

Steven A. Fink; Instructor
SPRING 2014
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

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.....	March 10 (Tues)
Lab Exam on Dosage Calculations.....	MARCH 19 (Thurs)
LECTURE EXAMINATION 2.....	APRIL 2 (Thurs)
LECTURE EXAMINATION 3.....	MAY 7 (Thurs)
LECTURE FINAL EXAMINATION..... (comprehensive)	JUNE 4 (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, May 8.** (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 (13th)	Lab/Other
1	T	FEB 10	Introduction Review of Biological Chemistry	c-1; pp. 1-12 c-2; pp. 29-62	
	TH	FEB 12	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	Feb 17	Review of Cell Biology Regulation of Blood Sugar Level Cell Respiration DNA, RNA & Protein Synthesis	c-3; pp. 63-91 c-18; pp. 707-710 c-25; pp. 1045-1048 chap 25 (pp. 1025-1048) c-3; pp. 88-112	

TENTATIVE SCHEDULE OF TOPICS
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Week	Day	Date	Lecture Topic	Tortora (13 th)	Lab/Other
	TH	Feb 19	<p>Review of Cell Biology</p> <p>Regulation of Blood Sugar Level</p> <p>Cell Respiration</p> <p>DNA, RNA & Protein Synthesis</p> <p>Inheritance of Genetic Defects</p> <p><u>[FRIDAY Feb 20: Last Day to Avoid a "W" on Permanent Record]</u></p>	<p>c-3; pp. 63-91</p> <p>c-18; pp. 707-710 c-25; pp. 1025-1048</p> <p>chap 25 (pp. 1025-1048)</p> <p>c-3; pp. 88-112</p> <p>c-29; pp. 1210-1216</p>	
3	T	Feb 24	<p>Review of Cell Biology</p> <p>DNA, RNA & Protein Synthesis</p> <p>Transport Across Cell Membranes</p> <p>Recognition Sites (MHC Proteins)</p> <p>Receptor Sites</p> <p>Homeostasis</p> <p>Fluid Compartments Electrolytes</p> <p>Thermoregulation</p>	<p>c-3; pp. 63-91</p> <p>c-3; pp. 88-112</p> <p>c-3; pp. 68-78</p> <p>p. 894 & 66</p> <p>pp. 681-688</p> <p>c-1; pp. 8-12</p> <p>c-27; pp. 1110-1121</p> <p>pp. 1048-1051</p>	

TENTATIVE SCHEDULE OF TOPICS
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Week	Day	Date	Lecture Topic	Tortora (13 th)	Lab/Other
	TH	Feb 26	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	
4	T	March 3	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	Solutions & Tonicity Lab
	TH	March 5	<u>NO CLASS: PURIM</u> Organization of the Nervous System Membrane Potential Action Potential Synaptic Transmission Neuromuscular Junction	c-12 pp. 458-464 pp. 458-464 pp. 464-472 c-12; pp. 472-491 c-10; pp. 341-345	Solutions And Tonicity Lab

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5	T	March 10	<p><u>LECTURE EXAM 1</u></p> <p>Action Potential</p> <p>Synaptic Transmission</p> <p>Neuromuscular Junction</p> <p>Role of cyclic-AMP</p> <p>Organization of the Spinal Cord</p>	<p>pp. 464-472</p> <p>pp. 472-491</p> <p>pp. 341-345 c-18</p> <p>pp. 685-688</p> <p>c-13 pp. 493-500 pp. 512-515</p>	Lipitor Lab Exercise
	TH	March 12	<p>Action Potential</p> <p>Synaptic Transmission</p> <p>Neuromuscular Junction</p> <p>Role of cyclic-AMP</p> <p>Organization of the Spinal Cord</p>	<p>pp. 464-472</p> <p>pp. 472-491</p> <p>pp. 341-345 c-18</p> <p>pp. 685-688</p> <p>c-13 pp. 493-500 pp. 512-515</p>	<p>Lymphatics c-22; pp. 878-880</p> <p>Plasma Colloid Osmotic Pressure c-21; pp. 812-814</p>
6	T	March 17	<p>Role of cyclic-AMP</p> <p>Organization of the Spinal Cord</p> <p>Cranial Nerves</p> <p>Sensory Pathways</p>	<p>pp. 685-688 c-18; pp. 493-500 pp. 512-515</p> <p>c-14; pp. 557-570</p> <p>chapter 16; pp. 607-619</p>	<p>Lymphatics c-22; pp. 878-880</p> <p>Plasma Colloid Osmotic Pressure c-21; pp. 812-814</p>

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Week	Day	Date	Lecture Topic	Tortora (13 th)	Lab/Other
	TH	MARCH 19	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	<u>LAB</u> <u>EXAM 1</u>
7	T	March 24	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	
	TH	March 26	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	
8	T	March 31	<u>NO CLASS: HOLIDAY</u> <u>CESAR CHAVEZ B-DAY</u> Neural Influence on Visceral Organs (ANS) The Stress Response	chapter 15 pp. 582-605 pp. 713-715	

TENTATIVE SCHEDULE OF TOPICS

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Week	Day	Date	Lecture Topic	Tortora (13th)	Lab/Other
	TH	April 2	<u>LECTURE EXAM 2</u> 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	c-18; 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	
8	T	April 7	No Class: SPRING BREAK	<i>“Celebration of the Vernal Equinox”</i>	
	TH	April 9	No Class: SPRING BREAK	<i>“Celebration of the Vernal Equinox”</i>	

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Week	Day	Date	Lecture Topic	Tortora (13 th)	Lab/Other
9	T	APRIL 14	Endocrine System	pp. 681-727	
			Role of ADH	p. 695 & 1087	
			Role of Oxytocin	pp. 1209-1210 p. 694 c-28;	
			FSH & LH in Males	pp. 1136-1138	
			FSH & LH in Females	pp. 1160-1167	
			Renin-Angiotensin- Aldosterone Reflex	c-26; p. 1087 c-18; pp. 704-706	
			Organization of the Cardiovascular System	c-20; p. 769 c-21; pp. 824-827	
	TH	APRIL 16	Endocrine System	pp. 681-727	
			FSH & LH in Males	p. 694 c-28;	
			FSH & LH in Females	pp. 1136-1138	
			Renin-Angiotensin- Aldosterone Reflex	pp. 1160-1167	
10	T	APRIL 21	Endocrine System	pp. 681-727	
			Organization of the Cardiovascular System	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
	TH	APRIL 23	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	
11	T	APRIL 28	Cardiac Physiology	c-20; pp. 761-801	ECG LAB
	TH	APRIL 30	Cardiac Physiology	c-20; pp. 761-801	ECG LAB
12	T	MAY 5	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	MAY 7	<u>LECTURE EXAM 3</u> <u>[LAST DAY TO DROP: FRIDAY MAY 8]</u>		BLOOD LAB
13	T	MAY 12	Cardiovascular Physiology Hypertension Hematology	c-21; pp. 803-826 pp. 868-874 chapter 19; pp. 729-756; Appendix C-4	
	TH	MAY 14	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 (13 th)	Lab/Other
14	T	MAY 19	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	MAY 21	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	

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Week	Day	Date	Lecture Topic	Tortora (13 th)	Lab/Other
15	T	MAY 26	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	MAY 28	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	JUNE 2			
	TH	JUNE 4	<u>FINAL EXAM</u>		