

Steven A. Fink; Instructor
FALL 2015
TTH 9:35 - 12:50
sec. #1724
OFFICE HOURS: 9:15-9:35 [MSA-211]

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HUMAN PHYSIOLOGY

Minimum Prerequisite: College Biology and/or Microbiology **AND** Human Anatomy with a grade of “C” or better **AND** eligibility for English 101. . **Strongly Recommended:** College Chemistry **AND** completion of College Biology, Anatomy **and** Microbiology – all with a “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

Student Learning Outcomes:

1. Identify the functional Role of the Autonomic Nervous System (Parasympathetic & Sympathetic).

As assessed by successful completion of a multiple choice or matching examination.

2. Identify the major factors affecting Cardiac Output & Arterial Blood Pressure.

As assessed by successful completion of a multiple choice or matching examination.

3. Correctly define & use the standard units of concentration (dosage), including ratios, % Concentration, Molarity, mEq/L & Osmolarity.

As assessed by Dosage Calculation Problems.

4. Given a clinically article, evaluate and critique the findings based on knowledge of the scientific method, the strength of the evidence, and independent research on the topic.

As assessed by successful completion of a multiple choice or matching examination.

Required & Recommended Books:

S.A. Fink; Physiology Lecture Outline; BioBooks Pub.; 2011

To Save Money. I recommend a used copy of:

G. Tortora & B. Derrickson; Principles of Anatomy & Physiology (13th ed);
John Wiley & Sons; 2012

[hard cover: ISBN-13: 978-0-470-56510-0]

[soft cover: ISBN 978-0-470-91777-0

ISBN-10: 0470084715]

(to save more money, you may purchase even an 12th edition)

OR

Stuart Ira Fox; Human Physiology (11th ed);

McGraw-Hill; 2008 [ISBN-10: 0077265874 OR ISBN-13: 978-0077265878]

Chapter Summaries & Practice Quizzes & Exams:

<http://www.professorfink.com>

“TONS” OF RESOURCES:

<http://groups.msn.com/anatomyphysiologytests>

Practice Quizzes with Answers:

<http://www.mhhe.com/biosci/ap/foxhumphys/student/olc/index.htm>

**[http://occawlonline.pearsoned.com/bookbind/pubbooks/mariebhap/cha
pter1/deluxe.html](http://occawlonline.pearsoned.com/bookbind/pubbooks/mariebhap/cha
pter1/deluxe.html)**

**[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)**

Lecture Examination Schedule (Tentative):

LECTURE EXAMINATION 1.....	OCT 1 (Thurs)
Lab Exam on Dosage Calculations.....	OCT 13 (Tues)
LECTURE EXAMINATION 2.....	OCT 22 (Thurs)
LECTURE EXAMINATION 3.....	NOV 19 (Thurs)
LECTURE FINAL EXAMINATION..... (comprehensive)	DEC 17 (Thurs)

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. 20.** (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 (13 th)	Lab/Other
1	T	SEPT 1	Introduction Review of Biological Chemistry	c-1; pp. 1-12 c-2; pp. 29-62	
	TH	SEPT 3	Review of Biological Chemistry Vitamins & Minerals Review of Cell Biology Regulation of Blood Sugar Level Cell Respiration	c-2; pp. 29-62 c-25; pp. 1054-1057 c-3; pp. 63-91 c-18; pp. 707-710 c-25; pp. 1045-1048 chap 25 (pp. 1025-1048)	
2	T	SEPT 8	Review of Cell Biology Regulation of Blood Sugar Level Cell Respiration DNA, RNA & Protein Synthesis Inheritance of Genetic Defects	c-3; pp. 63-91 c-18; pp. 707-710 c-25; pp. 1025-1048 chap 25 (pp. 1025-1048) c-3; pp. 88-112 c-29; pp. 1210-1216	

TENTATIVE SCHEDULE OF TOPICS
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Week	Day	Date	Lecture Topic	Tortora (13 th)	Lab/Other
	TH	SEPT 10	Review of Cell Biology DNA, RNA & Protein Synthesis Transport Across Cell Membranes Recognition Sites (MHC Proteins) Receptor Sites Homeostasis Fluid Compartments Electrolytes Thermoregulation <u>[FRIDAY SEPT 11: Last Day to Avoid a "W" on Permanent Record]</u>	c-3; pp. 63-91 c-3; pp. 88-112 c-3; pp. 68-78 p. 894 & 66 pp. 681-688 c-1; pp. 8-12 c-27; pp. 1110-1121 pp. 1048-1051	
3	T	SEPT 15	<u>NO CLASS:</u> ROSH HASHANAH Thermoregulation Female Reproductive System Menstrual Cycle Inflammation Cytokines Fever	pp. 1048-1051 c-28; pp. 1143-1149 pp. 1160-1165 c-22; pp. 888-890 pp. 896-897 p. 1058	

TENTATIVE SCHEDULE OF TOPICS
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Week	Day	Date	Lecture Topic	Tortora (13th)	Lab/Other
	TH	SEPT 17	Inflammation Cytokines Fever Organization of the Nervous System Cerebrospinal Fluid	pp. 888-890 pp. 896-897 p. 1058 c-12 pp. 458-464 c-14; pp. 531-535	
4	T	SEPT 22	Membrane Potential Action Potential	c-12 pp. 458-464 pp. 458-464 pp. 464-472	Solutions & Tonicity Lab
	TH	SEPT 24	Membrane Potential Action Potential	c-12 pp. 458-464 pp. 458-464 pp. 464-472	Solutions And Tonicity Lab

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5	T	SEPT 29	<u>NO CLASS:</u> SUKKOT Action Potential Synaptic Transmission Neuromuscular Junction Role of cyclic-AMP Organization of the Spinal Cord	pp. 464-472 pp. 472-491 pp. 341-345 c-18 pp. 685-688 c-13 pp. 493-500 pp. 512-515	Lipitor Lab Exercise
	TH	OCT 1	<u>LECTURE EXAM 1</u> Role of cyclic-AMP Organization of the Spinal Cord Cranial Nerves Sensory Pathways	pp. 685-688 c-18; pp. 493-500 pp. 512-515 c-14; pp. 557-570 chapter 16; pp. 607-619	Lymphatics c-22; pp. 878-880 Plasma Colloid Osmotic Pressure c-21; pp. 812-814
6	T	OCT 6	<u>NO CLASS:</u> SIMCHAT TORAH Sensory Pathways Vision Hearing Balance & Equilibrium Pain & Pain Control	chapter 16 pp. 607-619 c-17; pp. 642-656 pp. 656-665 pp. 665-671 c-16; pp. 611-613	Lymphatics c-22; pp. 878-880 Plasma Colloid Osmotic Pressure c-21; pp. 812-814

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	TH	OCT 8	<u>NO CLASS:</u> SUKKOT Balance & Equilibrium Pain & Pain Control The Control of Posture & Movement	pp. 665-671 pp. 611-613 c-13; pp. 514-521 c-16; pp. 620-626	
7	T	OCT 13	The Control of Posture & Movement Neural Influence on Visceral Organs (ANS) The Stress Response	pp. 514-521 pp. 620-626 chapter 15; pp. 582-605 c-18; pp. 713-715	<u>LAB</u> <u>EXAM 1</u>
	TH	OCT 15	<u>NO CLASS:</u> SHEMINI ATZERET Neural Influence on Visceral Organs (ANS) The Stress Response Functional Areas of the Brain	chapter 15 pp. 582-605 pp. 713-715 c-14; pp. 536-556 pp. 625-634	

TENTATIVE SCHEDULE OF TOPICS
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Week	Day	Date	Lecture Topic	Tortora (13 th)	Lab/Other
8	T	OCT 20	<p>Endocrine System</p> <p>Role of ADH</p> <p>Role of Oxytocin</p> <p>FSH & LH in Males</p> <p>FSH & LH in Females</p>	<p>c-18; pp. 681-727</p> <p>p. 695 & pp. 1087-1088</p> <p>pp. 1209-1210 p. 694 c-28; pp. 1136-1138</p> <p>pp. 1160-1167</p>	
	TH	OCT 22	<p><u>LECTURE EXAM 2</u></p> <p>Endocrine System</p> <p>Role of ADH</p> <p>Role of Oxytocin</p> <p>FSH & LH in Males</p> <p>FSH & LH in Females</p> <p>Renin-Angiotensin- Aldosterone Reflex</p> <p>Organization of the Cardiovascular System</p>	<p>c-18; pp. 681-727</p> <p>p. 695 & 1087</p> <p>pp. 1209-1210 p. 694 c-28; pp. 1136-1138</p> <p>pp. 1160-1167</p> <p>c-26; p. 1087 c-18; pp. 704-706</p> <p>c-20; p. 769 c-21; pp. 824-827</p>	

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9	T	OCT 27	Endocrine System Role of ADH Role of Oxytocin FSH & LH in Males FSH & LH in Females Renin-Angiotensin- Aldosterone Reflex Organization of the Cardiovascular System	pp. 681-727 p. 695 & 1087 pp. 1209-1210 p. 694 c-28; pp. 1136-1138 pp. 1160-1167 c-26; p. 1087 c-18; pp. 704-706 c-20; p. 769 c-21; pp. 824-827	
	TH	OCT 29	Endocrine System Role of ADH Role of Oxytocin FSH & LH in Males FSH & LH in Females Renin-Angiotensin- Aldosterone Reflex Organization of the Cardiovascular System	pp. 681-727 p. 695 & 1087 pp. 1209-1210 p. 694 c-28; pp. 1136-1138 pp. 1160-1167 c-26; p. 1087 c-18; pp. 704-706 c-20; p. 769 c-21; pp. 824-827	

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Week	Day	Date	Lecture Topic	Tortora (13th)	Lab/Other
10	T	NOV 3	Organization of the Circulatory System	p. 769 pp. 824-827 pp. 862-863	ECG LAB
			Lymphatic System	c-22; pp. 876-885	
			Cardiac Physiology	c-20; pp. 761-801	
	TH	NOV 5	Cardiac Physiology	c-20; pp. 761-801	ECG LAB
11	T	NOV 10	Cardiac Physiology	c-20; pp. 761-801	ECG LAB
	TH	NOV 12	Cardiac Physiology	c-20; pp. 761-801	ECG LAB
12	T	NOV 17	Cardiac Physiology	c-20; pp. 761-801	
			Cardiovascular Physiology	c-21; pp. 803-826	
			Hypertension	pp. 868-874	

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Week	Day	Date	Lecture Topic	Tortora (13 th)	Lab/Other
	TH	NOV 19	<u>LECTURE EXAM 3</u> <u>[LAST DAY TO DROP: FRIDAY NOV 20]</u>		BLOOD LAB
13	T	NOV 24	Cardiovascular Physiology Hypertension Hematology	c-21; pp. 803-826 pp. 868-874 chapter 19; pp. 729-756; Appendix C-4	
	TH	NOV 26	Cardiovascular Physiology Hypertension Hematology LDL & HDL T- & B- Lymphocytes	c-21; pp. 803-826 pp. 868-874 chapter 19; pp. 729-756; Appendix C-4 c-20; pp. 791-793 c-25; pp. 1037-1040 c-22; pp. 890-901	

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Week	Day	Date	Lecture Topic	Tortora (13th)	Lab/Other
14	T	DEC 1	Hematology LDL & HDL T- & B- Lymphocytes Pulmonary Ventilation Arterial Blood Gases	chapter 19; pp. 690-716; Appendix C-4 c-20; pp. 791-793 c-25; pp. 1037-1040 c-22; pp. 890-901 c-23 pp. 936-942 pp. 943-951	
	TH	DEC 3	Pulmonary Ventilation Arterial Blood Gases Regulation of Ventilation Acidosis & Alkalosis	c-23 pp. 936-942 pp. 943-951 pp. 951-966 c-27; pp.1118-1128	

TENTATIVE SCHEDULE OF TOPICS
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Week	Day	Date	Lecture Topic	Tortora (13 th)	Lab/Other
15	T	DEC 8	Pulmonary Ventilation Arterial Blood Gases Regulation of Ventilation Acidosis & Alkalosis	c-23 pp. 936-942 pp. 943-951 pp. 951-966 c-27; pp.1118-1128	
	TH	DEC 10	Pulmonary Ventilation Arterial Blood Gases Regulation of Ventilation Acidosis & Alkalosis	c-23 pp. 936-942 pp. 943-951 pp. 951-966 c-27; pp.1118-1128	
16	T	DEC 15	<u>NO CLASS:</u>		
	TH	DEC 17	<u>FINAL EXAM</u>		