The *GRE*® Biology Test

We invite you to take a closer look…

Does your graduate department require or recommend that graduate applicants take the *GRE*® Biology Test?

This test can be very useful in distinguishing among candidates whose credentials are otherwise similar. The test measures undergraduate achievement and provides a common yardstick for comparing the qualifications of students from a variety of colleges and universities with different standards. Consider these factors:

Predictive Validity

Subject Test scores are a valid predictor of graduate school performance, as confirmed by a meta-analysis performed by independent researchers who analyzed over 1,700 studies containing validity data for GRE tests.[1] This study showed that *GRE*® Subject Tests are reliable predictors of a range of outcome measures, including first-year graduate grade-point average, cumulative graduate grade-point average, comprehensive examination scores, publication citation counts, and faculty ratings. For more information about the predictive validity of the GRE tests, visit **www.ets.org/gre/validity**.

Content That Reflects Today's Curricula

The test contains about 190 multiple-choice questions covering topics that are distributed among three major areas: cellular and molecular biology, organismal biology, and ecology and evolution. Along with the total score, test takers receive a subscore in each of the three areas. A summary of test content areas can be found on the back of this sheet. Many questions require problem-solving skills and analysis based on descriptions of laboratory and field situations, diagrams, or experimental results. Additional information about the test and a full-length practice test are provided FREE and can be downloaded at **www.ets.org/gre/subject/prepare**.

Developed by Leading Educators in the Field

The content and scope of each edition of the test are specified and reviewed by a distinguished team of undergraduate and graduate faculty representing colleges and universities across the country. Individuals who serve or have recently served on the Committee of Examiners are faculty members from the following institutions:

- Barnard College
- Haverford College
- Ohio Northern University
- Smith College
- University of South Dakota
- University of Texas at Austin
- University of Virginia

Committee members are selected with input from scientific organizations such as the American Institute of Biological Sciences, the Botanical Society of America, The Society of Integrative and Comparative Biology, and the Ecological Society of America.

Test questions are written by committee members and by other subject-matter specialists from colleges and universities across the country.

Continued on next page.

[1] Source: "A comprehensive meta-analysis of the predictive validity of the Graduate Record Examinations®: Implications for graduate student selection and performance." Kuncel, Nathan R.; Hezlett, Sarah A.; Ones, Deniz S., Psychological Bulletin, January 2001, Vol. 127(1), 162-181.

For more information about the *GRE*® Biology Test,
visit www.ets.org/gre/subjecttests.

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Test Content

I. Cellular and Molecular Biology 33-34%

A. Cellular Structure and Function (16-17%)

1. Biological compounds
2. Enzyme activity, receptor binding, and regulation
3. Major metabolic pathways and regulation
4. Membrane dynamics and cell surfaces
5. Organelles: structure, function, synthesis, and targeting
6. Cytoskeleton, motility, and shape
7. Cell cycle, growth, division, and regulation (including signal transduction)
8. Methods (microscopy, separation, immunological)

B. Genetics and Molecular Biology (16-17%)

1. Genetic foundations
2. Chromatin and chromosomes
3. Genome sequence organization
4. Genome maintenance
5. Gene expression and regulation in prokaryotes and eukaryotes: mechanisms
6. Gene expression and regulation: effects
7. Immunobiology
8. Bacteriophages, animal viruses, and plant viruses
9. Recombinant DNA methodology

II. Organismal Biology 33-34%

A. Animal Structure, Function, and Organization (10%)

1. Exchange with environment
2. Internal transport and exchange (circulatory, gastrovascular, and digestive systems)
3. Support and movement
4. Integration and control mechanisms
5. Behavior (communication, orientation, learning, and instinct)
6. Metabolic rates (temperature, body size, and activity)

B. Animal Reproduction and Development (6%)

1. Reproductive structures
2. Meiosis, gametogenesis, and fertilization
3. Early development (e.g., polarity, cleavage, and gastrulation)
4. Developmental processes (e.g., induction, determination, differentiation, morphogenesis, and metamorphosis)
5. External control mechanisms (e.g., photoperiod)

C. Plant Structure, Function, and Organization, with Emphasis on Flowering Plants (7%)

1. Organs, tissue systems, and tissues
2. Water transport, including absorption and transpiration
3. Phloem transport and storage
4. Mineral nutrition
5. Plant energetics (e.g., respiration and photosynthesis)

D. Plant Reproduction, Growth, and Development, with Emphasis on Flowering Plants (5%)

1. Reproductive structures
2. Meiosis and sporogenesis
3. Gametogenesis and fertilization
4. Embryogeny and seed development
5. Meristems, growth, morphogenesis, and differentiation
6. Control mechanisms (e.g., hormones, photoperiod, and tropisms)

E. Diversity of Life (6%)

1. Archaea
2. Bacteria
3. Protista
4. Fungi
5. Animalia with emphasis on major phyla

III. Ecology and Evolution 33-34%

A. Ecology (16-17%)

1. Environment/organism interaction
2. Behavioral ecology
3. Population ecology
4. Community ecology
5. Ecosystems

B. Evolution (16-17%)

1. Genetic variability
2. Macroevolutionary and microevolutionary processes
3. Evolutionary consequences
4. History of life