Week	Date	Unit	Lecture Topics	Lab topics
1	6/26	1	Review of class format and syllabus. Overview of physiology. Equilibrium and homeostasis. Atoms. Ions. Covalent bonding.	**Pretest.** Hydrogen bonds. Water as a solvent. Diffusion and osmosis.
	6/27		Biomolecules. Structure of carbohydrates, fats, proteins, and nucleic acids. Enzymes. Regulation of enzymes. Metabolic pathways.	Introduction to PowerLab and LabChart.
	6/28		Cell structure. Nature of life. Compartmentalization. Cell membranes. Roles of membrane proteins. Crossing membranes.	Lab 1: Dive Response
	6/29		Channels and carriers. Active vs. passive transport. Membrane potential. Receptors. Second messengers. Cell communication.	Science Skills: Graphing and interpreting graphs.
2	7/3	2	Overview of nervous system. Structure of a neuron. RMP. Graded and action potentials.	**Exam1 (Core concepts)**
	7/4		**No class – Independence Day**	
	7/5		Synaptic transmission. Postsynaptic responses. Receptors. Sensory transduction. Photoreceptors.	Lab 2: EEG
	7/6		CNS structure and anatomy. CNS functions. PNS structure. Somatic and autonomic function.	Lab 3: Sensory
3	7/10	2	More nervous system.	Science Skills: Experimental design.
	7/11	3	General endocrine arrangement. Hormones. Types and synthesis of hormones. Receptors. Regulation and release of hormones.	**Exam 2 (Nervous)**
	7/12		Pituitary and hypothalamus. Parathyroid hormone. Renin-angiotensin-aldosterone system. HPA. Insulin and glucagon.	Lab 4: Reflexes and Reactions
	7/13		Embryology of genitals. Female anatomy. Female gametogenesis. Menses.	**Chart exam**
4	7/17	3	Male anatomy. Male gametogenesis. Coitus. Fertilization. Implantation. Pregnancy. Birth control.	Science Skills: Hypothesis testing.
	7/18	4	Types of muscle. Skeletal muscle structure. A & I bands. Sliding filament theory. Myosin structure.	**Exam 3 (Endocrine and Reproductive)**
	7/19		Muscle action potentials. ECC. Contractile cycle. Muscle twitches. Summation and tetanus.	Lab 5: EMG
	7/20		Asynchronous recruitment. Motor units. Types of skeletal fibers. Phosphocreatine. Skeletal reflexes.	Lab 6: Tetanus and Fatigue

5	7/24	4	Smooth muscle. Single vs. multi-unit. Control. Calmodulin, MLCK, MLCP.	Science Skills: Hypothesis testing.
	7/25	5	Blood. Blood components. Red blood cells. Platelets. Coagulation.	**Exam 4 (Muscular)**
	7/26		Cardiac muscle. Contractile vs. autorhythmic APs. Intercalated discs. ECC in contractile cells.	Lab 7: Blood typing
	7/27		The heart. Cardiac conduction. ECG. Cardiac cycle. Blood pressure.The Wiggers diagram.	Lab 8: ECG and Heart Sounds
6	7/31	5	Blood vessels. Capillaries. Production of ECF. Lymphatic system.	Open heart surgery video
	8/1	6	Structure of respiratory system. Exchange surface. Air. Partial pressures in solution. Solubility.	**Exam 5 (Cardiovascular)**
	8/2		Anatomy and functioning of respiratory tract. Lung structure. Pleura. Alveoli.	Lab 9: Blood pressure
	8/3		Ventilation. Dead space. Gas exchange at alveoli and capillaries. Partial pressures throughout blood.	Lab 10. Spirometry
7	8/7	6	Hb-O2 curve. CO2 in blood. Bicarbonate buffer. Regulation of ventilation.	Lab 11: Respiratory titration.
	8/8	7	Urinary system function. General structure. Nephrons. Filtration.	**Exam 6 (Respiratory)**
	8/9		Regulation of filtration. Reabsorption throughout nephron. PCT mechanisms. DCT and CD mechanisms and regulation. RAA.	**Lab Exam**
	8/10		Secretion. Fluid balance. Countercurrent multiplication and the loop of Henle. Vasopressin. Role of vasa recta.	Lab 12: Polygraph
8	8/14	7	Role of kidneys in pH regulation.	Lab 13: Urinalysis
	8/15	8	Purpose of digestive system. General digestive anatomy. Motility. Cephalic phase. Gastric phase. Gastric glands.	**Exam 7 (Urinary)**
	8/16		Intestinal phase. Duodenal responses. Liver and gallbladder. Pancreatic enzymes. Brush border. Absorption. Large intestine.	Extra Retake Day!
	8/17		Remaining digestive	**Exam 8 (Digestive)**

Due
Q1
THL1
Q2
THL2
Q3
THL3

Q4

THL4

Q5

Q6

Q7

Q8