



# HUMAN PHYSIOLOGY 2018-19 (18FS-2178)

Course MCP7000

(4 Graduate Credits)

Course MEDS3026

(4 Undergraduate Credits)

**COURSE DIRECTOR:**

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MSB 4255 (558-2421)

M//W//R//F 11:15am-12:10pm

T 11:15am-12:10pm FOUR REVIEW SESSIONS

**SUPPLEMENTAL INSTRUCTION**

Jared Iding

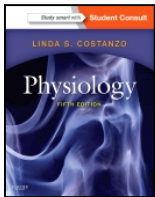
MSB 4051 from 10:10-11 AM M//W//F

**LOCATION – 4051MSB**

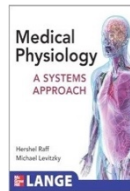
**[Graduate & Undergraduate Schedule](#)**

**COURSE DESCRIPTION**

A single-semester course designed for all Graduate Students in the Medical Sciences. Also appropriate for advanced undergraduate students. The course will provide students with an understanding of the function, regulation and integration of human body organ systems. Emphasis will be placed on homeostatic maintenance in health as well as in some disease processes. Course content will include introductory cell physiology and all major organ systems. The course will be textbook based and taught by experts in each organ system.



**REQUIRED TEXT BOOK:** Physiology Fifth Edition, Linda S. Costanzo (ELSEVIER Saunders)  
ISBN: 978-1-4557-0847-5



**ADDITIONAL TEXT BOOK:** Medical Physiology: A Systems Approach (Lange Medical Books, Hershel Raff, Michael Levitzky)

**The successful student will be able to:**

1. Explain the concept of homeostasis.
2. Identify the structure and transport functions of cell membrane including diffusion of water and solutes, carrier-mediated active transport systems, ion pumps and channels, origin of membrane potential and the basis of membrane excitability.
3. Explain the structure and functional organization of the human nervous system and its subdivisions
4. Develop a comprehensive understanding of cardiovascular physiology will include an appreciation of the muscular nature of the heart as a fluid pump, as well as the blood vessels as elements for flow and exchange
5. Describe the basic anatomy and functions of the pulmonary system
6. Know the role of kidney physiology in blood pressure, electrolyte, and fluid homeostasis.
7. Know the fundamentals of gastrointestinal development, physiology and pathophysiology.
8. Know the physiological relationships between endocrine organs, distributed endocrine tissues, and their target tissues.

DATE 2016	DAY	TIME	LOCATION	CORE LECTURES	PROFESSOR
8/27	M	11:15am-12:10pm	MSB 4051	Introduction - <i>Homeostasis; Cells &amp; Tissues</i>	Worrell
8/29	W	11:15am-12:10pm	MSB 4051	Cellular and Molecular Physiology <i>Signal Transduction</i>	Worrell
8/30	TH	11:15am-12:10pm	MSB 4051	Cellular and Molecular Physiology <i>Transport of Solutes &amp; Water</i>	Worrell
8/31	F	11:15am-12:10pm	MSB 4051	Cellular and Molecular Physiology <i>Membrane Potential</i>	Worrell
<b>9/3</b>	<b>M</b>	<b>No Class</b>		<b>Labor Day</b>	
9/5	W	11:15am-12:10pm	MSB 4051	Cellular and Molecular Physiology <i>Membrane Excitability</i>	Worrell
9/6	TH	11:15am-12:10pm	MSB 4051	The Nervous System <i>Functional Organization of the Nervous System</i>	Worrell
9/7	F	11:15am-12:10pm	MSB 4051	The Nervous System <i>Synaptic Transmission and Neurotransmitters</i>	Worrell

9/10	M	11:15am-12:10pm	MSB 4051	The Nervous System <i>Spinal Cord, Brain - CNS, Touch</i>	Worrell
<b>9/11</b>	<b>T</b>	<b>11:15am-12:10pm</b>	<b>MSB 4051</b>	<b>REVIEW SESSION</b>	
9/12	W	11:15am-12:10pm	MSB 4051	The Nervous System <i>Sensory Systems: Taste &amp; Smell</i>	Worrell
9/13	TH	11:15am-12:10pm	MSB 4051	The Nervous System <i>Sensory Systems: Vision &amp; Hearing</i>	Worrell
9/14	F	11:15am-12:10pm	MSB 4051	The Nervous System <i>Consciousness &amp; Behavior</i>	Worrell
<b>9/17</b>	<b>M</b>	<b>11:15am-1:15pm</b>	<b>4051</b>	<b>EXAM 1</b>	
9/19	W	11:15am-12:10pm	MSB 4051	Muscle Physiology <i>Overview, Cross bridge cycle, &amp; E-C coupling</i>	Worrell
9/20	TH	11:15am-12:10pm	MSB 4051	Muscle Physiology <i>Skeletal Muscles, Movement &amp; Metabolism</i>	Worrell
9/21	F	11:15am-12:10pm	MSB 4051	Muscle Physiology <i>Smooth Muscle</i>	Worrell
9/24	M	11:15am-12:10pm	MSB 4051	<b>CARDIOVASCULAR PHYSIOLOGY</b> Organization & Hemodynamics	Lorenz
9/26	W	11:15am-12:10pm	MSB 4051	Cardiac Electrophysiology and ECG	Lorenz
9/27	TH	11:15am-12:10pm	MSB 4051	The Heart Pump & Contractility	Lorenz
9/28	F	11:15am-12:10pm	MSB 4051	Venous Return and Cardiac Output	Lorenz
10/1	M	11:15am-12:10pm	MSB 4051	Regulation of Blood Pressure	Lorenz
10/3	W	11:15am-12:10pm	MSB 4051	Microcirculation	Lorenz
10/4	TH	11:15am-12:10pm	MSB 4051	Special Circulations and Cardiovascular Integration	Lorenz
10/5	F	11:15am-12:10pm	MSB 4051	Cardiovascular System <i>Blood</i>	Worrell
10/8	M	11:15am-12:10pm	MSB 4051	Innate Immunity	Worrell
10/10	W	11:15am-12:10pm	MSB 4051	Adaptive Immunity	Worrell
<b>10/11</b>	<b>TH</b>	<b>----</b>		<b>FALL READING DAYS</b>	
<b>10/12</b>	<b>F</b>	<b>----</b>		<b>FALL READING DAYS</b>	
10/15	M	11:15am-12:10pm	MSB 4051	<b>PULMONARY PHYSIOLOGY</b> PULMONARY 1: LUNG CAPACITIES & VOLUME	Worrell
<b>10/16</b>	<b>T</b>	<b>11:15am-12:10pm</b>	<b>MSB 4051</b>	<b>REVIEW SESSION</b>	<b>Worrell</b> <b>Lorenz</b>
<b>10/17</b>	<b>W</b>	<b>11:15am-1:15pm</b>	<b>4051</b>	<b>EXAM 2</b>	
10/18	TH	11:15am-12:10pm	MSB 4051	Pulmonary 2: Mechanics of Breathing	Worrell
10/19	F	11:15am-12:10pm	MSB 4051	Pulmonary 3: Gas Exchange – Diffusion	Worrell
10/22	M	11:15am-12:10pm	MSB 4051	Pulmonary 4: Transport of O <sub>2</sub> and CO <sub>2</sub>	Worrell
10/24	W	11:15am-12:10pm	MSB 4051	Pulmonary 5: Ventilation/Perfusion Mismatch	Worrell
10/25	TH	11:15am-12:10pm	MSB 4051	Pulmonary 6: Integrative Function/Hypoxemia & Hypoxia	Worrell
10/26	F	11:15am-12:10pm	MSB 4051	<b>RENAL PHYSIOLOGY</b> Renal 1: Introduction/Clearance/Renal Blood Flow	Worrell
10/29	M	11:15am-12:10pm	MSB 4051	Renal 2: Glomerular Filtration	Worrell
10/31	W	11:15am-12:10pm	MSB 4051	Renal 3: Tubular Transport	Worrell
11/1	TH	11:15am-12:10pm	MSB 4051	Renal 4: Na <sup>+</sup> & water Balance	Worrell
11/2	F	11:15am-12:10pm	MSB 4051	Renal 5: K <sup>+</sup> & Ca <sup>++</sup> / Phosphate Balance & Regulation, Calcium & Phosphate	Worrell

11/5	M	11:15am-12:10pm	MSB 4051	Renal 6: H <sup>+</sup> Balance, Acid/Base Regulation	Worrell
11/7	W	11:15am-12:10pm	MSB 4051	Renal 7: Renal & Acid-Base Disorders	Worrell
11/8	TH	11:15am-12:10pm	MSB 4051	<b>GASTROINTESTINAL PHYSIOLOGY</b> Lecture 1: Structure of the gastrointestinal tract Innervation of the gastrointestinal tract Gastrointestinal regulatory substances	Zavros
11/9	F	11:15am-12:10pm	MSB 4051	Lecture 2: Motility	Zavros
11/12	M	----		<b>VETERANS DAY HOLIDAY</b>	
11/13	T	11:15am-12:10pm	MSB 4051	<b>REVIEW SESSION</b>	Worrell
11/14	W	11:15am-1:15pm	4051	<b>EXAM 3</b>	
11/15	TH	11:15am-12:10pm	MSB 4051	Lecture 3: Secretion I	Zavros
11/16	F	11:15am-12:10pm	MSB 4051	Lecture 4: Secretion II	Zavros
11/19	M	11:15am-12:10pm	MSB 4051	Lecture 5: Digestion and absorption	Zavros
11/21	W	11:15am-12:10pm	MSB 4051	Lecture 6: Intestinal fluid and electrolyte transport Liver physiology	Zavros
11/22	TH	----		<b>THANKSGIVING HOLIDAY</b>	
11/23	F	----		<b>THANKSGIVING HOLIDAY</b>	
11/26	M	11:15am-12:10pm	MSB 4051	<b>ENDOCRINOLOGY/REPRODUCTION</b> Organization of the Hormonal Systems	Worrell
11/28	W	11:15am-12:10pm	MSB 4051	Hypothalamic-Pituitary System & Growth Hormone	Worrell
11/29	TH	11:15am-12:10pm	MSB 4051	Endocrine Pancreas	Worrell
11/30	F	11:15am-12:10pm	MSB 4051	Adrenal Glands	Worrell
12/3	M	11:15am-12:10pm	MSB 4051	Thyroid Gland	Worrell
12/4	T	11:15am-12:10pm	MSB 4051	<b>REVIEW SESSION</b>	Worrell Zavros
12/5	W	11:15am-12:10pm	MSB 4051	Male: Reproductive Physiology	Worrell
12/6	TH	11:15am-12:10pm	MSB 4051	Female: Reproductive Physiology	Worrell
12/7	F	11:15am-12:10pm	MSB 4051	Female: Pregnancy & Lactation	Worrell
12/10	W	11:15am-1:15pm	4051	<b>EXAM 4</b>	

### GRADING POLICY

**Four exams:** each is worth 20 points of total grade (80 points combined of total grade)

**Ten pop quizzes:** Best 10 scores will be taken, each worth 2 points of total grade (20 points combined of total grade) – Answers discussed in class. There are more than 10 pop quizzes given in this course.

The course final grade will be an average of these grades. The final letter grade will be awarded based on the following table.

<b>Percentage</b>	<b>Letter Grade Awarded</b>
93-100%	A
90-92%	A-
87-89%	B+
83-86%	B
80-82%	B-
77-79%	C+
73-76%	C
70-72%	C-
65-69%	D
<65%	F