

Introduction to Anatomy and Physiology
Chapter One Study Guide
Tortora & Derrickson

1. What is biology?
2. What is physiology?
3. What is anatomy?
4. What is gross anatomy?
5. Why is it wise to study physiology and anatomy together?
6. What is histology?
7. What is the purpose of science?
8. Why should you want to study science?
9. What is the “scientific method”?
10. What is the difference between a hypothesis and a theory?
11. When scientists and laypeople (i.e. non-scientist) debate topics, they often communicate using the same words but the words for them have different meanings. Unfortunately, this breakdown in “language” results in mistrust and misunderstanding. This often then results in bad public policy. How are the terms hypothesis and theory used differently by scientist and lay-people and how has this resulted in a confused public discourse? (Do this in the context of evolution.)
12. What do humans and bacteria have in common?
13. What is the cell theory? Significance
14. What is evolution?
15. What is natural selection?
16. Explain the relationship between evolution and natural selection.
17. What is the modern synthesis theory?
18. Explain the significance of the “hierarchy of complexity”. Define the functions of each division of the hierarchy from atoms to organism.
19. What is metabolism? Where does metabolism occur?
20. What are the two forms of metabolism?
21. What is a metabolic pathway?
22. What molecules are necessary for metabolism to occur? What is the name, nickname, and characteristics of this molecule? Can another class of molecule play a similar cellular function? (new science)
23. What is homeostasis? Significance?
24. What occurs when homeostasis fails?
25. What phase best describes the “state of the internal environment” of the human body?
26. What are the two feedback mechanisms used to “regulate” body functions?
27. Which regulatory mechanism “returns or restores” the body to its normal state following a change?
28. Which regulatory mechanism is “self-amplifying”? What does this mean?
29. Explain how these terms (receptor / integrating center / effector) apply to both negative and positive feedback mechanisms.
30. What do we call the event detected by a receptor?
31. Site example of both negative and positive feedback mechanisms: