1. Textbook pages that you can skip
   Insects: pp. 715-717
   Thyroid hormone, parathyroid hormone, glucagon, insulin: pp. 722-724
   Sex hormones and melatonin: pp 726-727
   Other: pp. 729-730

2. Roadmap of the lecture

   * General definition of a hormone
   * Basic concepts
     - 2-component system
     - differences between hormones: distance traveled, duration, target cells, cellular responses, chemical nature, receptor type
   * 9 types of endocrine glands
   * The pituitary
     - Differences between anterior and posterior: embryonic origin, function, connection to hypothalamus
     - Posterior pituitary: roles of vasopressin, oxytocin
     - Anterior pituitary
       - Types of hormones released: tropic vs others
       - Regulation by hypothalamus: flow chart
   * The adrenal gland
     - Anatomy
     - Steroids: where made and when released, cholesterol precursor, 3 classes (role – beware that sex hormones are mostly made by the sex organs), cortisol feedback
     - Adrenaline: where made and when released, role
   * Biochemical events at the cellular level (see chapter 15, pp. 284-287):
     - example of adrenaline
     - example of steroid hormone

3. Study guide

After studying for this lecture, you should be able to:
   * pair hormones with their secretory organs
   * know the differences between autocrine, paracrine and circulating hormones
   * know the 9 different types of endocrine glands
   * know the differences between anterior and posterior pituitary in terms of embryonic origin, function and types of connection to the hypothalamus
   * know the flow chart of hormone secreted by the hypothalamus and the anterior pituitary, and their targets
   * know and understand the negative feedback loops between the hypothalamus, the pituitary and the hormones
   * know the type of hormones released by the different regions of the adrenal gland, and what their functions are
   * compare and contrast the cellular signaling cascade used in response to adrenaline to that used in response to a steroid hormone
   * know each biochemical event that we described in response to the binding of adrenaline to target cells: name of the proteins involved, where are they located, what do they bind to, what role do they have.
   * be able to answer the following questions:
     - What are the functions of vasopressin, and oxytocin?
     - What is a tropic hormone?
     - What types of hormones are secreted by the hypothalamus?
     - Which hormones are steroid hormones? What do they do?
     - What are the physiological effects of adrenaline?
     - What type of receptors do water-soluble and lipid-soluble hormones bind to?
     - What is a G-protein? What does it do?
     - What are the different parts of an adrenergic receptor? Where are they located? What do they do?
     - What does cAMP bind to?
     - What is a protein kinase?