI 212H [C-]) and (BI 213 [C-] or BI 213H [C-]) or (BI 204 [C-] and BI 205 [C-] and BI 206 [C-])
Recommended: Completion or concurrent enrollment in Z 372

Z 372. VERTEBRATE BIOLOGY LABORATORY. (2 Credits)
Classification, identification, and natural history of vertebrates. Includes laboratory examination of specimens and frequent field trips (fee charged) emphasizing Oregon fauna. Lab fee.
Prerequisites: ((BI 211 with C- or better or BI 211H with C- or better) and (BI 212 [C-] or BI 212H [C-]) and (BI 213 [C-] or BI 213H [C-]) or (BI 204 [C-] and BI 205 [C-] and BI 206 [C-]) and Z 371 (may be taken concurrently) [D-]

Z 422. COMPARATIVE/FUNCTIONAL VERTEBRATE ANATOMY. (5 Credits)
Phylogenetically-based study of the form and function of vertebrate organ systems, including integumentary, musculoskeletal, cardiopulmonary, digestive, and sensory. Lab emphasizes comparative form through dissection, and function through non-invasive experimentation. Lec/lab.
Prerequisites: ((BI 211 with C- or better or BI 211H with C- or better) and (BI 212 [C-] or BI 212H [C-]) and (BI 213 [C-] or BI 213H [C-]) and (CH 332 (may be taken concurrently) [D-] or CH 335 (may be taken concurrently) [D-])

Z 423. ENVIRONMENTAL PHYSIOLOGY. (3 Credits)
Comparative environmental physiology of animals with emphasis on adaptations to such aspects of the physical environment as temperature, water, ions, and gases. Consideration given to interactions between physiology and environment that influence the local and geographic distribution of animals.
Prerequisites: (( (BI 211 with C- or better or BI 211H with C- or better) and (BI 212 [C-] or BI 212H [C-]) and (BI 213 [C-] or BI 213H [C-]) or (BI 204 [C-] and BI 205 [C-] and BI 206 [C-])

Z 425. EMBRYOLOGY AND DEVELOPMENT. (5 Credits)
Prerequisites: BI 311 with D- or better or BI 311H with D- or better or BB 314 with D- or better or BB 314H with D- or better

Z 431. VERTEBRATE PHYSIOLOGY I. (4 Credits)
Systems/concepts covered include motor reflexes, autonomic nervous system, digestion/metabolism, renal and osmoregulatory, endocrine and reproductive systems. First in Z 431, Z 432/2 442 series. Lec/rec.
Prerequisites: (BI 211 with C- or better or BI 211H with C- or better) and (BI 212 [C-] or BI 212H [C-]) and (BI 213 [C-] or BI 213H [C-]) and (CH 332 (may be taken concurrently) [C-] or CH 335 (may be taken concurrently) [C-])

Z 432. VERTEBRATE PHYSIOLOGY II. (3 Credits)
Systems/concepts covered include blood, immune, lymphatic, cardiovascular, and pulmonary. Second in the Z431, Z432/442 series. Prerequisites: Z 431 with C- or better
Z 437. VERTEBRATE ENDOCRINOLOGY. (4 Credits)
An exploration of vertebrate endocrinology that examines principles of hormone action, inter- and intracellular signaling mechanisms within endocrine axes, and comparative endocrine physiology, emphasizing concepts of homeostasis and methodologies for evaluating normal and physiological function. Students are provided multiple forums for class participation, in the form of scientific presentations and "mini-reports."
Prerequisites: BB 314 with D- or better or BB 314H with D- or better

Z 438. BEHAVIORAL NEUROBIOLOGY. (3 Credits)
Prerequisites: ((BI 211 with C- or better or BI 211H with C- or better) and (BI 212 [C-] or BI 212H [C-]) and (BI 213 [C-] or BI 213H [C-]) or (BI 204 [C-] and BI 205 [C-] and BI 206 [C-])) and (CH 123 [C-] or (CH 233 [C-] or CH 233H [C-]) and (CH 263 [C-] or CH 263H [C-]))

Z 440. INSECT PHYSIOLOGY. (3 Credits)
Fundamentals of insect physiology from the behavioral to the molecular level. Cellular physiology and hormonal control of molting, metamorphosis and reproduction. Overview of body functions: respiration, circulation, digestion, metabolism, and osmoregulation. Physiological basis of behavior: muscles and flight, structure and functions of the nervous system, sensory physiology and chemical communication. The contributions of insect physiology to general physiological principles and biotechnological methods of insect pest control are discussed.
Prerequisites: ((BI 211 with C- or better or BI 211H with C- or better) and (BI 212 [C-] or BI 212H [C-]) and (BI 213 [C-] or BI 213H [C-]) or (BI 204 [C-] and BI 205 [C-] and BI 206 [C-])) and (CH 123 [C-] or (CH 233 [C-] or CH 233H [C-]) and (CH 263 [C-] or CH 263H [C-]))

Z 442. VERTEBRATE PHYSIOLOGY LABORATORY. (2 Credits)
Experiments and exercises in vertebrate physiology covering systems studied in Z 431 and Z 432. Available to Biology majors. Lab fee.

Z 461. MARINE AND ESTUARINE INVERTEBRATE ZOOLOGY. (4 Credits)
Comparative survey of eight major invertebrate phyla and many lesser-known phyla. Areas of emphasis will be 1) invertebrate identification, 2) natural history (diversity, habitat, feeding, behavior), and 3) comparative anatomy (adaptive significance of morphological structures). Laboratories and field trips will strongly supplement lecture material. Lec/ lab. Taught at Hatfield Marine Science Center.
Prerequisites: ((BI 211 with C- or better or BI 211H with C- or better) and (BI 212 [C-] or BI 212H [C-]) and (BI 213 [C-] or BI 213H [C-]) or (BI 204 [C-] and BI 205 [C-] and BI 206 [C-])) and (BI 214 [C-] or BI 214H [C-]) and (BI 213H [C-]) or (BI 204 [C-] and BI 205 [C-] and BI 206 [C-])

Z 473. HERPETOLOGY. (3 Credits)
World families and distribution of amphibians and non-avian sauropods; evolution, population biology, life histories, current literature.
Prerequisites: ((BI 211 with C- or better or BI 211H with C- or better) and (BI 212 [C-] or BI 212H [C-]) and (BI 213 [C-] or BI 213H [C-]) or (BI 204 [C-] and BI 205 [C-] and BI 206 [C-])

Z 475. INSECT BIODIVERSITY SURVEY. (4 Credits)
Through lectures, laboratories and an intensive field survey, students learn about insect diversity, natural history and evolution, as well as the important role of biological collections in modern biodiversity research. The survey takes place in the two weeks prior to fall term at a remote Pacific Northwest field station. Lec/lab.
Prerequisites: (BI 211 H with C- or better or BI 211H with C- or better) and (BI 212 [C-] or BI 212H [C-]) and (BI 213 [C-] or BI 213H [C-]) or (BI 204 [C-] and BI 205 [C-] and BI 206 [C-])
Recommended: departmental approval required. Admission to Z 475/575 is by application (application preceding Spring term).

Z 477. AQUATIC ENTOMOLOGY. (4 Credits)
Biology, ecology, collection, and identification of aquatic insects. Two required Saturday field trips. Lec/lab.
Prerequisites: ((BI 211 with C- or better or BI 211H with C- or better) and (BI 212 [C-] or BI 212H [C-]) and (BI 213 [C-] or BI 213H [C-]) or (BI 204 [C-] and BI 205 [C-] and BI 206 [C-])

Z 499. SPECIAL TOPICS. (0-16 Credits)
Topics and credits vary.
Equivalent to: Z 499H
This course is repeatable for 16 credits.

Z 499H. SPECIAL TOPICS. (1-16 Credits)
Topics and credits vary.
Equivalent to: Z 499
This course is repeatable for 16 credits.