

Steven A. Fink; Instructor
MSA 211
MW 3:25-6:40
sec. #1730
OFFICE HOURS: 6:40-7:00 PM [MSA 211]

FALL 2013
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HUMAN PHYSIOLOGY

Minimum Prerequisite: College Biology &/or Microbiology AND Human Anatomy with a grade of “C” or better; concurrent enrollment in or successful completion of English 28. **Strongly Recommended:** College Chemistry and English 101 (with a grade of “B” or better).

Physiology is a very rigorous course that requires considerable discipline, time and dedication. Students are expected to learn large amounts of material. A significant number of students find the course overwhelming and may drop or fail.

Course Description: This course presents the biochemical & biophysical principles underlying the physiological processes of the human. Lecture topics include the electrical properties of tissue cells, chemical influences on cell function, neural & hormonal regulation of bodily processes, and the integration of the organ systems to maintain a constant fluid environment within the body. Special emphasis will be placed on the evaluation of body temperature, blood pressure, breathing, and urine output, as well as the interpretation of clinical laboratory tests.

Laboratory exercises will introduce the student to the spectrophotometer, EKG machine, blood pressure cuff, and urinalysis tests. This course is intended to meet the requirements of students majoring in nursing, dental hygiene, occupational therapy, psychology, kinesiology, and life sciences, or for those who wish to extend their knowledge of the human body.

Student Learning Objectives: A student who completes this class will be able to explain:

- (1) electrical properties of tissue cells
- (2) neural & hormonal regulation of bodily processes
- (3) the control of body temperature, blood pressure, breathing & urine output
- (4) the use of clinical laboratory tests in the diagnosis & treatment of disease
- (5) the homeostatic reflexes in response to hypo- and hyper-thermia, circulatory shock, acidosis and alkalosis, hypo- and hyper-glycemia, and exercise
- (6) basic electrocardiography and its use in the diagnosis of cardiac arrhythmias
- (7) the multiplicity of factors affecting each and every measurable parameter within the body

Required & Recommended Books:**S.A. Fink; Physiology Lecture Outline; BioBooks Pub.; 2011**G. Tortora & B. Derrickson; Principles of Anatomy & Physiology (12th ed); John Wiley & Sons; 2009 [ISBN 978-0-470-08471-7]Gerald Tortora; Learning Guide for Principles of Anatomy & Physiology (12th ed); John Wiley & Sons; 2009 [ISBN: 978-0-470-13805-2]L. Sherwood; Human Physiology; From Cells to Systems (7th ed); Cengage Learning; 2010 [ISBN 978-0-495-39184-5]John P. Harley; Study Guide for Human Physiology; From Cells to Systems (7th ed); Cengage Learning; 2010 [ISBN 978-0-495-82625-5]Dee Unglaub Silverthorn; Human Physiology (5th ed); Prentice Hall; 2010 [ISBN 978-0-321-55939-5]D. Silverthorn & R. Hill; Student Workbook for Human Physiology (5th ed); Prentice Hall; 2010 [ISBN 978-0-321-59643-7]L. Sherwood; Fundamentals of Physiology: A Human Perspective; West Publishing Co; 1995 [0-314-04272-5]M. Griffiths; Introduction to Human Physiology; Macmillan Pub. Co; 1981 [ISBN 0-02-347230-8]**Practice Quizzes & Exams & Videos:****<http://www.professorfink.com>****Tips for Success in Physiology:****http://student.ccbcmd.edu/c_anatomy/tips.htm****Practice Quizzes with Answers:****<http://www.mhhe.com/biosci/ap/foxhumphys/student/olc/index.htm>****[http://en.wikibooks.org/wiki/Human_Physiology/Appendix_1: answers to review questions](http://en.wikibooks.org/wiki/Human_Physiology/Appendix_1:_answers_to_review_questions)****http://wps.aw.com/bc_martini_eap_5/105/27045/6923732.cw/index.html**

Lecture Examination Schedule (Tentative):

LECTURE EXAMINATION 1.....	SEPT 23 (Mon)
Lab Exam on Dosage Calculations.....	OCT 14 (Mon)
LECTURE EXAMINATION 2.....	OCT 21 (Mon)
LECTURE EXAMINATION 3.....	NOV 18 (Mon)
LECTURE FINAL EXAMINATION..... (comprehensive)	DEC 11 (Wed)

Computation of the Course Grade:

2 (of the 3) highest Lecture Examinations.....	50% of Course Grade
Exam on Dosage Calculations.....	15% of Course Grade
Final Examination.....	35% of Course Grade

Assuming you take all 3 lecture examinations, the lowest one will be dropped, and the average of the 2 highest will count 50% towards your Course Grade. About 60% of the questions on the Final Exam will come from “older information” and 40% from the information presented after the 3rd Exam.

All examinations will consist of both objective-type questions (ie., True/False; Multiple Choice; and Matching questions) that will be answered on **SCAN-TRON (882) forms**, as well as short answer/essay questions. You will be expected to provide SCAN-TRON 882 forms (available at the bookstore) and a **soft lead pencil (no. 1 or no. 2) with a good eraser** for each examination for computer scoring. The Final Examination is comprehensive for the entire semester. **There are no make-up examinations.**

Grading Policy:

89 - 100%	A
78 - 88%	B
62 - 77%	C
50 - 61%	D
below 50%	F

Attendance Policy:

Regular class attendance and performance of laboratory work will be considered in the determination of the student's Course Grade. Roll will be taken. There is a strong correlation between poor attendance and poor grades.

You are responsible for information, exam announcements, date changes, etc. presented in class, whether or not you are present

Students who are given add slips must complete the process by the 3rd class meeting. No replacement add slips will be signed.

Withdrawal from Class:

You are responsible for your credit and enrollment status. Any student withdrawing from class must inform the admissions office of this decision. **Students failing to follow the correct procedure for withdrawals will receive a grade of "F" for the semester. No withdrawals are permitted after Friday, Nov 15.** (see Schedule, page 1).

Cheating/Academic Dishonesty:

Each student is expected to do his/her own work on all assignments, reports, examinations, etc. **CHEATING ON AN EXAM WILL RESULT IN AN "F" FOR THE COURSE.**

Here is a list of some actions that are considered cheating:

NO TALKING DURING THE EXAM.

KEEP YOUR EYES ON YOUR OWN EXAM.

USING NOTES OF ANY KIND (ON CARDS, STRIPS OF PAPER, DESK TOP, ETC.) DURING AN EXAM IS NOT PERMITTED.

Showing a fellow student your exam, or passing information in any way is not permitted.

Place your answer sheet(s) directly in front of you.

If you have a question, quietly walk up to the instructor and whisper your question.

Translation dictionaries are not permitted.

Changing the answers on a returned Exam & claiming it was scored wrongly.

All of these demonstrate a lack of Honesty & Integrity which is Essential in all Health Care Professions (& in fact, in all jobs, all relationships, & in all Areas of Life.)

Recommendations for Succeeding in Class:

- 1. Expect to Work. This is not supposed to be easy.**
- 2. Get to class on time, every time, and stay the whole time.**
 - Never miss class unless you're dead, & take good notes.
- 3. Find someone in the class to contact if you miss a meeting.**
- 4. Be organized! Use a daily calendar to set times for regular studying for each of your classes.**
- 5. Study & Review each night the class is given.**
 - Learning is easier if you schedule time daily to read, to think & review.
 - Every time you study. spend at least 10 minutes reviewing previous lessons. (These "refresher shots" are the secret for long-term memory.)
 - Focus your studying on the class Lecture Notes.
 - Read the relevant chapters in your textbook; hi-lite pertinent lines, & add these notes to your class notes (never read without writing).
 - Use the CD-ROM & Web-Sites.
 - Use associations to help you remember things.
 - Prepare note cards and carry them with you to review.
- 6. Increase your studying 1 week before a scheduled Exam!!**
- 7. Anything you turn-in (exams, lab reports) should look neat.**

TENTATIVE SCHEDULE OF TOPICS
(schedule subject to change)

Week	Day	Date	Lecture Topic	Tortora (12 th)	Lab/Other
1	M	AUG 26	Introduction Review of Biological Chemistry	pp. 1-12 pp. 29-59	
	W	AUG 28	Review of Biological Chemistry Vitamins & Minerals Review of Cell Biology Regulation of Blood Sugar Level Cell Respiration	pp. 29-59 pp. 1007-1011 pp. 61-89 pp. 644-650 pp. 669-673 pp. 998-1001 chap 25 (pp. 978-1001)	
2	M	SEPT 2	<u>NO CLASS</u> LABOR DAY		
	W	SEPT 4	Review of Cell Biology Regulation of Blood Sugar Level Cell Respiration DNA, RNA & Protein Synthesis Inheritance of Genetic Defects [Last Day to Avoid a "W" on Record: <u>F SEPT 6</u>]	pp. 61-89 pp. 644-650 pp. 669-673 pp. 998-1001 chap 25 (pp. 978-1001) pp. 86-108 pp. 1163-1167	

TENTATIVE SCHEDULE OF TOPICS
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Week	Day	Date	Lecture Topic	Tortora (12th)	Lab/Other
3	M	SEPT 9	Review of Cell Biology	pp. 61-89	
			DNA, RNA & Protein Synthesis	pp. 86-108	
			Transport Across Cell Membranes	pp. 66-76	
			Recognition Sites (MHC Proteins)	p. 850 & 64	
			Receptor Sites	pp. 644-650	
			Homeostasis	pp. 8-11	
			Fluid Compartments Electrolytes	pp. 1063-1067 pp. 1067-1073	
			Thermoregulation	pp. 1001-1004	
	W	SEPT 11	Thermoregulation	pp. 1001-1004	
Female Reproductive System			pp. 1096-1101		
Menstrual Cycle			pp. 1112-1118		
Inflammation			pp. 844-846		
Cytokines			pp. 852-853		
Fever			p. 1012		

TENTATIVE SCHEDULE OF TOPICS
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Week	Day	Date	Lecture Topic	Tortora (12 th)	Lab/Other
4	M	SEPT 16	Thermoregulation Female Reproductive System Menstrual Cycle Inflammation Cytokines Fever	pp. 1001-1004 pp. 1096-1101 pp. 1112-1118 pp. 844-846 pp. 852-853 p. 1012	
	W	SEPT 18	Inflammation Cytokines Fever Organization of the Nervous System Cerebrospinal Fluid	pp. 844-846 pp. 852-853 p. 1012 pp. 416-427 pp. 499-503	
5	M	SEPT 23	<u>LECTURE EXAM 1</u>		Solutions & Tonicity Lab

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Week	Day	Date	Lecture Topic	Tortora (12 th)	Lab/Other
	W	SEPT 25	Organization of the Nervous System Membrane Potential Action Potential Synaptic Transmission Neuromuscular Junction	pp. 416-427 pp. 428-432 pp. 432-440 pp. 441-445 pp. 451-454 pp. 315-318	Solutions And Tonicity Lab
6	M	SEPT 30	Synaptic Transmission Neuromuscular Junction Role of cyclic-AMP Organization of the Spinal Cord	pp. 445-451 pp. 315-318 pp. 648-650 pp. 461-468 pp. 480-481	
	W	OCT 2	Role of cyclic-AMP Organization of the Spinal Cord Cranial Nerves Sensory Pathways	pp. 648-650 pp. 461-468 pp. 480-481 pp. 522-536 chapter 16 (pp. 570-583)	Lipitor Lab Exercise

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Week	Day	Date	Lecture Topic	Tortora (12 th)	Lab/Other
7	M	OCT 7	Sensory Pathways Vision Hearing Balance & Equilibrium Pain & Pain Control	chapter 16 (pp. 570-583) pp. 604-620 pp. 620-628 pp. 628-632 pp. 574-575	Lymphatics pp. 834-836 Plasma Colloid Osmotic Pressure pp. 770-771
	W	OCT 9	Balance & Equilibrium Pain & Pain Control The Control of Posture & Movement	pp. 628-632 pp. 574-575 pp. 482-489 pp. 583-589	Lymphatics pp. 834-836 Plasma Colloid Osmotic Pressure pp. 770-771
8	M	OCT 14	The Control of Posture & Movement Neural Influence on Visceral Organs (ANS) The Stress Response	pp. 482-489 pp. 583-589 chapter 15 (pp. 547-568) pp. 675-678	<u>LAB EXAM 1</u>
	W	OCT 16	Neural Influence on Visceral Organs (ANS) The Stress Response Functional Areas of the Brain	chapter 15 (pp. 583-589) pp. 675-678 pp. 503-522 pp. 588-597	

TENTATIVE SCHEDULE OF TOPICS
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Week	Day	Date	Lecture Topic	Tortora (12 th)	Lab/Other
9	M	OCT 21	<u>LECTURE EXAM 2</u>		
	W	OCT 23	Neural Influence on Visceral Organs (ANS) The Stress Response Functional Areas of the Brain	chapter 15 (pp. 583-589) pp. 675-678 pp. 503-522 pp. 588-597	
10	M	OCT 28	Functional Areas of the Brain Hypothalamic-Pituitary Axis Endocrine System Role of ADH Role of Oxytocin FSH & LH in Males FSH & in Females Renin-Angiotensin-Aldosterone Reflex	pp. 503-522 pp. 588-597 pp. 650-658 pp. 643-687 p. 657 & 1040 pp. 1161-1162 pp. 656-657 pp. 1088-1090 pp. 1112-1119 p. 1040 pp. 666-667	

TENTATIVE SCHEDULE OF TOPICS
(schedule subject to change)

Week	Day	Date	Lecture Topic	Tortora (12 th)	Lab/Other
	W	OCT 30	Endocrine System Role of ADH Role of Oxytocin FSH & LH in Males FSH & in Females Renin-Angiotensin- Aldosterone Reflex Organization of the Cardiovascular System	pp. 643-687 p. 657 & 1040 pp. 1161- 1162 pp. 656-657 pp. 1088- 1090 pp. 1112- 1119 p. 1040 pp. 666-667 p. 728 pp. 783-786	
11	M	NOV 4	Cardiac Physiology Coronary Artery Disease (CAD)	pp. 730-759 pp. 750-752	
	W	NOV 6	Cardiac Physiology Coronary Artery Disease (CAD)	pp. 730-759 pp. 750-752	

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Week	Day	Date	Lecture Topic	Tortora (12 th)	Lab/Other
12	M	NOV 11	<p>Organization of the Circulatory System</p> <p>Lymphatic System</p> <p>Cardiac Physiology</p> <p>Coronary Artery Disease (CAD)</p>	<p>p. 728 pp. 783-786 p. 820 p. 836</p> <p>pp. 832-841</p> <p>pp. 730-759</p> <p>pp. 750-752</p>	ECG LAB
	W	NOV 13	<p>Cardiac Physiology</p> <p>Coronary Artery Disease (CAD)</p> <p>Cardiovascular Physiology</p> <p>Hypertension</p> <p><u>[LAST DAY TO DROP: F NOV 15]</u></p>	<p>pp. 730-759</p> <p>pp. 750-752</p> <p>pp. 772-783</p> <p>p. 825</p>	
13	M	NOV 18	<u>LECTURE EXAM 3</u>		BLOOD LAB

TENTATIVE SCHEDULE OF TOPICS
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Week	Day	Date	Lecture Topic	Tortora (12th)	Lab/Other
	W	NOV 20	Cardiac Physiology Coronary Artery Disease (CAD) Cardiovascular Physiology Hypertension	pp. 730-759 pp. 750-752 pp. 772-783 p. 825	
14	M	NOV 25	Cardiovascular Physiology Hypertension Hematology	pp. 772-783 p. 825 chapter 19 (pp. 690-716) Appendix C-4	
	W	NOV 27	Pulmonary Ventilation Arterial Blood Gases Regulation of Ventilation Acidosis & Alkalosis Hematology LDL & HDL T- & B- Lymphocytes	pp. 890-896 pp. 896-905 pp. 905-920 pp. 1070-80 chapter 19 (pp. 690-716) Appendix C-4 pp. 750-751 pp. 990-993 pp. 847-857	

TENTATIVE SCHEDULE OF TOPICS
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Week	Day	Date	Lecture Topic	Tortora (12 th)	Lab/Other
15	M	DEC 2	Pulmonary Ventilation Arterial Blood Gases Regulation of Ventilation Acidosis & Alkalosis Hematology LDL & HDL T- & B- Lymphocytes	pp. 890-896 pp. 896-905 pp. 905-920 pp. 1070-80 chapter 19 (pp. 690-716) Appendix C-4 pp. 750-751 pp. 990-993 pp. 847-857	

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TENTATIVE SCHEDULE OF TOPICS
(schedule subject to change)

Week	Day	Date	Lecture Topic	Tortora (12 th)	Lab/Other
	W	DEC 4	Pulmonary Ventilation Arterial Blood Gases Regulation of Ventilation Acidosis & Alkalosis Hematology LDL & HDL T- & B- Lymphocytes	pp. 890-896 pp. 896-905 pp. 905-920 pp. 1070-80 chapter 19 (pp. 690-716) Appendix C-4 pp. 750-751 pp. 990-993 pp. 847-857	
16	M	DEC 9	Review		
	W	DEC 11	<u>FINAL EXAM</u>		