LIFE AND PHYSICAL SCIENCES
Student Learning Outcome Alignment Form

Course Prefix/Number: BIOL 2302

Course Title: Anatomy & Physiology II

Core Objective	Course SLO	General Learning Activities	Assessment
Critical Thinking Skills	(SLO #2) identify and describe the components of blood and explain their functional roles.	Students will work in lab teams on a Blood Cell Identification lab. The lab teams will examine the slides provided on six microscopes focused on either erythrocytes of different types of leukocytes. They identify the cells, draw them, and complete the lab report. See attached activity.	Grade. See attached rubric
Communication Skills	(SLO #2) identify and describe the components of blood and explain their functional roles.	Students will work in lab teams on a Blood Cell Identification lab. The lab teams will examine the slides provided on six microscopes focused on either erythrocytes of different types of leukocytes. They identify the cells, draw them, and complete the lab report. See attached activity.	Grade. See attached rubric
Empirical & Quantitative Skills	(SLO #2) identify and describe the components of blood and explain their functional roles.	Students will work in lab teams on a Blood Cell Identification lab. The lab teams will examine the slides provided on six microscopes focused on either erythrocytes of different types of leukocytes. They identify the cells, draw them, and complete the lab report. See attached activity.	Grade. See attached rubric
Teamwork	(SLO #2) identify and describe the components of blood and explain their functional roles.	Students will work in lab teams on a Blood Cell Identification lab. The lab teams will examine the slides provided on six microscopes focused on either erythrocytes of different types of leukocytes. They identify the cells, draw them, and complete the lab report. See attached activity.	Grade. See attached rubric

Syllabus: Anatomy and Physiology II
Course Number: BIOL 2402
Semester & Year: Spring 2013
Instructor Information

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Textbook Information

Seeley's Anatomy and Physiology, Ninth Edition, Vanputte, et al.

ISBN-10: 0073525618

ISBN-13: 978-0073525617

Student Learning Outcomes for the Course

1. Use and understand the language of anatomy.
2. Identify and describe the physiology of the endocrine system.
3. Identify and describe the anatomy and physiology of the circulatory system.
4. Describe the histology and physiology of the lymphatic and immune system.
5. Describe the physiology of the respiratory and digestive systems.
6. Describe the importance of nutrition and the role of acid-base balance in the body.
7. Describe the physiology of the reproductive system and how it relates to the endocrine system.

Student Requirements for Completion of the Course and Due Dates

Dates are subject to change.

Lecture Dates are subject to change

Weekly quizzes over lecture chapters. Due each Monday at 8:00am

Exam I	Chapters 17-19	Week 4
Exam II	Chapters 20-22	Week 8
Exam III	Chapters 23-25	Week 11
Exam IV	Chapters 26-28	Week 15
Comprehensive Final + Chapter 29		Week 16

Lab Dates are subject to change

Lab Practicals There are no make-up lab practicals.

Heart	Week 5
Blood vessels	Week 7
Digestive and Respiratory	Week 10
Reproductive	Week 14

Student Assessment

The Course Grade will be determined by a combination of lecture and lab requirements.

Lecture is 60% of the course grade. It is determined by the following percentages:

Exams	85%
Quizzes	15%

Lab is 40% of the course grade. It is determined solely by grades on the practicals.

Mid-term grades will be posted. If either the lecture grade or the lab grade is less than 45%, the student will be dropped from the class.

Grading Scale

Grade	
A	90-100
B	80-89
C	70-79
D	60-69
F	59-below

Class Schedule

Date	Chapter	Material to be covered
Week 1	17	Organization of the Endocrine System
Week 2	18	Endocrine glands
Week 3	19	Blood
Week 4		**Exam** Chapters 17-19
Week 5	20	The Heart
Week 6	20	The Heart
Week 7	21, 22	Blood Vessels, Lymphatic System and Immunity
Week 8		**Exam** Chapters 20-22
Week 9	23	Respiratory
Week 10	24	Digestive
Week 11	25	Nutrition, **Exam** 23-25
Week 12	26	Urinary System
Week 13	27	Water, Electrolyte, Acid-Base
Week 14	28	Reproductive
Week 15		**Exam** 26-28
Week 16	cumulative	Final Exam

Absence Policy

Roll will be taken each class. It is recommended that students contact the instructor if missing a class is necessary. A student with 4 absences may be dropped from the course for lack of attendance. If an enrolled student stops attending class and chooses to receive an F, the last date they attended will be listed on the final grade sheet and they will most likely have to pay back money received from grants or scholarships.

Make-up Policy

Make-up lecture exams are short answer and may be taken within three school days of a missed lecture exam.
There are no makeup quizzes for lecture.
There are no makeup lab practicals.

Academic Integrity Statement

Scholastic dishonesty, involving but not limited to cheating on a test, plagiarism, collusion, or falsification of records will make the student liable for disciplinary action after being investigated by the Dean of Students. Proven violations of this nature will result in the student being dropped from the class with an "F".

This policy applies campus wide, including TC Testing Center, as well as off-campus classroom or lab sites, including dual credit campuses. This information can be found in the Student Handbook at https://texarkanacollege.edu.

Disability Act Statement:

Texarkana College complies with all provisions of the Americans with Disabilities Act and makes reasonable accommodations upon request. Please contact Larry Andrews at 903.823.3283, or go by the Recruitment, Advisement, and Retention Department located in the Administration building for personal assistance.

If you have an accommodation letter from their office indicating that you have a disability which requires academic accommodations, please present it to me so we can discuss the accommodations that you might need for this class. *It is best to request these changes at the beginning if not before the start of class* so there is ample time to make the accommodations…

Financial Aid:

Attention! Dropping this class may affect your funding in a negative way! You could owe money to the college and/or federal government. Please check with the Financial Aid office before making a decision.

I, (print your name) _____ have read and understand the above information regarding what is expected of each student, grade requirements for the class, absence policy, and financial aid. If any concerns arise, I understand the first person I need to speak with is my instructor Denise Johnson.

_____

Student signature

Absentee Policy

Texarkana College's absentee policy allows instructors to withdraw a student from a course due to excessive absences. If a student leaves and returns during class or leaves the class before the class is over, he/she **may** be considered absent. Three tardies constitute one absence. It is the student's responsibility to check the syllabus for each instructor's tardy policy.

In some workforce/vocational areas, such as nursing and cosmetology, certification requirements necessitate an absentee policy that is more stringent than the institutional policy. In these instances, the matter of certification takes precedence over local policies, since certification policies are established by the State of Texas.

Faculty members **are not** obligated to provide opportunities for students to make-up missed assignments and tests as a result of a student's absence from class. The institution is not required to take attendance with the exception of workforce/vocational areas, where certification requirements require taking attendance. However, experience demonstrates that regular attendance enhances academic success. As such, students are expected to attend each meeting of their registered courses.

A student should not stop attending a class without formally withdrawing from the course by the institutions published Last Day for Students to Drop. If a student stops attending class after the published Last Day for Students to Drop, the student **may** receive a grade of "F" in the class. The instructor will submit the last date of attendance for students receiving a grade of "F" or "W".

Withdrawal from a course(s) **may** affect a student's current or future financial aid eligibility. Students should consult the Financial Aid Office to learn both short and long term consequences of a withdrawal.

EXCUSED ABSENCES

A student's absence due to school trips and/or school business will not be counted against a student's allowable number of absences. Military duty and absences for Holy Days (FBD LEGAL) are covered in a separate section of the catalog and the student handbook. These are the only excused absences that are considered by Texarkana College. Responsibility for work missed for any absence is placed on the student. Instructors are required to allow students to make up work missed if the absence is due to military duty* or religious holy days when students follow the correct notification procedures. Instructors are not required to allow students to make up work for absences due to other reasons. Make-up policies are listed in each individual instructor's syllabus.

**Students interested in Health Occupations should check with the division chair prior to entering the program.*

ONLINE/HYBRID COURSE ABSENCES

Absence in an **online course** is defined as the lack of an active post or submission within

the course including discussion board posts, written assignments, and tests. This standard will be used to determine all absentee issues, including but not limited to, 12th Day Census Reports, last date of attendance, and involuntary withdrawal from a course due to absences. All online students must complete an Enrollment Verification activity within the first week of class (activity depends upon the professor); otherwise the professor **may** drop the student for not having attended. Students must complete at least one activity in their online class per week. Each week in which a student does not complete an activity will be counted as an absence.

If a student is taking a hybrid course, and it does not meet during the first week of class, the student must also complete an Enrollment Verification activity within the first week of class; otherwise the student **may** be dropped for not having attended.

MAXIMUM ALLOWABLE ABSENCES

After official registration, the following number of unexcused absences will be the maximum allowable before a student **may** be dropped from the class. Mandated program certification requirements detailed for certain programs regarding the maximum allowable unexcused absences takes precedence over the following information.

Academic Classes

A COURSE THAT MEETS FOR THE FULL 16 WEEK SEMESTER	
Class or Lab Meets:	An instructor **may** withdraw a student from a course if absences exceed:
Once a week (Night classes or Friday classes) Twice a week (MW or TR classes) Three times a week (MWF or TRF classes) Four times a week (MTWR classes)	2 4 6 8
	Three tardies count as one absence
A COURSE THAT MEETS FOR 14 WEEKS OF THE SEMESTER	
Class or Lab Meets:	An instructor **may** withdraw a student from a course if absences exceed:
Twice a week (MW or TR classes)	4
	Three tardies count as one absence.
A COURSE THAT MEETS FOR 8 WEEKS OF THE SEMESTER (Fast-Track)	

Class or Lab Meets: Four times a week (MTWR classes)	An instructor **may** withdraw a student from a course if absences exceed: 4 Three tardies count as one absence.
A COURSE THAT MEETS FOR 5 WEEKS OF THE SEMESTER (Summer Sessions)	
Class or Lab Meets: 3 times a week (MTW) (evening classes) 4 times a week (MTWR) (day classes)	An instructor **may** withdraw a student from a course if absences exceed: 2 2 Three tardies count as one absence.

<u>Workforce Classes</u> (This does not include Health Occupations. See Health Occupations Handbook regarding absences for that program.)

Day Classes	Evening Classes
Class meets: 5 days a week (MTWRF) The instructor **may** withdraw a student from a course if absences exceed five (5) up until the published Last Day for Students to Drop. Absences that exceed this number after the drop day may result in the student receiving an "F" in the program for that semester. Three tardies count as one absence. You are considered tardy from the designated class start time through the first 15 minutes of class. After that you will be counted absent.	Class Meets: 4 evenings a week (MTWR) The instructor **may** withdraw a student from a course if absences exceed five (5) up until the published Last Day for Students to Drop. Absences that exceed this number after the drop day may result in the student receiving an "F" in the program for that semester. Three tardies count as one absence. You are considered tardy from the designated class start time through the first 15 minutes of class. After that you will be counted absent.

Web site help
The following websites may benefit you in this course.
http://training.seer.cancer.gov/module_anatomy/anatomy_physiology_home.html
http://www.getbodysmart.com/
http://www.lrn.org/Content/Quizzes/Quizlist.html
http://msjensen.cehd.umn.edu/webanatomy/
http://mhhe.com

Steps for a Successful Semester in A&P

1. **Introduce yourself to the chapter before lecture.** This gives you background information so that you will be prepared to learn and listen in class.
2. **Come to class prepared.** Bring a pencil, paper, and colored pencils to class each day to take notes. If you choose, you may record the lectures so you may write notes at home. On test days bring a Scantron and a pencil to lecture or an answer sheet and pencil to lab. If you are not prepared with tools for learning, chances are your mind is not prepared either.
3. **Participate in class.** Students who participate in the lecture by answering questions and take an interest in learning the material are more likely to remember what has been taught. Please be polite and turn your phone on silent so distractions do not occur.
4. **After each class set a time for you to re-write your notes** and compare them to the information in the book. Mark anything you have a question about so you can ask about it during the next class period. Chances are if you do not understand it, others did not either. Usually it is a small misunderstanding or confusion that must be cleared up. Do this before the next class time so you do not get behind.
5. **On test day, take the test.** Do not fool yourself into thinking "I will study hard tonight and take the make-up test." Make-up tests typically have a very low average.
6. **Facts to remember:**
    - You are allowed one make-up test in lecture. It will be essay or multiple choice/short answer/fill in the blank at the instructor's discretion. A grade of 0 will be given for any subsequent missed lecture test. Make-up tests are only given within 3 school days of a missed exam. Missing a test forfeits bonus points that may have been earned towards that test. A missed make-up test will receive a grade of zero.
    - You are not allowed to make-up any lab practical. A missed test will receive a grade of zero.
    - Ask intelligent, well thought out questions. Questions that can easily be found in your book by little effort on your part should not be asked.

Calculating Your Grade

To figure your percentage grade for an individual test:

$$\frac{\text{\# correct}}{\text{Total questions on test}} \times 100$$

To figure your percentage grade for an individual test:

$$\frac{\text{Exam I} + \text{Exam II} + \text{Exam III} + \text{Exam IV} + \text{Exam V}}{\text{Number of exam grades}} = \text{Lecture average}$$

To figure your percentage grade in lab:

$$\frac{\text{Cumulative number of questions correct}}{\text{Cumulative number of questions}} = \text{Lab average}$$

To figure your course grade:
(Lecture average X 0.6) + (Lab average X 0.4) = Overall course grade

Word Bits
Biol 2402

Chapter 17

adeno-	gland	adenohypophysis
hypo-	beneath	hypoglycemia
hyper-	excessive	hyperglycemia
-physis	growth	adenohypophysis
ad-	to, toward, near to	adrenal
adreno-	gland	adrenal
-ren-	kidney	adrenal
-al	pertaining to	cortical functioning
medulla	middle or marrow	adrenal medulla
cortico-	cortex	adrenocorticotropic
-trop-	affecting	
-ic	pertaining to	
-stero-	steroid derivative	
anabol-	build up	anabolic steroids
endo-	within	endocrine
-crine	secrete	
thyr-	shield	thyroid gland
para-	beside	parathyroid gland

Chapter 18

hormaein	to set in motion	hormones
angio-	blood vessel	angiotension I
-tens-	pressure or stretch	angiotension I
-in, -ine	substance	epinephrine
-gen	that which regenerates	angiotensinogen
antagon-`	struggle	antagonist
-ism	condition of	antagonism
anti-	against	antidiuretic
-uret-	unination	
vaso-	vessel or duct	vasopressin
-press-	pressure	
atria-	atria of heart	atrial natriuretic hormone
natri-	sodium	
auto-	self	autocrine glands
-crine	secrete	
calci-	lime (calcium)	calcium
epi-	on or upon	epinephrine
nor-	chemical prefix (unbranched C)	norepinephrine
andro-	man	androgens
estro-	frenzy	estrogen
-gen	generate	
gluc-	glucose	glucose
glycol-	sweetness	glycoproteins
gonado-	generate	gonadotrophins
lacto-	milk	lactose

placenta	flat cake	
thymos-	thymus gland	thymosin
insul-	island	insulin
acro-	extremities	acromegaly
-mega-	great	
-aly	condition	
diabetes	to pass through	
insipidus	without zest	
mellitus	honey sweet	
-path-	disease	pathiophysiology
-edema	swelling	myxedema

Chapter 19

-emia	blood condition	anemia
erythro	red	erythrocyte
leuko-	white	leukocyte
hemo-	blood or blood vessels	hemopoiesis
hemato-	relating to blood	hematopoiesic
-penia	deficiency	thrombocytopenia
phleb-	vein	phlebotomy
-poie-	making, production of	hematopoiesis
-poiesis	making, production of	erythropoiesis
thrombo-	blood clot, coagulation	thrombosis
embol-	embolus or plug	embolism
-blast	embryonic state of development	
embryo-	fetus	embryonic stem cells
-cyte	cell	erythrocyte
fibr-	fiber	fibrinolysis
-lysis	breaking down	
plasma	something formed	
an-	without	anemia
-osis	result	erythroblastosis fetalis
-stasis	stoppage or inhibition	hemostasis

Chapter 20

brady-	slow	bradycardia
-c	expressing relationship	cardiac
cardio-	heart	cardiac
hyper-	over, above	hypertension
hypo-	under, below, deficient	hypotension
-pathy	disease	cardiopathy
atrio-	atrium of the heart	
-ventri-	belly	ventricle
bi-	two	bicuspid valve
tri-	three	tricuspid valve
-cuspis	point	tricuspid valve
semi-	one half	semilunar valve
luna	moon	semilunar valve
valva-	folding door	valve

chord	string or cord	chordae tendineae
tendere	to stretch	
ductus	duct	ductus arteriosus
arterio	artery	
veno-	vein	ductus venosus
endo-	inward	endocardium
epi-	on or upon	epicardium
peri	around	pericardial space
cardi-	heart	cardiologist
for-	an opening	foramen ovale
ovalis	egg shaped	
baro-	pressure	baroreceptors
dia-	through	diastole
stole	contract	systole
inter-	between	interventricular
peripher a-	circumference	peripheral resistance
residu-	remainder	residual volume
constrict	draw tight	constriction
dilat	to widen	dilation
-ion	state of	dilation
echo	sound	echocardiography
graphy	process of recording	
congest	accumulate	congestive heart failure

Chapter 21

angio-	vessel	angioplasty
vas-	vessel	vasoconstriction
vene-, vena	vein	venesection
arteriola	little artery	arterioles
venula	little vein	venules
capillaris	hairlike	capillaries
systema	an organized whole	systemic circulation
tunica	tunic	tunic media
media	middle	
umbilicus	navel	umbilical artery
abdomen-	belly	abdominal aorta
brachi-	arm	brachial vein
-cephalic	pertaining to the head	cephalic vein
circulation-	to go around	circulation
jugulum	neck	jugular

Chapter 22

leuko-	white	leukocyte
anti-	against	antibodies
auto-	self	auto immune
lymph	water	lymph
lympho-	the lymph	lymphocyte
edema	swelling	lymphedema
-ectomy	surgical removal	tonsillectomy

-itis	inflammation	tonsillitis
-oma	tumor	lymphoma
macro	large	macrophage
phage	to eat	
T	thymus gland	T cell
B	bursa-equivalent tissue	B cell
-ity	state of	immunity
cella-	storeroom	cell-mediated immunity
humor	liquid	humoral immunity
medi-	middle	
immune-	free	immunity

Chapter 23

re-	again	respiratory
-spira-	breathe	
-tory	pertaining to	
ex-	out, away from	exhalation
expirare	to breath out	expiration
inspira	to breath in	inspiration
-ation	process of	
-pne-	breathe	apnea
spiro-	breath	spirometer
meter	to measure	
pneumo-	air, gas, or lungs	pneumothorax
-stomy	to make an artificial opening	tracheostomy
pulmon	lungs	pulmonary
bronchi-	windpipe	bronchial tree
bronchiolus	little windpipe	bronchioles\
epi-	upon	epiglottis
-glossa	tongue	
respirare	to breathe	respiratory system
naso	nose	nasal cavity
rhino	nose	rhinitis
pharynx	throat	nasopharynx
oro-	mouth	oropharynx
ventila-	fan or produce wing	ventilation
olfactus	sense of smell	olfactory
sinus	hollow	
pleura	rib	
mucus	slime	
croup	to croak	
acute	sharp	acute bronchitis
cancer	crab	

Chapter 24

-algia	pain	gastralgia
chol-	bile	acholic
cholecyst-	gallbladder	cholecystokinin
crypto-	hidden	

-dynia	pain	mastodynia
e-	out, away from	eviscerate
-ectomy	cut out	appendectomy
entero-	intestine	enteritis
gastro-	stomach	gastrodynia
hepato-	liver	hepatitis
hepar-	liver	
-itis	inflammation	gastritis
viscer-	internal organ	viscera
porta	gateway	portal system
anal	pertaining to the anus	anal canal
insula	island	insulin
sigma-	pertaining to the letter S	sigmoid colon
rectus-	straight	rectum
ortho-	straight or normal	orthodontics
-odont-	tooth	
ulcus	a sore	ulcer
appendere-	to hang upon	appendix
amyl-	starch	amylase
-ase	an enzyme	
bili-	bile	bilirubin
chymos-	juice	chyme
enter-	bowel	enteric
faex	waste matter	feces
defeca-	to clean the dregs from	defecation
lip-	fat	lipase
masticat-	chew	mastication
mot-	move	motility
peps	digestion	pepsin
emesis	vomiting	
cirrhos-	yellow-orange	cirrhosis
colo-	colon	colorectal
constipa-	crowd together	constipation
dia-	through	diarrhea
-rrhea	flow	

Chapter 25

glyco-	sugar, sweet	glycolysis
lip-	fat	lipolysis
mal-	bad	malnutrition
aero-	air	aerobic respiration
an-	without	anaerobic respiration
calor-	warmth	calorie
-ie	full of	
essential-	quality	essential fatty acids
gluca-	sweet	glucose
-gen-	generate	gluconeogenesis
metabol-	change	metabolism
nutri-	nourish	nutrition

vita-	life	vitamins
obesity	fatness	
marasmos	a wasting	marasmus

Chapter 26

-ary	associated with	urinary
cysto-	bladder, sac	cystocele
nephro-	kidney	nephrectomy
ren-	kidney	renal
-uria	urine	polyuria
glomerulus	small ball	glomerulus
justa-	near	juxtaglomerular
-parare	to make ready	
filtrare	to strain	filter
peri-	around	peritubular capillaries
-tubulus	little tube	
medulla	marrow	renal medulla
cortex	bark	renal cortex
toxikon	poison	toxin
chronos	time	chronic
pyon-	pus	pyuria

Chapter 27

interstitium	space between	interstitial
extra-	outside	extracellular
intra-	occurring within	intracellular
acidus	sour	acid
al-qaliy	wood ashes	alkaline
ph	potential hydrogen	pH

Chapter 28

ec-	out from	ectopic
-edem-	swell	myoedema
endo-	within	endometrium
mast-	breast	mastectomy
-tropic	changing, influencing	gonadotropic
andro-	man	androgens
epi-	on or upon	epididymis
genitalis	belonging to birth	genitals
penis	male sex organ	
interstitium	space between	interstitial cells
gamete	marriage partner	
caverna	hollow space	corpus cavernosa
spongio	like or related to a sponge	corpus spongiosum
corpus	body	
ligare	to bind	ligament
corpus	body	corpus luteum
folliculus	small bag	follicular phase
hymen	membrane	

men-	month	menarche
-archaios	from the beginning	
men	month	menstrual
-metra	womb	myometrium
uterus	womb	
oo-	egg	oogonia
ova-	egg	
ovum-	egg	ovaries
orificium	opening	vaginal orifice

Chapter 29

adolesc	grow up	adolescence
pubertas	age of maturity	puberty
geronto-	old age	gerontology
gesta-	bear	gestation period
infan	unable to speak	infancy
labor	work	
neo-	new	neonatal
-nat-	birth	postnatal period
gen-	generate	oogenesis
parturi-	desire to bring forth	parturition
placenta	flat cake	
-pause	cease	menopause

Chapter 17

What will be learned in this chapter

Endocrine glands secrete hormones.
4 Characteristics of Hormones
Categories of Hormones
    Lipid (steroid) vs water (amino) soluble
What makes an endocrine gland secrete a substance (3 Patterns of Regulation)
    humoral, neural, hormonal
Positive and Negative Feedback
Changes in Hormone Secretion Through Time (changes in how often a hormone is secreted) acute, chronic, and cyclic
How hormones are distributed in the body
    free in plasma or bound to plasma proteins
Removal of the hormone
    excreted, metabolized, active transport, conjugation
Characteristics of the Target Tissues
Specifics of Membrane Bound or Intercellular Hormone Receptors

1. PTH is secreted in response to
    a. Increased hormone levels of ACTH
    b. Low Ca^{++} levels
    c. Neural stimulation from the hypothalamus
    d. PRH secreted from the hypothalamus

2. ACTH
    a. Has its action on the anterior pituitary gland
    b. Is involved in long-term stress
    c. Raised glucose levels and decreases the immune system functions
    d. Stimulates the ovaries and testes

3. _____ tells the anterior pituitary to secrete _____.
    a. GnRH; LH and FSH
    b. GH-RH; calcitonin
    c. ADH; water
    d. PRH; prolactin

4. An example of a hormone under neural stimulation is
    a. GH
    b. Oxytocin
    c. PTH
    d. TSH

5. The thyroid gland secretes _____ when it is stimulated by TSH.
    a. TRH
    b. T_3 and T_4
    c. Calcitonin
    d. Thymosin

6. Which of the following hormones has its action on the thyroid gland?
   a. Corticotrophin releasing hormone
   b. Insulin
   c. Calcitonin
   d. T_3 and T_4
   e. None of the above

Chapter 18

Name the gland the hormone is secreted from and the action of the hormone.

T_3 and T_4
Calcitonin
Parathyroid Hormone
Insulin
Glucagon
Somatostatin
Aldosterone
Cortisol
Epinephrine and Norepinephrine
Melatonin
Testosterone
Estrogen
Progesterone
Growth Hormone
Prolactin
Follicle Stimulating Hormone
Luteinizing Hormone
Antidiuretic Hormone
Oxytocin
Adrenocorticotropin
Thyroid Stimulating Hormone
Prolactin Releasing Factor
Gonadotropin Releasing Hormone
Growth Hormone Releasing Hormone
Thyroid Releasing Hormone
Corticotrophin-releasing Hormone

The _____ secretes hormones to control the release of hormones from the _____ _____ and it sends action potentials to control the secretion of hormones from the _____ _____.

The anterior pituitary secretes _____ in response to GnRH. These hormones have their actions on the _____or _____ to cause the production of _____ and _____ ; or _____.

The anterior pituitary secretes _____ in response to GH-RH from the_____. This makes tissues (especially bones and muscles) in the body _____.

The anterior pituitary secretes TSH in response to _____ from the hypothalamus. This hormone stimulates the _____ gland to secrete _____.

The anterior pituitary secretes prolactin in response to _____ from the _____. This hormone is responsible for _____.

ACTH is secreted by the _____ when _____ is secreted by the hypo-thalamus. Receptors for ACTH are located on the _____. This gland then secretes (1)_____ which increases _____ and decreases _____ and (2)_____ which causes sodium to be _____ in the blood along with _____.

The posterior pituitary does not make any hormones, rather it stores hormones made by the _____. These are _____ which causes _____ contractions and _____ which is involved with _____ balance.

After you eat a meal high in calcium, your blood calcium levels are _____. _____ is then secreted to bring calcium levels within normal limits.

After you have not eaten calcium for a period of time, your blood calcium levels are _____. _____ is then secreted to bring calcium levels within normal limits.

You have just eaten three chocolate chip cookies with apple juice. Your glucose levels are _____. _____ is secreted to bring glucose levels within normal limits.

You have not eaten in the past three hours. Your glucose levels are _____. _____ is secreted to bring glucose levels within normal limits.

Name the hormone or hormones responsible for the following events.
Uterine contractions
Lactation
Increased glucose
Increased metabolism
Increasing glucocorticoids and mineralcorticoids
Decreased immune response
Prolactin released from the anterior pituitary
Increased water in the urine
Decreasing the blood pressure
Growth of all tissues
Increasing calcium in the blood
Increasing estrogen in the blood
Increasing sodium ions in the blood
Sleep
Increasing TSH

Major Endocrine Glands and Some of Their Hormones

Gland	Hormone	in response to	Action	Regulated by
Hypothalmus				
	Releasing hormones			
	Inhibiting hormones			
Posterior Pituitary Gland				
	Oxytocin			
	Anti-diuretic hormone			
Anterior Pituitary Gland				
	Growth hormone			
	Prolactin			
	Follicle-stimulating hormone			
	Luteinizing hormone			
	Thyroid-stimulating hormone			
	Adrenocorticotropic hormone			

Thyroid Gland

Triiodothytonine and Thyroxine

Calcitonin

Parathyroid Gland

Parathyroid hormone

Pancreas

Insulin

Glucagon

Somatostatin

Adrenal medulla

epinephrine and norepinephrine

Adrenal cortex

Glucocorticoids

ie. Cortisol

Mineralcorticoids

ie. Aldosterone

Pineal Gland

Melatonin

Thymus

Thymosin

Testes

Androgens

ie. testosterone

Ovaries

Estrogens

progesterone

TEXARKANA COLLEGE

Cardiovascular System
Chapter 19

Identification of Blood Cell Types

Illustrate the following, indicate the number in circulation in a healthy adult, and indicate the function.

1. Erythrocyte

Leukocyte
Neutrophil

Basophil

Eosinophil

Lymphocyte

Monocyte

Platelet

Cigarette smoke produces carbon monoxide. If a nonsmoker smoked a pack of cigarettes a day for a few weeks, what would happen to her reticulocyte count? Explain.

During pregnancy the developing fetus must manufacture many new red blood cells. What precautions should the mother take with her diet to prevent the development of anemia in herself and the fetus?

Chapter 20

1. In the human adult, with a reasonably normal height and weight, what is the total blood volume in the body?
    a. 6.1 liters
    b. 5.0 liters
    c. 3.3 liters
    d. 4.4 liters

2. How many chambers are in the human heart?

3. What is the medical specialty concerning the cardiovascular system?

4. There are two systems in which blood travels in the cardiovascular system. These are the _____ and _____.
    a. Vascular, Systemic
    b. Pulmonary, Systemic
    c. Pulmonary, Somatic
    d. Gastrointestinal, Cranial

5. What is the average weight of the adult human heart?
    a. 710 grams
    b. 455 grams
    c. 310 grams
    d. 510 grams

6. What is the outer membrane of the heart?

7. Blood flows through the heart in this order: right atrium, right ventricle, pulmonary circuit, left atrium, left ventricle…into what vessel is the blood pumped from the left ventricle?

8. What is the other name for the bicuspid valve?

9. Normally the veins carry low oxygenated blood from the capillaries back to the heart. What are the only veins in the human body that carry highly oxygenated blood?

10. In order for the blood to flow through the heart in only one direction there are four valves. What is the name of the valve that prevents the blood from flowing from the left ventricle back into the left atrium?

11. A small mass of specialized muscle in the upper, lateral portion of the right atrium, also known as the pacemaker, is medically known as what?

12. The valve between the right atrium and the right ventricle is called the _____ valve.

13. Which chamber receives the deoxygenated blood from the systemic system first?

14. The human heart is intended to pump _____ to the rest of the body. This process has two distinct components. They are the (electrical, mechanical) impulse that tells the heart to beat and the (electrical, mechanical) impulse that results in pumping of the blood.

15. Name the two types of cells found in the myocardium and their respective function.

16. Name the components of the electrical system of the heart.

17. How do you assess the electrical activity of the heart?

18. Arrhythmias are manifestations of which type of cardiac activity?

19. The SA node initiates _____ beats per minute.

20. If the pulse is between 40 and 60 beats per minute, the electrical impulse that stimulated the rhythm probably originated in the _____.

21. What are two common physical signs used to reflect the mechanical function of the heart?

22. In the normal heart the _____ initiated impulses at the fastest rate and therefore becomes the _____.

23. The autonomic nervous system has two divisions. They are the _____ which will increase heart rate and increase blood pressure and the _____ which will decrease heart rate and decrease blood pressure.

24. The sympathetic system influences the _____ and the _____ while the parasympathetic influences the _____ only.

25. If the vagus nerve is stimulated, you would expect the heart rate to ____.

26. If both branches are exerting equal influence over the heart, what will happen to the rates?

27. In a blood pressure measurement reading 120/80, the number in the denominator is which reading?

28. What is the MAP in a person whose systolic pressure is 162 mm. Hg and whose diastolic pressure is 120 mm. Hg?

29. The left ventricle pushes the blood into the aorta against considerable resistance. What is the pressure exerted by the ventricle called when measured during a physical examination?
    a. arterial diastolic blood pressure
    b. mean aortic pressure
    c. mean arterial blood pressure
    d. arterial systolic blood pressure

30. The CO is equal to the HR times the SV per beat. At rest with a heart rate of 72 beats per minute and a SV of 65 ml of blood per beat, how much blood would flow through the heart in 24 hours?

31. The system of arteries that supply the heart with its own, separate supply of blood is called
    a. Coronary arteries
    b. Hepatic arteries
    c. Endocarterial arteries
    d. Ventricular arteries

32. What is the medical term for a severe constricting pain in the chest due to an insufficient blood supply to the heart?

33. From one heart contraction to the next contraction, what percent of the time for this cycle is the heart in the diastolic phase?
    a. 67
    b. 75
    c. 50
    d. 33

34. What diagnostic method uses ultrasound to view the inside of the heart?
    a. Coronary artery bypass
    b. Echocardiography
    c. Angiogram
    d. Angiectomy

35. What age group is the most likely to have a heart murmur?
    a. Infants and children
    b. Seniors
    c. Middle-age adults
    d. Adolescents

Increased sympathetic stimulation on the heart	=(36)	HR
Moderate increase in preload	=(37)	SV
Increased EDV	=(38)	Preload
Decrease of cardiac contractility	=(39)	SV
	=(40)	CO
Moderate Exercise	=(41)	HR
	=(42)	SV
	=(43)	CO
	=(44)	Venous return
Decreased compliance	=(45)	Venous return
	=(46)	preload
	=(47)	SV

48. The space in the middle of the thorasic cavity where the heart resides is the _____.
49. The foramen ovale in the fetal heart is located between the _____.
50. Name three blood vessels that empty into the right atrium.

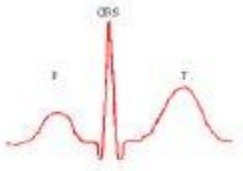
51. If communication between the SA node and the AV node becomes blocked, what would be the result?

52. If there is a blockage between the AV node and the AV bundle, how will this affect the appearance of the ECG
    a. P-R interval would be smaller
    b. QRS interval would be longer
    c. There would be more P waves than QRS complexes
    d. The T wave would not be present

53. What effect would compressing the inferior vena cava just below the diaphragm have on:
    a.Stroke volume
    b. Cardia output
    c. Heart rate

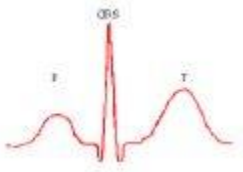
54. Give a brief description of Starling's Law.

55. On the diagram, divide the ECG into the five periods.



56. Write the periods of systole and diastole we have been studying. Give a brief description of each.

57. From the diagram, determine what the chambers and valves are doing at the letter A and letter B.



58. What do the vertical and horizontal lines on the graph paper represent or tell you?

59. How many heart beats would you expect a single cardiac cycle to produce?

60. What does the P wave represent? the QRS? the T wave?

Respiratory System
Describe the functions of the respiratory system
Explain how the respiratory pathway is protected from pathogens, debris, and other foreign particles.
Identify the organs of the respiratory system and describe their functions
Describe the arrangement of smooth muscle and cartilage along the bronchial tree
Know the relationship between the lung, lobe, and bronchopulmonary segment
Describe the relationship between diffusion, temperature, and pH on hemoglobin carrying oxygen
Describe breathing, external respiration, internal respiration, and cellular respiration
Know the terms associated with lung volumes
Describe the law of partial pressures
Describe the partial pressures of oxygen and carbon dioxide in alveolar air, blood, and the systemic circuit
Discuss how carbon dioxide is transported in the blood
Describe factors that influence the respiration rate – conscious and unconscious (reflexes)
Describe how the following affect breathing
Surfactant
Diaphragm
Intercostals muscles

Digestive system
Identify organs of the digestive system and list their major functions
Identify the accessory organs of digestion; know the secretions and list their functions
List enzymes along the digestive tract and identify the molecules that are digested
Outline the chemicals released that regulate digestion (gastrin, CCK, etc)
Describe the anatomy of the oral cavity and list the functions of the major structures
Describe where digestion and absorption occur along the digestive tract
Explain the fate of the digested molecules – water soluble vs fat soluble
Villi
lacteal
Portal triad
Greater duodenal papilla
Sphincter of Oddi

Nutrition
Identify the four molecules of life discussed in class and identify their components (proteins – peptide – amino acids)

Describe carbohydrate metatolism, lipid metabolism, and protein metabolism
Energy gains and losses
Chapter 23
Respiratory Review

1. The largest air passages that engage in gas exchange with the blood are
    a. Respiratory bronchioles
    b. Terminal bronchioles
    c. Primary bronchi
    d. Alveolar ducts
    e. Alveoli

2. Respiratory arrest would most likely result from a tumor of the
    a. Pons
    b. Midbrain
    c. Thalamus
    d. Cerebellum
    e. Medulla

3. A deficiency of pulmonary surfactant is most likely to cause
    a. Chronic obstructive pulmonary disease
    b. Atelectasis
    c. Pneumothorax
    d. Chronic bronchitis
    e. Asthma

4. The source of pulmonary surfactant is
    a. The visceral pleural
    b. Tracheal glands
    c. Alveolar capillaries
    d. Squamous alveolar cells
    e. Great alveolar cells

5. Which of the following are fewest in number but largest in diameter?
    a. Alveoli
    b. Terminal bronchioles
    c. Alveolar ducts
    d. Tertiary bronchi
    e. Respiratory bronchioles

6. The rhythm of breathing is set by neurons in the
    a. Medulla
    b. Pons
    c. Midbrain
    d. Hypothalamus
    e. Cerebral cortex

7. Which of the following muscles aids in deep respiration?
    a. Scalenes
    b. Sternocleidomastoid
    c. Rectus abdominis
    d. External intercostals
    e. Diaphragm

8. The superior opening into the larynx is called the _____.
9. Within each lung, the airway forms a branching complex called the _____.
10. The three folds on the lateral walls of the nasal cavity are called _____.

True/False
Explain the false statements.

1. The glottis is the opening from the larynx to the trachea.
2. The lungs contain more respiratory bronchioles than terminal bronchioles.
3. The lungs occupy the spaces between the parietal and visceral pleura.
4. Expiration is normally caused by contraction of the internal intercostals muscles.
5. Alveoli continue to be produced after birth.
6. Unlike bronchi, bronchiols have no cartilage.
7. Blood gases are monitored by the aortic and carotid sinuses.

Critical Thinking

1. What are the factors that make respiration more difficult at high altitudes?
2. For a person who has hyperventilated, how would you explain why breathing into a paper bag restores normal blood chemistry more rapidly than continued breathing into the atmosphere?
3. What would happen if someone tried breathing through a 2-inch diameter tube that was 3 feet long?
4. Carbon monoxide competes for oxygen-binding sites on the heme group of hemoglobin. Can you predict whether the heme group has a stronger affinity for oxygen or carbon monoxide?
5. What would be the effect on blood pH with a blocked trachea?
6. Can you explain why the respiration rate would remain elevated, even after exercise has been completed? Hint – see the muscle chapter.
7. What is the effect on humidity on respiration?

Chapter 24
Digestion Review

1. Define the terms.
   Ingestion
   Digestion
   Motility
   Secretion
   Absorption
   Elimination
   Regulation
2. What is the purpose of peristalis
3. What hormone increases gastric secretions?
4. What hormone increases duodenal secretions?
5. What type of reaction do all digestive enzymes catalyze?
6. List some factors that alter the shape of an enzyme, thus altering its function.
7. Name the final digestive products of each of the following food molecules:
   a. Protein
   b. Carbohydrate
   c. Triglyceride
8. Name the components of saliva.
9. Name the components of gastric juice.
10. Name the pancreatic enzymes.
11. Name the components of bile.
12. What is the function of gastric inhibitory peptide?
13. What triggers the defecation reflex?
14. What are the components of feces?

Chapter 26
Urinary Review

1. List the principal and accessory organs of the urinary system.
2. The male urethra is part of two different systems. Identify them.
3. Describe the structure of a nephron.
4. Outline the pathway of urine from the collecting duct to the urethra.
5. Identify three body systems in addition to the urinary system that also excrete unneeded substances.

Chapter 27
Electrolyte Review

1. By what routes does the body lose water?
2. What is the primary regulator of water loss?
3. What types of water loss are unavoidable?

4. Where is the thirst center located? How dies it regulate water balance?
5. Which electrolytes are most important to cellular functions?
6. By what routes are electrolytes gained by the body?
7. By what routes does the body lose electrolytes?
8. What hormones are involved in regulating ion concentration?
9. Name 3 main factors of edema and possible causes of each.
10. Name 5 sources of H+ for the body.
11. List 3 buffer systems. What is the overall purpose of a buffer?
12. What is the normal pH in the artery, vein, interstitial fluid and intracellular fluid? Why does the pH vary?
13. What is the difference between a strong acid or base and a weak acid or base? What would HBr and KOH look like in a glass of water?
14. What systems are directly related to the pH?
15. Define alkalosis and acidosis. What is metabolic acidosis or physiological acidosis?
16. Define and list the symptoms of heat exhaustion and heat stroke.

Chapter 28
Reproductive Review

1. Identify the essential and accessory organs in the female reproductive system.
2. Describe the three layers that compose the wall of the uterus.
3. Identify the vessels that supply blood to the uterus.
4. List the eight ligaments that hold the uterus in a normal position.
5. How does the uterus serve as part of the female reproductive tract?
6. What hormones are secreted by the cells in ovarian tissue?
7. Identify the advantages that nursing from the mother's breast provides offspring.
8. Describe the hormonal changes during menopause.
9. Name the accessory glands of the male reproductive system.
10. What are the two primary functions of the testes?
11. What is the spermatic cord? From what does it extend, and what does it contain?
12. Why is the adage "It only takes one" incorrect?

Endocrine System
Lab Supplement

Posterior pituitary hormones

increases or decreases

1. When ADH is secreted the amount of urine _____.
2. When ADH is secreted the concentration of the urine _____.
3. When ADH is secreted, the blood volume _____.
4. When ADH is secreted, blood pressure _____.

blood osmolality (concentration) or blood pressure

1. A decrease in _____ usually accompanies a drop in blood volume.
2. An increase in _____ results in an increase of ADH secretion
3. An increase in _____ results in a decrease of ADH secretion

Hyper or hypo

1. Production of a large amount of dilute urine or diabetes insipidus is caused by _____secretion of ADH
2. Production of small quantities of very concentrated urine is caused by _____secretion of ADH.

decreases or increases

1. Oxytocin _____ smooth muscle contractions on the uterus.
2. Oxytocin _____ milk ejection in lactating females
3. Stretching the uterus _____ oxytocin secretion
4. Stimulating the nipples by nursing _____ oxytocin secretion

Anterior pituitary hormones

decreases or increases

1. Secretion of GH _____ growth and metabolic rate.
2. *Low blood glucose levels _____ GH secretion
3. GH-RH from the hypothalamus _____ GH secretion
4. GH-IH from the hypothalamus _____ GH secretion
    a. What is another name for GH-IH?

hyper or hypo

1. _____ secretion of GH produces dwarfism in children
2. _____ secretion of GH produces giantism in children
3. _____ secretion of GH produces acromegaly in adults

Match the following

FSH and LH	PRH
GnRH	prolactin

1. secreted from the anterior pituitary and regulates gamete and reproductive hormone production
2. stimulates the secretion of LH and FSH
3. Responsible for milk production in the mammary glands
4. stimulates prolactin production

Thyroid Gland

I^+	Thyroxin-binding globulin
Triiodothyronine	Tyrosine
tetraiodothyronine	

1. amino acid used in the synthesis of thyroid hormones
2. actively absorbed into thyroid follicles and is oxidized and bound to tyrosines
3. also called thyroxine and is the most secreted produce of the thyroid gland
4. the major thyroid hormone that interacts with target cells
5. transports most thyroid hormones and increases the half-life of thyroid hormones

decreases or increases

1. Secretion of thyroid hormones _____ the rate the body uses glucose, fat, and protein
2. Secretion of thyroid hormones _____ body temperature.

Hyper or hypo

1. Increased metabolic rate, weight loss and sweating are symptoms of _____ secretion of thyroid hormones.
2. Hyperactivity, rapid heart rate, and exophthalmos are symptoms of _____ secretion of thyroid hormones.
3. Weight gain, reduced appetite, and dry, cold skin are symptoms of _____ secretion of thyroid hormones.
4. Decreased iodide uptake, and cold intolerance are symptoms of _____ secretion of thyroid hormones.
5. Decreased iodide uptake resulting from iodine deficiency in the diet and goiter are symptoms of _____ secretion of thyroid hormones.
6. Grave's disease is caused by _____ secretion of thyroid hormones

decreases or increases

1. *stress or exposure to cold _____ TRH secretion
2. *prolonged fasting _____ TRH secretion
3. increase of TRH _____ TSH secretion
4. increase of TSH _____ synthesis and secretion of T_3 and T_4
5. increases in T_3 and T_4 _____ TRH secretion
6. increases in T_3 and T_4 _____ TSH secretion

What is the isthmus?

decreases or increases

1. Calcitonin _____ the breakdown of bone by osteoclasts
2. Calcitonin _____ blood calcium levels
3. Increased blood calcium levels _____ calcitonin secretion

Parathyroid Gland

Increase or decrease

1. *Increased parathyroid hormone _____ osteoclast activity in bone.
2. Increased parathyroid hormone _____ calcium reabsorption in the kidneys.
3. Increased parathyroid hormone _____ formation of vitamin D synthesis, which increases the rate of calcium and phosphate absorption in the intestine.
4. Increased parathyroid hormone _____ blood calcium levels.
5. Low blood calcium levels _____ PTH secretion

Hypersecretion or hyposecretion

1. *Kidney stones, eroded bones, and muscular weakness are symptoms of _____ of PTH.
2. Increased muscular excitability, muscle tetany, and diarrhea are symptoms of _____ of PTH.

Adrenal Glands

Cortex or medulla

1. The inner portion of the adrenal gland is the adrenal _____.
2. The adrenal _____ is part of the sympathetic division of the ANS. It secretes _____ and _____.
3. The adrenal _____ is the outer portion of the adrenal gland and contains the zona glomerulosa, zona fasciculate, and zona reticularis.

Adrenal Medulla

Epinephrine or Norepinephrine is secreted in larger quanity.

Decreases or increases

1. Secretion of adrenal medullary hormones would _____ heart rate and the force of contraction of the heart.
2. Secretion of adrenal medullary hormones would _____ blood glucose levels.
3. Secretion of adrenal medullary hormones would _____blood flow to the skin, kidneys, and digestive system
4. Secretion of adrenal medullary hormones would _____blood flow to heart and skeletal muscle.
5. Emotional excitement, stress, exercise, or injury will _____ adrenal medullary hormone secretion.
6. Stimulation of sympathetic neurons will _____ adrenal medullary hormone secretion.

Adrenal Cortex

Match the following.

Glucocorticoids Mineralcorticoids

1. Example is aldosterone
2. Example is cortisol

Decreases or increases

1. Secretion of aldosterone _____ sodium ion concentration in the blood.

Hypersecretion or hyposecretion

1. High blood sodium levels are caused by _____ secretion of aldosterone.

Decreases and increases

1. *Secretion of cortisol will _____ fat and protein breakdown.
2. Secretion of cortisol will _____ blood glucose levels.
3. Secretion of cortisol will _____ the intensity of the inflammatory response.

Match the following with the statement.

ACTH Hypoglycemia or stress
Cortisol Hypothalamus
CRH

1. _____ is the location of CRH production.
2. _____ is a neurohormone that stimulates ACTH production.
3. _____ stimulates cortisol production.
4. _____ and _____ inhibit CRH secretion.
5. _____ inhibits ACTH production.
6. _____ *are external factors that stimulate CRH production.

Hyper- or hypo- secretion of cortisol

1. _____secretion causes hyperglycemia leading to diabetes mellitus.
2. _____secretion causes depression of the immune system.

Match the following.

Addison's disease	Cushing's syndrome
Aldosteronism	

1. _____ is caused by hypersecretion of aldosterone.
2. _____ is caused by hypersecretion of cortisol and androgens.
3. _____ is caused by hyposecretion of aldosterone and cortisol.

Increases or Decreases

1. Secretion of adrenal androgens _____ pubic and axillary hair in women.
2. Secretion of adrenal androgens _____ the sex drive in women.

Pancreas and Pancreatic Hormones

Match the following.

Alpha cells	Ducts and acini
Beta cells	Pancreatic islets
Delta cells	

1. _____ constitutes the exocrine portion of the pancreas.
2. _____ are islet cells that secrete glucagon.
3. _____ are islet cells that secrete insulin.

Increases or decreases

1. Insulin _____ uptake and use of glucose and amino acids in muscle cells.
2. Insulin _____ blood sugar levels.
3. Glucagon _____ the breakdown of liver glycogen to glucose.
4. Glucagon _____ glucose synthesis from amino acids and fats.
5. Glucagon _____ blood sugar levels.

Increase or Decrease

1. Immediately after a meal, insulin secretion _____.
2. Immediately after a meal, uptake of glucose, amino acids, and fats _____.
3. Immediately after a meal, the amount of glucose converted to glycogen is _____.
4. Two hours after a meal, insulin secretion _____.
5. Two hours after a meal, uptake of glucose is _____.
6. Two hours after a meal, the amount of glycogen converted to glucose _____.

7. Two hours after a meal, the utilization of fats and proteins used as an energy source for most tissues _____.
8. During exercise, sympathetic division stimulation _____.
9. During exercise, the amount of epinephrine and glucagon released is _____.
10. During exercise, the secretion of insulin will _____.
11. During exercise, the amount of fatty acids, triacylglycerols, and ketones in blood will _____.
12. During exercise, the amount of fat and glycogen used in skeletal muscle as an energy source will _____.

Match the following terms with the correct definition.

melatonin pineal body thymosin

1. _____ *is the endocrine gland that inhibits reproductive functions.
2. _____ is one secretion of the pineal body; its production decreases as day length increases
3. _____ is a hormone produced by the thymus that affects the immune system.

Practical 1 Endocrine Glands and The Heart

Endocrine Glands

- Hypothalamus
- Pineal
- Anterior pituitary
- Posterior pituitary
- Thymus
- Thyroid
- Parathyroid
- Pancreas
- Adrenal
- Ovaries
- Testes

The Heart

Chambers

- Right atria
- Left atria
- Right ventricle
- Left ventricle

Valves

- Tricuspid
- Pulmonary semilunar
- Bicuspid (mitral)
- Aortic semilunar

Structures

- Apex
- Trabeculae carneae
- Chordae tendinae
- Papillary muscle
- Interventricular septum
- Myocardium
- Visceral pericardium
- Fossa ovalis
- Ligamentum arteriosum
- Atrioventricular groove

Fetus

Foramen ovale
Ductus arteriosus

Conduction System

SA node
AV node
AV bundle (Bundle of His)
Right and left bundle branches
Purkinje fibers

Vessels associated with the Heart

Inferior vena cava
Superior vena cava
Aorta
Aortic arch
Pulmonary trunk
Right pulmonary artery
Left pulmonary artery
Right pulmonary veins
Left pulmonary veins

Coronary Blood Vessels and related structures on the Heart

Right coronary artery
Marginal artery
Left coronary artery
Circumflex artery
Anterior interventricular artery
Posterior interventricular artery
Coronary sinus
Great cardiac vein
Middle cardiac vein
Small cardiac vein
Anastomosis

Practical 2 Lymph and Blood Vessels

Bipass Heart Model

Ascending aorta
Aortic arch
Descending aorta
Brachiocephalic artery
Left common carotid artery
Left subclavian artery
Right common carotid artery
Right subclavian artery

Brain

Middle cerebral artery 252
Basilar artery 256
Anterior cerebral artery 251
Circle of Willis
Internal carotid artery (rt and lt)
Vertebral artery (lt and rt)

Fetal Model

Umbilical vein
Umbilical arteries
Placenta
Ductus venosus
Inferior vena cava
Foramen ovale
Ductus arteriosus
Hypogastric arteries

Man on board

External carotid artery
Thorasic aorta
Abdominal aorta
Common iliac artery and vein
Internal iliac artery and vein
External iliac artery and vein
Femoral artery and vein
Popliteal artery
Anterior tibial artery'
Posterior tibial artery
External jugular vein
Internal jugular vein
Great saphenous vein
Inferior vena cava

Arm model

Axillary artery
Brachial artery
Ulnar artery
Radial artery
Palmar arches

Leg model

Femoral artery
Popliteal artery
Anterior tibial artery
Posterior tibial artery
Dorsal pedis artery

Torso

Axillary artery
Subclavian artery (rt and lt)
Thorasic aorta
Abdominal aorta
Internal thorasic artery 273
Left gastric artery 292
Superior mesenteric artery 304
Splenic artery 293
Inferior mesenteric artery 315
Celiac trunk 291
Inferior phrenic artery 288
Hepatic artery 298
Gastroduodenal artery 301
Gonadal artery 327
(testicular or ovarian)
renal artery
common iliac artery (rt and lt)
internal iliac artery (rt and lt)
external iliac artery (rt and lt)
external jugular vein
internal jugular vein
brachiocephalic vein (rt and lt)
subclavian vein (rt and lt)
axillary vein
external iliac vein (rt and lt)
internal iliac vein (rt and lt)
inferior vena cava
femoral vein
femoral artery

Hepatic portal system

- Gastric vein
- Superior mesenteric vein
- Inferior mesenteric vein
- Hepatic portal vein
- Hepatic vein
- Inferior vena cava

Pancreas model

- Celiac truck
  - Left gastric artery
  - Splenic artery
  - Common hepatic artery
    - Hepatic artery
    - Gastroduodenal artery

Vessels on the fetal pig

- Pulmonary trunk
- Aorta
- Aortic arch
- Subclavian artery and vein
- Common carotid artery
  - Internal carotid artery
  - External carotic artery
- Descending aorta
  - Thorasic aorta
  - Abdominal aorta
- Celiac truck
  - Left gastric artery
  - Splenic artery
  - Common hepatic artery
- Superior mesenteric artery and vein
- Renal artery and vein
- Gonadal artery and vein (testicular or ovarian)
- Inferior mesenteric artery
- Common iliac artery and vein
- Internal iliac artery and vein
- External iliac artery and vein
- Femoral artery and vein
- Superior vena cava
- Inferior vena cava
- Jugular vein

Lymphatic system

Thymus
Spleen
Lymph vessel
Cervical lymph nodes
Axillay lymph nodes
Mammary lymph nodes
Inguinal lymph nodes
*lymph nodes are located in all portions of the body except the CNS

Practical 3 Respiratory and Digestive Systems

Respiratory board

Nares
Nasal cavity
Nasopharynx
Oropharynx
Uvula
Primary bronchi
Secondary bronchi
Bronchioles
Alveoli
Pulmonary arterioles
Pulmonary venules

Torso head

olfactory sensory area
pharyngotympanic tube opening
pharyngeal tonsils
palatine tonsils
parietal pleura
visceral pleura
pulmonary arteries
pulmonary veins

Trachea model

Glottis
Epiglottis
Vocal cords
Thyroid cartilage
Cricoid cartilage
Arytenoid cartilage

Torso model

Teeth
Gingivae 504
Submandibular gland 505 and 506
Sublingual gland 508
Sublingual duct 507
Parotid gland 509
Parotid duct
Rugae of stomach 525
Pancreas 531, 532, 533
Pancreatic duct 535
Cecum 544
Appendix 545

- Ascending colon 546
- Hepatic flexure 547
- Transverse colon 548
- Splenic flexure 551
- Descending colon 552
- Sigmoid colon 553
- Rectum 554
- Liver
    - Falciform ligament 558
    - Round ligament 561

Fetal Pig

- Midsagittal section of the pig on display
    - Nares
    - Nasal cavity
    - Hard palate
    - Soft palate
    - Nasopharynx
    - Oropharynx
    - Epiglottis
- Esophagus
- Larynx
- Trachea
- Liver
- Gall bladder
- Cystic duct
- Common hepatic duct
- Common bile duct
- Stomach
    - Greater and lesser curvatures
    - Location of gastroesophageal constrictor (cardiac sphincter)
    - Pylorus
    - Location of pyloric sphincter
- Small intestines
    - Duodenum
    - Jejunum
    - Ileum
- Large intestines
    - Cecum
    - Location of ileocecal sphincter
    - Descending colon
    - Rectum
- Pancreas
- Spleen
- Mesentery

Practical 4 Urinary and Reproductive Systems

Urinary system model

- Kidneys
- Abdominal aorta
- Renal artery
- Renal vein
- Inferior vena cava
- Ureters
- Urinary bladder
- Urethra
- Location of Internal sphincter
- Location of External sphincter
- Renal pelvis
- Calyces
- Renal capsule
- Cortex
- Medulla
- Renal pyramid
- Renal papilla

Nephron Model

- Renal corpuscle
- Glomerulus
- Bowman's (glomerular) capsule
- Afferent arteriole
- Efferent arteriole
- Peritubular capillaries
- Proximal convoluted tubule
- Loop of Henle
  - Descending limb
  - Ascending limb
- Distal convoluted tubule
- Collecting duct

Sheep Kidney

- Renal capsule
- Renal medulla
- Renal cortex
- Renal artery and vein
- Renal pelvis
- Calyx
- Pyramid
- Ureter

Male Reproductive System

- Testes
- Scrotum
- Epididymis
- Vas deferens
- Seminal vesicles
- Common ejaculatory duct
- Urethra
- Prostate gland
- Corpus spongiosum
- Corpus cavernosa
- Septum
- Glans penis
- Prepuce

Female Reproductive System

- Vulva
- Mons pubis
- Vaginal orifice
- Labia majora
- Labia minora
- Clitoris
- Urethral orifice
- Uterus
    - Fundus
    - Corpus
    - Cervix
    - Myometrium
    - Endometrium
    - External os
- Vagina
- Fallopian tubes
- Infundibulum
- Ovary
- Fimbriae
- Symphysis pubis
- Urethra
- Urogenital diaphragm
- Anterior-cul-de-sac
- Rectouterine pouch
- Broad ligament
- Round ligament
- Ovarian ligament
- Suspensory ligament
- Infundibulopelvic ligament
- Sacrum, rectum, anus

TEXARKANA COLLEGE

Blood Cell Identification

Information:

Blood is composed of plasma and formed elements.

Plasma is the liquid portion of the blood. It is about 91% water while the remaining portion is made up of proteins, ions, gases, waste products, and regulatory substances.

The formed elements consist of erythrocytes, leukocytes, and thrombocytes.

Materials needed for this exercise:

Microscope

Slide of blood smear

Procedure:

There are six microscopes that are focused on either erythrocytes or different types of leukocytes. You and your lab partner are to identify the specific type of blood cell in the field of view. Complete the handout on the next page with your information.

If you need guidance, Section 19.4 of your lecture book describes and illustrates the formed elements of the blood.

Blood Cell Types

Number	Sketch	Description of nucleus	Cytoplasmic granules present or absent: If present, what color.	Size of cell	Relative abundance (%)	Cell identification
1.						
2.						
3.						
4.						
5.						
6.						

Student Learning Outcomes by Course

Program Area:	Course Number/Name:		Semester/Date:
Biology	Biol 2402 Anatomy and Physiology II		Spring 2013

Student Learning Outcomes (SLO)	Assessment Tool	Desired Measurable Results	Actual Results	Use of Results	New Action Plan	Justification
1. Identify and describe the structural features of the endocrine system and explain the functional roles of hormones	Pre-/Post-Test Comparison Score	**70%**	**77%**	Desired Results Met: Continue Existing Plan		
2. identify and describe the components of blood and explain their functional roles.	Pre-/Post-Test Comparison Score	70%	92%	Desired Results Met: Continue Existing Plan		
3. Identify and describe the structural features of the heart and blood vessels and explain their functional role.	Pre-/Post-Test Comparison Score	70%	85%	Desired Results Met: Continue Existing Plan		
4. Identify and describe the structural features of the respiratory system and explain their functional roles in	Pre-/Post-Test Comparison Score	70%	74%	Desired Results Met: Continue Existing Plan		
5. identify the structural features of the lymphytic system and explain its role in fluid balance, fat absorption, and	Pre-/Post-Test Comparison Score	70%	71%	Desired Results Met: Continue Existing Plan		
6. Identify and describe structural features of the digestive system and explain their roles in digestion,	Pre-/Post-Test Comparison Score	70%	77%	Desired Results Met: Continue Existing Plan		
7. Identify the structural features of the urinary system and explain their functional roles in urine formation and	Pre-/Post-Test Comparison Score	70%	87%	Desired Results Met: Continue Existing Plan		
8. Describe the physiology of homeostatic mechanisms that control fluid and electrolyte balance	Pre-/Post-Test Comparison Score	70%	61%	Desired Results Not Met: Revise Existing Plan	Change/Revise Instructional Materials	Revise time allotted to subject
9. Define buffer systems and explain their roles in acid-base balance.	Pre-/Post-Test Comparison Score	70%	77%	Desired Results Met: Continue Existing Plan		
10. Identify and describe structural features of the male and female reproductive systems and explain their	Pre-/Post-Test Comparison Score	70%	91%	Desired Results Met: Continue Existing Plan		