Biology 434 — General and Comparative Endocrinology

This course will cover the main vertebrate endocrine glands, including structure, development and evolution, and the function and structure of their hormones. You will learn about control of hormone secretion, target organs, mechanisms of hormone action, cellular and organ-level response to hormones and in particular about integration among endocrine systems.

One emphasis will be on human endocrinology, however, we also will discuss the importance of endocrine control in other vertebrate taxa. This is a good course for pre-med and pre-vet students, but is also appropriate for anyone who wants to understand more about how chemical signals allow coordination of complex phenomenon like metabolism, growth, reproduction, and development.

This course will also emphasize your ability to use the presented material to understand both normal endocrine and pathophysiology, to research and present new information on specialized topics, and to learn to interpret published data and make inferences from such information.

In addition to a typical lecture format, we will also discuss current articles in endocrinology, case studies to practice problem solving in endocrine pathophysiology (e.g. diabetes, thyroid deficiencies, etc) and current endocrine topic in the news (e.g. sterilization attempts in wild deer, “plan B” birth control, athlete abuse of hormones, etc.). All students, either alone or in small groups, will make a classroom presentation about a specialized topic in endocrinology. Past examples have included stress and wildlife biology, hormonal control of appetite, hormonal control of aggression and territorial behavior, hormone replacement therapies and biological rhythms.

Course evaluation is by exams, attendance and participation, presentation evaluation and written assignments.