

PHR 343C Syllabus

Function and Anatomy of Human Systems I

Fall, 2009

Unique # 61415

Time: MWF 11 am-12 noon

Location: PHR 2.110

Faculty

Richard Morrisett, Ph.D., Course Director, Division of Pharmacology and Toxicology
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Dr. Alan Combs, Ph.D., Division of Pharmacology and Toxicology
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Teaching assistant

Agnese Irtle, 471-6311, airkle@mail.utexas.edu
Her office hrs and location will be announced at a later date.

Course Text

Human Physiology: From Cells to Systems, 7th Edition, by Sherwood
Publisher: Brooks/Cole, Cengage Learning. Copyright Year: 2010
Print ISBN-10: 0-495-39184-0. Print ISBN-13: 978-0-495-39184-5
Note: Old editions will not work for this course – the text has been substantially revised in this edition.

Textbook companion website:

http://www.brookscole.com/cgi-wadsworth/course_products_wp.pl?fid=M20b&product_isbn_issn=9780495391845&discipline_number=22

UT Blackboard, electronic resources and practices

- The official Blackboard (hereafter denoted Bb) web site for this course can be accessed either through UTDirect off the UT homepage or via <http://courses.utexas.edu>. Either access point is UTEID-protected and provides you links to the courses in which you are currently enrolled.
- This Blackboard (Bb) website is the primary means for class communication, obtaining your grades, electronic versions of suggested and required readings and hyperlinks, etc. I will also frequently email you very important class communications. **Therefore, it is mandatory that you visit the Bb website and/or check your email a minimum of every other day.** There is no excuse for not checking these on-line or email resources.
- For several days prior to exams, I and the TA, will answer questions emailed to us – these answers will be posted to the Bb discussion board. This will enable all students to ask follow-up questions on a particular topic in an organized manner. **Be aware that any message posted to the discussion board is available to all enrolled students and faculty.**
- You may also contact faculty members directly via phone or Email. Dr. Morrisett and the TA, will have weekly office hours to be announced.

Course policies

- Daily class attendance is expected. While the lectures will be available on-line (more info on this later), if class attendance falters, on-line access may be curtailed at the discretion of the faculty.
- We will be using the Turning Point interactive devices for the first time this year. At present, I have no plans to ascribe points through their use; however, if their use becomes optimal that may change. Additionally, they may be used to ascribe additional points for attendance – more info on this later.
- Please be on time to class. Dr. Morrisett is very tolerant but if you are late, please take a seat quietly and with minimal disruption of your classmates.
- Please be quiet during the lecture, but don't hesitate to ask questions and bug Dr. Morrisett if you don't understand something in lecture. Dr. Morrisett likes an active learning environment and encourages discussion.
- Please turn off your cell phone!
- Ideally, you should read your required text for each topic, before the lectures on that topic are given. AT LEAST look over your handouts for that topic before class.
- Lecture handouts are available from Paradigm:
Paradigm Books @ www.paradigmbooks.com/index.html
407 W. 24th Street; Phone: 512-472-7986

Examinations

1) Time, locations and NOISE

Exams will be given at 7-9 pm on the day listed in the syllabus – on those days we will not have class.

The exam location may change during the semester so be sure you know the correct location!

Students must arrive on time for examinations. Semester exams will begin promptly at the designated hour and will last for 2 hours; the final examination will last 3 hours. Students definitely will not be allowed to take the exam if they arrive late if any other students have completed the exam and left the room. In such cases, the student's exam grade will be "0%". **It is not acceptable to discuss any questions in detail in the area outside the classrooms and/or in the bathrooms while the exams are still ongoing. Also, please have mercy on your classmates and keep it to a dull roar once you have finished the exam and left the classroom – this especially applies to exams in PHR.**

2) Advance requests for absences from examinations

No allowances will be made for an exam being missed, other than documented illness or emergency. If you know in advance that you will need to delay an examination, you must contact Dr. Morrisett PRIOR to the exam and you must to complete the College Form titled "Student Request for Alternate Exam Time" for final consideration and final approval by Dr. Morrisett PRIOR to the exam day. If permission is then granted to delay the exam, the nature of the make-up will be at the discretion of Dr. Morrisett (oral, written, increased weighting on the final, etc.).

3) Sickness and exam absences

If you become sick and unable to attend the exam, you should notify Dr. Morrisett by email as soon as possible once you decide you cannot take the exam. You will be expected to take the exam as soon as

Examinations (con't)

possible and the nature of the make-up will be at the discretion of Dr. Morrisett (oral, written, increased weighting on the final, etc.). **An unexcused absence from an exam will result in a grade of "0%" for that exam.**

4) Grading of Exams; Posting Class Scores & Keys

The grading of objective questions will be based upon the scantron sheets and **not** on answers written on your exam papers. No re-grades based upon miskeying answers from the exam to the scantron will be allowed – therefore **check and recheck again** your answers keyed onto your scantrons. You must turn in your scantron and your exam with your signed honor pledge prior to leaving the exam – your scantron will be photocopied and that photocopy will be available to you from the LRC desk (PHR 3.114) in 1-2 days.

5) Once scantron copies are made available to you, the key will be posted outside of PHR 5.224 and an announcement will be made to that effect on Bb. For the following 72 hr after Bb announcement of the posting of the key, challenges to questions will be entertained and they must be made by email to Dr. Morrisett or Combs. The challenge must be clear, rational and concise. Successful challenges tend to be ones which involve either content errors or omissions which were overlooked by the faculty or errors in wording which result in a significant level of uncertainty about the question. Documentation of such content errors may include statements from textbooks, handouts, packets or the current scientific reprints; your handwritten lecture notes are *not* authoritative documentation. Challenges based upon subjective semantic distinctions will be denied. That is, the commonly accepted and logical use of the word will be applicable.

6) Once all challenges have been decided – usually within 5 days of the exam, your grade will be posted on eGradebook which is accessed from Bb. If you have an issue concerning calculation of your grade, please **first** contact the TA to determine whether a simple error has been made. If you feel there remains an issue, then feel free to contact Dr. Morrisett. If you contact Dr. Morrisett first, he will immediately direct you to the TA.

7) Final Exam Re-Examination Policy

The re-examination policy for this course will follow the General Information Catalog (GIC) and College of Pharmacy policies for the University, which reads as follows:

“Only a student who has a grade average of at least a C on all class work and lab work submitted before the final exam (in this course, >70% on each exam) may request a temporary delay of the final course grade because he or she failed the final examination (i.e., <65%), which is the examination given during the final exam period as printed in the official examination schedule. If the instructor denies the petition, the student’s final course grade will remain as originally determined. If the instructor grants the petition, the grade on the reexamination will be substituted for the grade on the original exam in determining the student’s final course grade, provided the student earns at least a C on the reexamination. If the grade on the reexamination is less than a C (in this course, <70%), a final course grade of F must be recorded.”

All students who are eligible for re-examination according to the University criteria specified above will be notified by the Course Coordinator within 24 hrs of posting the final examination scores, and must reply within the specified time as to whether they will be taking the re-examination. Those students who choose to take the re-examination will be awarded a course grade of "X" until the re-examination is evaluated and the final course grade computed.

8) Academic Dishonesty

The "Statement on Scholastic Dishonesty of the College of Pharmacy" reads as follows: "Pharmacy practitioners enjoy a special trust and authority based upon the profession's commitment to a code of ethical behavior in its management of client affairs. The inculcation of a sense of responsible professional behavior is a critical component of professional education, and high standards of ethical conduct are expected of pharmacy students. Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including failure of the course involved and dismissal from the college and/or the University. Since dishonesty harms the individual, fellow students, and the integrity of the University and the College of pharmacy, policies of scholastic dishonesty will be strictly enforced in this class".

Students are expected to have read and understood the current issue of the General Information Catalog published by the Registrar's Office for information about procedures and about what constitutes scholastic dishonesty. Students independently complete all examinations. All cases of cheating on examinations will be immediately reported to the Dean of the College of Pharmacy and to the Dean of Students, as per University regulations. Administration of formal disciplinary actions will proceed by university guidelines and the course faculty will generally recommend a score of "0%" for that examination as penalty for cheating. As per university guidelines, this penalty may be modified by the Office of Student Judicial Services.

9) Students with Disabilities

The University of Texas at Austin provides upon request appropriate academic accommodations for qualified students with disabilities. All University rules concerning accommodations must be followed, including the student arranging for special accommodations **prior to each examination**. In the absence of such **prearrangement**, the student will be assumed that the student is not requesting special accommodations for that exam, and will be expected to take the exam with the rest of the class at the regularly scheduled exam time. For more information, contact the Office of the Dean of Students at 471-6259, 471-4641 TTY.

Oath of a Pharmacist¹

“At this time, I vow to devote my professional life to the service of all humankind through the profession of pharmacy.

I will consider the welfare of humanity and relief of human suffering my primary concerns.

I will apply my knowledge, experience, and skills to the best of my ability to assure optimal drug therapy outcomes for the patients I serve.

I will keep abreast of developments and maintain professional competency in my profession of pharmacy.

I will maintain the highest principles of moral, ethical, and legal conduct.

I will embrace and advocate change in the profession of pharmacy that improves patient care.

I take these vows voluntarily with the full realization of the responsibility with which I am entrusted by the public.”

Course Grading

First exam	25%
Second exam	25%
Third exam	25%
<u>Comprehensive final exam</u>	<u>25%</u>
Total	100%

The following grade ranges will be used:

A = 90 - 100%

B = 80 - 89%

C = 70 - 79%

D = 65 - 69%

F = Below 65%

Important additional notes:

- A curve may be used in assigning grades in this class at the discretion of the Course Coordinator. No exam scores are "dropped" and no "re-takes" will be offered for poor performance.
- If lecture attendance is poor then in-class quizzes or electronic interactive assessments may be adopted. In that case it will be at the faculty's discretion whether or how to apply any points or credit from these unscheduled assessments.

¹ Developed by the American Pharmaceutical Association Academy of Students of Pharmacy/American Association of Colleges of Pharmacy Council of Deans (APhA-ASP/AACP-COD) Task Force on Professionalism; June 26, 1994 American Association of Colleges of Pharmacy 1426 Prince St. Alexandria, VA 22314 Phone: (703) 739-2330 Fax: (703) 836-8982
Email AACP

COURSE OBJECTIVES:

PHR 343C – Function and Anatomy of Human Systems I (Fall semester)

Richard Morrisett PhD

Central Objective:

- To develop a thorough knowledge of basic cellular physiology, electrophysiology and cell signaling.
- To develop a thorough understanding of the anatomy and physiology of the neural and cardiovascular systems.
- To develop a thorough understanding of the role of the major neural and endocrine systems which control the human body with a focus upon systems integration in maintaining homeostasis.

Detailed Course Objectives

After completing this course, a student should be able to:

1. Describe the structural and functional organization of the human organism, beginning at the cellular and, where appropriate, subcellular levels. Define the basic components and processes critical for basic cell physiology.
2. Describe the gross anatomical features of organs in the neural, neuroendocrine and cardiovascular systems in great detail. For all other organ systems, students should be able to identify their anatomy and functionally define them.
3. Describe the various passive and specialized forms of transport and explain the functional significance of each.
4. Describe the various positive and negative feedback mechanisms whereby the body adapts to changes in the internal and external environment.
5. Define basic principles and processes controlling and subserving all of the following cellular functions: osmolarity and control of cell volume, the ionic basis of equilibrium potentials and membrane potentials as well as active and passive properties of excitable cells.
6. Define and explain in detail the basic mechanisms and components which subserve intercellular communication including synaptic and hormonal information transfer via ligand-gated ion channels, G-protein coupled receptors, tyrosine kinase and steroid hormone receptors.
7. Describe the anatomy and define in detail the functions of all major components of the central and peripheral nervous systems including the afferent and efferent nervous systems completely.
8. Describe and define in detail all anatomic and functional components of the sensory apparatus.
9. Describe and define in detail all anatomic and functional components of the autonomic nervous system and its control of homeostasis. Describe central and peripheral mechanisms regulating the ANS.
10. Describe and define in detail the anatomy and physiology of the cardiovascular system with a focus upon cardiac electrophysiology and hemodynamics (at both the organ and systems levels).
11. Establish a theoretical knowledge base for a better understanding of human anatomy and physiology in preparation for the Doctor of Pharmacy career in the context of life-long learning.
12. Detailed and specific learning objectives for each topic are found in the textbook and study guides provided by the instructor.

PHR 343C Lecture Schedule

<u>Class</u>	<u>Faculty</u>	<u>Date</u>	<u>Topic</u>
1	Morrisett	Aug. 26	Introduction to the course/Homeostasis – Ch. 1
2	Morrisett	Aug. 28	Basics of Cell Physiology, Organelles – Ch. 2
3	Morrisett	Aug. 31	Basics of Cell Physiology, Glycolysis, Kreb’s cycle – Ch. 2
4	Morrisett	Sept. 2	Plasma Membrane, Junctions, Osmolarity–Ch. 3
5	Morrisett	Sept. 4	Transport, Diffusion, Osmotic Pressure –Ch. 3
NA		Sept. 7	NO CLASS (Labor Day)
<u>6</u>	<u>Morrisett*</u>	<u>Sept. 9</u>	<u>Carriers, Facilitated diffusion, Active Transport –Ch. 3</u>
<u>7</u>	<u>Morrisett*</u>	<u>Sept. 11</u>	<u>Membrane Potential, Ion Channels–Ch. 3</u>
8	Morrisett	Sept. 14	Graded/Action Potentials– Ch. 4
9	Morrisett	Sept. 16	Actions Potentials, Contiguous/saltatory Conduction– Ch. 4
10	Morrisett	Sept. 18	Synaptic transmission, Vesicular Release – Ch. 4
11	Morrisett	Sept. 21	Neurotransmitters and Their Receptors – Ch. 4
12	Morrisett	Sept. 23	Receptors and Effectors – Ch. 4
13	Morrisett	Sept. 25	Signal Transduction – Ch. 4
14	Morrisett	Sept. 28	EXAM I (location TBA)
15	Morrisett	Sept. 30	Glia, Cerebrospinal Fluid, Blood-brain Barrier – Ch. 5
16	Morrisett	Oct. 2	CNS structure, Cerebral Cortex, Homonculi – Ch. 5
17	Morrisett	Oct. 5	Sensory/motor cortex, Language, Speech– Ch. 5
18	Morrisett	Oct. 7	Thalamus, Hypothalamus, Limbic System – Ch. 5
19	Morrisett	Oct. 9	Spinal Cord – Ch. 5

PHR 343C Lecture Schedule (con't)

<u>Class</u>	<u>Faculty</u>	<u>Date</u>	<u>Topic</u>
20	Morrisett	Oct. 12	Spinal Cord and Reflexes– Ch. 5
21	Morrisett	Oct. 14	Proprioception – Ch. 6
22	Morrisett	Oct. 16	Nociception – Ch. 6
23	Morrisett	Oct. 19	Vision – Ch. 6
24	Morrisett	Oct. 21	Vision and Audition – Ch. 6
25	Morrisett	Oct. 23	Audition and Vestibular System– Aff/Sensory – Ch. 6
26	Morrisett	Oct. 26	Olfaction and Taste– Aff/Sensory – Ch. 6
27	Morrisett	Oct. 28	EXAM II (location TBA)
28	Morrisett	Oct. 30	Autonomic Nervous System – Efferent – Ch. 7
29	Morrisett	Nov. 2	Autonomic Nervous System – Efferent – Ch. 7
30	Morrisett	Nov. 4	Somatic Nervous System – Efferent – Ch. 7
31	Combs	Nov. 6	Muscle Physiology – Ch. 8
32	Combs	Nov. 9	Muscle Physiology – Ch. 8
33	Combs	Nov. 11	Muscle Physiology – Ch. 8
34	Combs	Nov. 13	Muscle Physiology – Ch. 8
35	Combs	Nov. 16	Cardiac Physiology – Ch. 9
36	Combs	Nov. 18	Cardiac Physiology – Ch. 9
37	Morrisett	Nov. 20	Cardiac Electrophysiology – Ch. 9
38	Morrisett	Nov. 23	Cardiac Electrophysiology – Ch. 9
39	Combs/ Morrisett	Nov. 25	EXAM III (location TBA)

PHR 343C Lecture Schedule (con't)

<u>Class</u>	<u>Faculty</u>	<u>Date</u>	<u>Topic</u>
NA		Nov. 27	NO CLASS (THANKSGIVING HOLIDAY)
40	Combs	Nov. 30	Blood Vessels and Blood Pressure – Ch. 10
41	Combs	Dec. 2	Blood Vessels and Blood Pressure – Ch. 10
42	Combs	Dec. 4	Blood Vessels and Blood Pressure – Ch. 10

FINAL TBA COMPREHENSIVE FINAL EXAM

***Important notice:**

On these class dates (Sept 9/11), Dr. Morrisett will be representing the COP at the AACP Curricular Change Summit in Phoenix, his lectures will be available by videostream only and will be played during the regularly scheduled class time.

Introduction to Medical Terminology

Medical terminology is composed of Greek and Latin word roots. The roots usually exist as prefixes, combining forms, and suffixes, sometimes interchangeably. These parts are snapped together much like Legos or building blocks to form medical words. It is my opinion that if you take the time to learn the terms on these sheets, you will be able to deal with 90% of the medical terminology to which you might be exposed in our curriculum.

PREFIXES

<u>Prefix</u>	<u>Meaning</u>	<u>Usage and/or Examples</u>
A-, An- (before vowel)		without, lack of apnea (without breath)
Ab-	away from	abnormal, abductor
Ad-, Af-	to, toward	adductor, afferent, adhesion
Ana-	up, back again	anabolic
Anti-	against	antiseptis
Apo-	away from	apochromatic (abnormal color)
Auto-	to do with self	autolysis, autopsy
Bi-	relating to two	bifurcation (separation into two branches)
Brachy-	short	brachycephalia (short head)
Brady-	slow	bradycardia, bradypnea (slow breathing)
Circum-	around	circumflex (winding about), circumcision
Con-	with	congenital (born with)
Contra-	against, opposite	contraception, contralateral
Crypto-	hidden, concealed	cryptorchid (undescended testicle)
Cryo-	cold	cryotherapy
De-	away from	dehydrate
Dextro-	right	dextrocardia (pertaining to right side of heart)
Di-	twice, double	diplopia (double vision)
Dia-	through, apart, across	diaphragm, diapedesis
Dys-	Bad, difficult	dyspnea (breathing), dysphagia (eating)
E-, Ex-, Ef-	out, away from	eviscerate (remove viscera), efferent
Ec-, Ecto-	out, outside	eccentric, ectopic (out of place)
Em-, En-	in	encephalopathy (any brain disease)

Endo-	within	endometrium (inner lining of uterus), endoscope
Epi-	upon	epigastric
Eu-	well, good, normal	euphoria, euthyroid, eupea
Gravis-	heavy	gravida (pregnant woman)
Haplo-	single, simple	haplodermatitis (simple inflammation of the skin)
Hemi-	half	hemiplegia (paralysis on one side)
Hetero-	other, different	heterogenous
Homo-	same	homogenous
Hydro-	wet, water	hydronephrosis (urine collecting in renal pelvis)
Hyper-	over, excessive	hyperplasia (excessive formation)
Hypo-	under, deficient	Hypotension (low blood pressure)
Idio-	peculiar to	idiopathic (disease of unknown cause)
Im-, In-	in, into	infiltration
Im-, In-	not	immature
Infra-	below	infraorbital (below eye socket)
Inter-	between	intercostal (between ribs)
Intra-	within	intraocular (within the eye)
Iso-	same, equal	isometric, isotonic
Leuko-	white	leukocyte
Levo-	left	levocardia (left side of heart)
Mal-, Malus-	bad	malignant, malformation
Mega-	large, great	megacolon (large colon), megaloblastic
Meso-	middle	mesoderm
Micro-	small	microglossia (small tongue)
Mono-	one, single	monochromatic
Multi-	many, much	multiparous (having given many births)
Necro-	having to do with death	necrosis, necropsy
Neo-	new	neoplasm (literally - new formation)
Oligo-	few, little	oliguria (formation of little urine)

Opistho-	behind, backward	opisthotic (behind the ears)
Ortho-	straight, normal,	orthopnea (able to breath only in upright position)
Para-	beside, by side	paraplegia (paralysis of both sides), parathyroids
Per-	through	percutaneous
Peri-	around	periosteum (membrane around the bone)
Poikilo-	varied	poikiloderma (mottled skin), poikilothermic
Poly-	many, much	polymyalgia (pain in many muscles)
Post-	after, behind	postnatal (after birth)
Pre-	before, in front of	prenatal
Pro-	before, in front of	prognosis (foreknowledge)
Pseudo-	false	pseudostratified
Re-	back, again	regurgitation
Retro-	backward, located	retroperitoneal (behind the behind peritoneum)
Sclero-	hard	sclerosis (hardening), arteriosclerosis
Semi-	half	semilunar (half moon, i.e., valves in aorta)
Sub-	under	sublingual
Super-	above, upper	supernatant
Supra-	above, upper	suprarenal
Steno-	narrow	stenosis (narrowing or constriction)
Sym-, Syn-	together, with	synapse, symphysis
Tachy-	fast, swift	tachycardia
Trans-	across, through	transection (cut across)
Tri-	three	tricuspid (heart valve)
Xero-	dry	xerodermia (dry skin)

COMBINING FORMS AND WORD ROOTS

(Although these combining forms generally appear at the beginning of a term, they may appear within a term or at the end of it.)

<u>Term</u>	<u>Meaning</u>	<u>Usage and/or examples</u>
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Adeno	gland	adenopathy (glandular disease)
Angio	blood vessel	angiogram
Arterio	artery	arteriosclerosis
Arthro	joint	arthralgia (joint pain)
Cardi, Cardio	heart	cardiogram
Cephalo	head	cephalgia (headache)
Chole	bile	cholecyst (gallbladder)
Chondro	cartilage	chondroplasty (growth of)
Clas, Claz	smash, break	osteoclasia (broken bone)
Cysto	bladder, cyst	cystoscopy
Cyt	cell	cytology
Dacryo	tear	chromodacryorrhea
Derma	skin	dermatophytosis (infection of the skin)
Entero	intestine	enteric coated tablets
Esthes	to feel	anesthesia, esthetics
Gastro	stomach	epigastric
Gen	the origin	gluconeogenesis
Gingivo	gums	gingival hyperplasia
Hem(ato-)	blood	hematocrit
Hepato	liver	hepatic necrosis
Hystero	uterus	hysterectomy
latro, latr	to treat	geriatrics, iatrogenic disease
Laryngo	larynx	laryngospasm
Linguo	tongue	sublingual
Lith	stone	cholelithiasis
Lympho	lymph	lymphoma
Masto	breast	mastectomy
MetrMet(ro)	uterus	metritis (inflammation of)
Morph	form	polymorphic (many shapes)

Myelo	bone marrow	myelocytes
Myo	muscle	myoglobin
Naso	nose	nasal septum
Nephro	kidney	nephrosis
Neuro	nerve	neurogenic
Oculo	eye	ocular muscles
Oophoro	ovary	oophorectomy
Op, Opto	see	optic, diplopia
Ophthalmo	eye	ophthalmoscope
Orchio, Orchido	testis	cryptorchid
Os	mouth	Os cervix, iliostomy
Osteo	bone	periosteum
Oto	ear	otic drops
Ovario	ovary	
Palpebro	eyelid	palpebral reflex
Par, Partus	labor	multiparous (many births)
Pep	digestion	dyspepsia
Phag, Phago	eat	phagocytosis, dysphagia
Phlebo	vein	Phlebitis (inflammation of)
Pilo	hair	pilomotor fibers
Plas	to form, or to grow	plastic surgeon, neoplasm
Pneumo	lungs	pneumothorax, apnea, dyspnea, tachypnea
Poie	make	erythropoiesis
Procto	rectum	proctology (a medical speciality)
Pyo	pus	pyorrhea (a purulent discharge)
Ren	kidney	Renal
Spleno	spleen	splenectomy
Stoma	mouth	stomatitis
Thoraco	thorax or chest	thoracotomy (incision into)

Thrombo	blood clot	thrombosis
Thyro	thyroid	parathyroid glands
Tracheo	trachea	tracheitis
Tropho	nourish	dystrophy, hypertrophy
Uro	urine, urinary	urogenital tract
Utero	uterus	in utero (in the uterus)
Vaso	vessel	vasospasm
Veno	vein	venoconstriction
Ventriculo	chamber	usually heart or brain

SUFFIXES

<u>Suffixes</u>	<u>Meaning</u>	<u>Usage and/or Examples</u>
-algia	pain	neuralgia, gastralgia
-cele	hernia, protrusion	gastrocele (hernia of stomach)
-centesis	puncture	paracentesis (puncture of a cavity)
-dynia	pain	anodyne (relieves pain)
-ectasis	expansion, dilation	bronchiectasis (abnormal dilation of a bronchus)
-ectomy	to remove	hysterectomy
-emia	of the blood	hyperglycemia, septicemia (infection of the blood)
-genesis	production	thrombogenesis
-genic	referring to origin	neurogenic, osteogenic
-iasis	condition of	cholelithiasis (presence of stones in gallbladder)
-itis	inflammation	endocarditis (of the endocardium)
-ium	a membrane	endocardium
-logy	study (of)	histology, cardiology
-lysis	breaking down	hemolysis, autolysis
-megaly	enlargement	splenomegaly
-oid	-like	lipoid (fat-like)
-oma	tumor	adenoma (glandular tumor)
-osis	disease	dermatosis (any skin condition)
-ostomy	an opening	colostomy
-otomy	incision into	thoracotomy
-pathy	disease	retinopathy (of the retina)
-penia	deficiency	leukopenia, neutropenia
-pexy	to fix (in place)	nephropexy (kidney)
-plegia	paralysis	cycloplegia, paraplegia
-rrhagia	bleeding	hemorrhage
-scopy	examination	bronchoscopy
-spasm	contractions	enterospasm (intestinal contractions)

-stasis	stop, stand still	hemostatic
-uria	of the urine	glycosuria, polyuria