

## **INTRODUCTION TO HUMAN HISTOLOGY**

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### **Lecture and Laboratory locations and times:**

Lectures: Tupper Theatre B, 8:35 - 9:25 Wed, Fri

Laboratory sessions: Rm. 12K, Tupper Building,

Dentistry: 2:30 - 4:30 Wed

2160/3430: 2:30 - 4:30 Fri

# SYLLABUS, COURSE SCHEDULES, MATERIALS ON-LINE

Main webpage: [medical-neuroscience.medicine.dal.ca](http://medical-neuroscience.medicine.dal.ca)

Syllabus at:

Educational Courseware:

ANATOMY 2160/BIOLOGY 3430

Dentistry D1120-D1121

# HISTOLOGY

HISTO: a web, tissue

+

LOGOS: discourse, study of

(Greek)

# HISTOLOGY

## What is it?

- study of microanatomy of body structures

## Why bother?

- basic scientific principles underly all medical sciences
  - anatomy: most basic science
- body structures continuous across size scales  
gross → tissues → molecular
- understand anatomy →
  - understand structures supporting body functions
  - begin to understand disease processes

# COURSE OVERVIEW

start with basic tissue types:

epithelium

connective tissue

muscle

nervous tissue

-how do these tissue types make up  
organs and systems?

# GENERAL TERMS

SYSTEMS and ORGANS: collections of tissues with related functions

SYSTEMS: components with common function distributed around the body, ie cardiovascular, immune, **MUSCULOSKELETAL SYSTEM**

ORGANS: anatomically distinct groups of tissues ie, heart, kidney, **BICEPS MUSCLE**

TISSUES: collections of cells having similar shapes or common functions ie, **SKELETAL MUSCLE FASCICLE**

CELLS: basic functional units in body ie, **MYOCYTES**

# SCALE OF BODY STRUCTURES

anatomical structures continuous across a range of scale sizes

LIMB (ARM): muscles part of MUSCULOSKELETAL SYSTEM



ORGAN: BICEPS MUSCLE



TISSUE : FASCICLE (BUNDLE OF MYOCYTES)



CELLS: MYOCYTES



MOLECULAR: CONTRACTILE PROTEINS

# SCALE

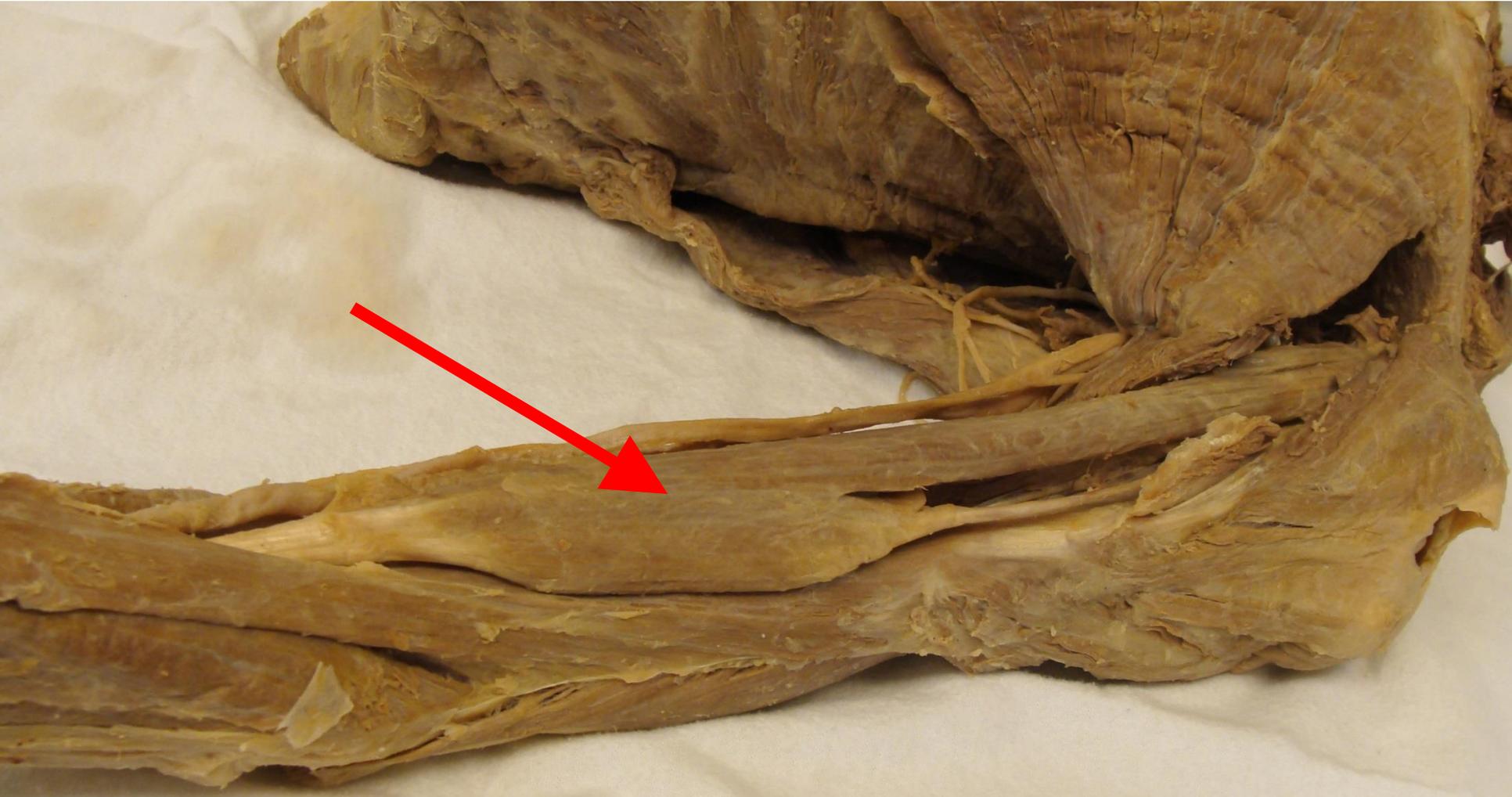
UPPER LIMB: muscles are  
part of musculoskeletal system  
=SYSTEM LEVEL

BICEPS MUSCLE  
=ORGAN LEVEL



# SCALE

MUSCLE DIVIDED INTO FASCICLES - bundles of myocytes = TISSUE LEVEL



# Cells: basic building blocks of body tissues

text chapters 2,3

Components important for studying histology:

plasma membrane - boundary

cytoplasm - bulk of cell, contains organelles

cytoskeleton - support structure

nucleus/nucleolus - genetic codes for cell materials,  
replication

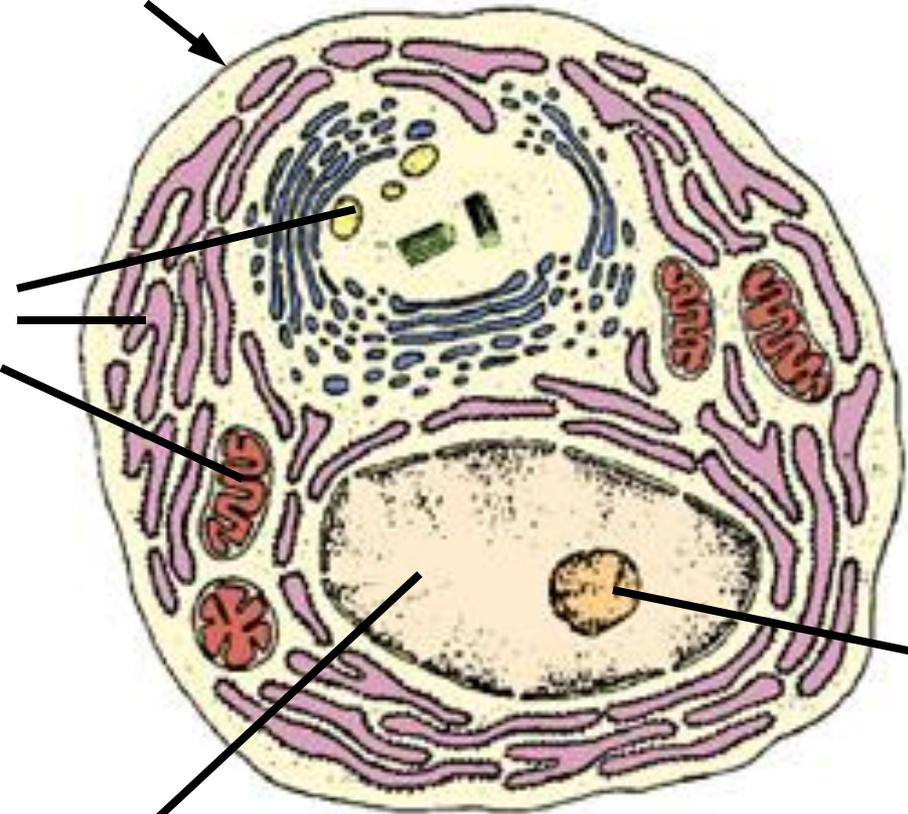
# MODEL CELL SHOWING COMPONENTS

plasma membrane

organelles in cytoplasm

nucleus

nucleolus



Plasma cell