Ch. 1 – Introduction to Physiology

Ch 1 Objectives:

Part 1. Understand homeostasis & feedback loops

Part 2. Review chemistry of pH (as it applies to physiology)

Announcements:

- Are you something other than prenursing (pre-pharmacy, pre-med, prevet)?
- Course webpage is NOT on Blackboard! It's simply <u>online</u>.
- A link to the course textbook can be found on online syllabus.







Feedback Loops:

1. Positive Feedback Loop

= when change occurs body responds by causing more of that change.
(Amplifies the effect) * rare feedback system in the body!

2. Negative Feedback Loop (most common!)

when change occurs body responds by reversal of the change.
 (Reverses the effect) * Most common feedback system!













Disorder of glucose metabolism – Diabetes mellitus	
Type 1 Diabetes (also known as)
What is the problem?	
	,
Type 2 Diabetes (also known as)
What is the problem?	
11	







See practice flow diagram on negative feedback regulation of <u>high</u> and <u>low</u> blood pressure

(blank and high BP <u>KEY</u> and low BP <u>KEY</u> both found in online syllabus)

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Review

- Physiology
- Homeostasis

Dynamic constancy of internal environment despite external changes

Feedback Loops

Positive Feedback (breast feeding & milk let-down, and childbirth) Negative Feedback (body temp, blood glucose, blood pressure)

See syllabus for practice flow diagrams:



1. pH	Copyright or the Microsovial Companies, Inc. Heimission inspired for reproduction of deputy Table 2.3 The pH Scale			
<pre>= logarithmic scale of: pH = -log₁₀ [H+] Hydrogen ions (H+) Hydroxide ions (OH-) Numerical scale 0 - 14 < 7 = acidic (has more H+ ions) 7 = neutral > 7 = alkaline (has fewer H+ ions and more OH- ions)</pre>		H ⁺ Concentration (Molar)*	pН	OH Concentration (Molar)*
	Acids	1.0	0	10-14
		0.1	1	10-13
		0.01	2	10-12
		0.001	3	10-11
		0.0001	4	10-10
		10-5	5	10-9
		10-6	6	10-8
 Importance of pH: > shapes/functions of molecules > Enzyme activity > Most chemical reactions in body > Ability of molecules to dissolve in water 	Neutral	10-7	7	10-7
	Bases	10-8	8	10-6
		10 ⁻⁹	9	10-5
		10-10	10	0.0001
		10-11	11	0.001
		10-12	12	0.01
		10 ⁻¹³	13	0.1
		10-14	14	1.0
	*Molar conce One mole is hydrogen ha hydrogen pe	entration is the number of the atomic or molecular w s an atomic weight of one, r liter of solution.	moles of a so eight of the si one molar hy	lute dissolved in one liter. olute in grams. Since idrogen is one gram of







