

ASBMB Degree-Certification Exam Summary of learning goals and objectives

- Students should be able to explain and apply the core concepts underlying the theory of evolution, including the process of natural selection and its molecular basis, and evidence supporting the theory of evolution.
- Students should be able to explain and apply core concepts of matter and energy transformation, including thermodynamics, catalysis, the coupling of exergonic and endergonic processes, and the nature of biological energy.
- Students should be able to explain and apply core concepts of underlying homeostasis, including the need for biological balance, linked steady state processes, quantification of homeostasis, the organization of chemical processes, and control mechanisms.
- Students should be able to explain and apply core concepts of biological information, including the genome, the manner in which the information it contains is encoded and translated, and the mechanisms by which it is transmitted and maintained across generations.
- Students should be able to explain and apply core concepts of macromolecular structure and function, including the nature of biological macromolecules, their interaction with water, the relationship between structure and function, and frequently-encountered mechanisms for regulating their function.
- Students should understand the process of science, including hypothesis generation, experimental design, quantitative analysis, and data interpretation.

