Study Guide for Student Placement Assessments

General Information

Each new student at LTU is asked to complete placement assessments as part of the orientation and registration process. The results of these assessments will be used by your advisor to determine the appropriate entry-level courses in a number of key subject areas. The entire process is designed to ensure that the courses you take will offer you the best opportunity for success and the greatest support for your major program. These are not exams that you pass or fail, but instruments designed to measure where you stand right now so that we can select appropriate courses based on your current knowledge and abilities. This study guide has been developed to help you prepare for these assessments so that you will do your very best.

For assistance reviewing any of the subjects listed, visit the link below and search for the topic you would like to review!

https://www.khanacademy.org/

Assessment Format

Placement assessments are given in six subject areas: Mathematics, English, Chemistry, Physics, Biology and Computer Programming & General Computing Principles. The Office of Admissions will determine which of these assessments are required based on your major program and an evaluation of your academic record.

Placement Assessment Study Topics

Mathematics

The mathematics placement assessment is a two-part, multiple-choice computer-based assessment covering topics from algebra, trigonometry, and other standard pre-calculus concepts. Calculators are not allowed.

ACCUPLACER Next-Generation Quantitative Reasoning, Algebra and Statistics topics include:

- Rational numbers
- Ratio and proportional relationships
- Exponents
- Algebraic expressions
- Linear equations
- Linear applications and graphs
- Probability Sets
- Descriptive Statistics
- Geometry concepts

ACCUPLACER Next-Generation Advanced Algebra and Functions topics include:

- Linear Equations
- Linear applications and graphs
- Factoring
- Quadratics
- Functions
- Radical and rational equations
- Exponential and logarithmic equations
- Trigonometry

English

The English placement assessment is a two-part, multiple-choice computer-based assessment. Dictionaries and grammatical handbooks are not allowed.

ACCUPLACER Next-Generation Reading topics include:

- Ability to derive meaning from a range of texts
- Ability to determine the meaning of words and phrases in short and extended contexts
- Single and Paired passages
- Information and ideas
- Rhetoric
- Synthesis
- Vocabulary

ACCUPLACER Next-Generation Writing topics include:

- Ability to revise and edit multi-paragraph text
- Expression of ideas - development, organization, and effective language use
- Standard English conventions - sentence structure, usage, and punctuation

Online practice assessments are available for computer-based ACCUPLACER Mathematics and ACCUPLACER English tests by signing up for an account at the following link:

https://practice.accuplacer.org/login

Biology

The biology placement assessment is designed to assess your general knowledge of biological principles as well as your understanding of basic biological topics covered in a typical high school biology course. Calculators are allowed. The assessment is 30 minutes.

Biology topics include:
- Cell theory
- Cell cycle, including mitosis and meiosis
- Scientific method
- Mendelian genetics
- Data analysis and interpretation
- Bioenergetics
- Biological terminology

Physics

The physics placement assessment is designed to test your conceptual knowledge in the areas of kinematics (position, velocity, and acceleration – one dimensional motion) and dynamics (adding forces, collisions– one dimensional motion, Newton's laws). Calculators are not needed. The assessment is 30 minutes.

Physics topics include:
- Changes caused by applying forces to an object moving along a line
- Directions of forces associated with specific changes in motion (slowing down, speeding up, stopping, starting)
- Forces (and directions) needed to produce constant acceleration or constant velocity
- Connecting the description of an object's motion with the graph of that motion (Example: If an object is slowing down, how would that motion appear on a velocity vs. time graph?)
- Interpreting position graphs, velocity graphs, and acceleration graphs
- One dimensional collisions between objects – analysis of forces on those objects
- One dimensional collisions between objects with equal or different masses

Chemistry

The chemistry placement assessment is designed to assess your general conceptual knowledge of chemistry as well as specific chemistry knowledge appropriate to a good high school chemistry course. Calculators are allowed. The assessment is 30 minutes.

Chemistry topics include:
- Chemical and physical properties and changes
- Mass, volume, and density
- Atomic theory, isotopes, and the periodic table
- Moles and molar mass
- Chemical symbols
- Chemical formulas, equations, and balancing chemical equations
- Gas laws and the kinetic theory of gases
- Stoichiometry and chemical calculations
- Molecular geometry
- Electron configuration
- Dimensional analysis
- Significant figures
- Molarity

Computer Programming and General Computing Principles

The computer programming placement assessment is designed to assess your knowledge of the C programming language and general programming along with general computing principles covered in a typical high school general computing course. Calculators are not allowed. The assessment is 30 minutes.

Programming topics include:
- Low level to High level programming
- Variables, Expressions, Assignments
- Data types, Operators and precedence
- Functions, passing parameters, return statement
- Input and output
- Making decisions and Loops
- Arrays

Introductory computing topics include:
- Algorithm design
- Binary Numbers, Boolean Logic, and Gates
- Computer Organization
- Operating Systems
- Computer networks
- Information Security
- Simulation and Modeling
- Artificial Intelligence
- Computer Graphics
- Social issues in computing

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Academic Achievement Center

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