

What are the Biology and Chemistry Competency Exams for Anatomy and Physiology?

The Biology and Chemistry Competency Exams for Anatomy and Physiology test academic preparation and background knowledge for Biology 145 (Anatomy and Physiology I). The exams do not test a student's knowledge of anatomy and physiology, but rather test biology and chemistry competency in preparation for anatomy and physiology coursework. A score of 70% or higher on the Biology Competency Exam will allow a student to waive the prerequisite of Biology 100, 101 or 105. A score of 70% or higher on the Chemistry Competency Exam will allow a student to waive the prerequisite of Chemistry 101 or 110. The results of the competency exams are valid for two academic years. If a student takes a competency exam but does not score 70% or higher, yet wishes to try the competency exam again, the student may re-take it two academic years after the previous attempt.

Please notice: Regardless of a student's score on either competency exam, the student must fulfill the other prerequisites for Biology 145, which are: a student must complete REA 098 and MATH 080 (or COMPASS equivalent) and the student must be eligible for (as determined by COMPASS score or other assessment) or currently enrolled in college-level English courses (100-level or greater).

Students will be tested over the following objectives:

Biology Competency Exam:

- A. Demonstrate an understanding of the scientific method.
- B. Understand and effectively use the metric system.
- C. Illustrate the chemical foundations of life.
- D. List characteristics of living things.
- E. Describe the levels of biological organization from atom to biome.
- F. Relate the unifying role of cells to all living things.
- G. Compare and contrast prokaryotic and eukaryotic cells.
- H. Explain concepts of cell structure and function.
 - I. Explain the action and regulation of enzymes.
 - J. Describe processes related to energy metabolism.
- K. Describe the levels of complexity and organization of the human.
- L. Describe the principles of both Mendelian and molecular genetics and their significance to evolutionary processes.
- M. Explain evolutionary processes and evaluate the evidence for evolution as an explanation for the diversity of life.
- N. Describe the categories of classification of living organisms from species to domain.

- O. Identify components of an ecosystem, evaluate the importance of ecosystems and the influence of human population and activities on ecosystems.

The student may wish to refer to an introductory human biology or introductory biology textbook to study for these topics, for example: “Human Biology” by Mader (McGraw-Hill) or “Campbell Essential Biology” by Simon, et al. (Pearson). Copies of the textbooks are on reserve in the library for review (ask for “Biology Competency Exam” books).

Chemistry Competency Exam:

- A. Use Metric System (S.I. units) in calculations.
- B. Demonstrate an understanding of matter.
- C. Solve problems involving energy change.
- D. Demonstrate an understanding of chemical periodicity and how it relates to the periodic table.
- E. Determine the number of subatomic particles present in an atom.
- F. Name inorganic compounds.
- G. Balance chemical equations.
- H. Demonstrate an understanding of mass percent.
- I. Identify the areas of the electromagnetic spectrum and the energy relationship of those areas.
- J. Use a periodic table to identify the electron configuration of an atom.
- K. Use the mole concepts in calculations.
- L. Do calculations involving solutions in stoichiometry.
- M. Show the chemical bonding in molecular structures.
- N. Demonstrate an understanding of liquids, solids and intermolecular forces.
- O. Apply qualitatively the various gas laws.
- P. Predict shapes of molecules.
- Q. Demonstrate an understanding of acid and base chemistry.
- R. Demonstrate an understanding of oxidation and reduction reactions.
- S. Demonstrate an understanding of radioactivity and nuclear chemistry.
- T. Describe applications of chemistry to his/her everyday life.

The student may wish to refer to an introductory chemistry textbook to study for these topics, for example “Introductory Chemistry” by Tro (Pearson). Copies of the textbook are on reserve in the library for review (ask for “Chemistry Competency Exam” books).

Who can take the Biology and Chemistry Competency Exams for Anatomy and Physiology?

A student who wishes to take one or both competency exam(s) must be enrolled in the college. The science prerequisite for Biology 145 is Biology 100, 101 or 105 and Chemistry 101 or 110. If a student is confident in his/her biology proficiency, he/she may choose to take the Biology Competency Exam. If a student is confident in his/her chemistry proficiency, he/she may choose to take the Chemistry Competency Exam.

When can I take the Biology and Chemistry Competency Exams for Anatomy and Physiology?

- **Quad-Cities Campus** - 309-796-5171 (Testing Center) to schedule a test session.
- **East Campus** - Call 309-854-1732 to schedule a test session.

Special notes

Students who need to take the Biology or Chemistry Competency Exam with accommodations based on their disability should contact Disability Services by calling 309-796-5900 (Quad-Cities Campus) or 309-854-1713 (East Campus) to make arrangements.

Things to remember on the day of the test:

- Bring a picture ID. (A driver's license is preferred).
- Arrive 15 minutes prior to your scheduled test time.
- Parking passes are available. Come extra early if you need one.
- You **MUST** have your Black Hawk College ID number to test.