

Biol 2404 Lecture Outline for Exam I: Introduction to Cells & Tissues

I. Introduction

Syllabus

Exams

Definitions:

Anatomy

physiology

What is Life

Properties of Life

Survival Needs

Models in Biology

Examples of Models

Major Organ Systems

Levels of Structural Organization

Homeostasis

requirements

negative feedback

positive feedback

Language of Anatomy

Anatomical Positions

Directional Terms

Body Landmarks

Body planes and sections

Body Cavities

Subdivisions of Abdominopelvic Cavity

quadrate

9 regions

Surface Examinations

II. Defining Science

The Language of Science

The Scientific Method

Assumptions of Scientific Method

Natural Laws

Experimentation

Disproof vs Proof

Definitions:

Theory vs Hypothesis

III. Matter & Energy

Definitions:

matter

energy

atom

element

chemical bond

synthesis reactions

decomposition reactions

essential elements

essential molecules

Elements of the body

Molecules of the body

Difference between inorganic & organic molecules

IV. Biomolecules

Major Inorganic Molecules

Water

Electrolytes

Gasses

Major Organic Molecules

Carbohydrates

Lipids

Proteins

Nucleic Acids

V. Microscopy

parts of microscope

magnification

resolution

contrast

VI. Cell Structure

What is a cell

What is importance of cell to biology

Parts of a Cell

Cell membrane

Cytoplasm

Nucleus

Nucleolus

Endoplasmic Reticulum

rough ER

smooth ER

Ribosomes

Mitochondria

Golgi Bodies

Lysosomes

Peroxisomes

Cytoskeleton

Centrioles

Cell Surface Features

microvilli

membrane junctions

cilia

flagella

membrane surface receptors

VI. Cell Functions

Membrane Transport

Passive vs Active membrane transport

Kinds of Passive Membrane Transport

Simple Diffusion

Facilitated Diffusion

Osmosis

Filtration

Kinds of Active Membrane Transport

Solute Pumping

Vesicular Transport

Definitions:

Exocytosis

Endocytosis

Phagocytosis

Pinocytosis

Cellular Interactions

Cell Membrane Junctions

Cell Signaling

Cellular Secretion

Membrane Potential

Cell Metabolism

Anabolic Reactions vs synthesis

Catabolic Reactions vs decomposition

Enzymes & Metabolism

ATP & Metabolism

Metabolic Pathways

Genes & Chromosomes

Protein Synthesis

Transcription

Translation

Cell Cycle & Cell Division

Mitosis vs Meiosis

Interphase

DNA Replication

Mitosis

Interphase

Prophase

Metaphase

Anaphase

Telophase

Variations in Cell Cycle

VII. Human Tissues

Definitions:

Tissue

Histology

Matrix

Protein fibers

tissue cells

primary (general) tissue types

specific tissue types

Epithelial Tissues

structure

function

Connective Tissues

structure

function

Muscular Tissues

structure

function

Nervous Tissues

Structure

function

Tissue growth and development