

Section 2 Mendelian Genetics

Study Guide Answers

Intelligence quotient This results in approximately two-thirds of the population scoring between IQ 85 and IQ 115 and about 2 percent each above 130 and below 70. He hypothesized that there should be an intelligence quotient (IQ) is a total score derived from a set of standardized tests or subtests designed to assess human intelligence. (by which he did not mean genes, although he did develop several pre-Mendelian theories of particulate inheritance). The resulting fraction (quotient) was multiplied by 100 to obtain the IQ score. For modern IQ tests, the raw score is transformed to a normal distribution with mean 100 and standard deviation 15. Originally, IQ was a score obtained by dividing a person's estimated mental age, obtained by administering an intelligence test, by the person's chronological age

Elective genetic and genomic testing Carrier testing is used to identify individuals who do not have an indication for testing. Some elective genetic and genomic tests require a physician to order the test to ensure that individuals understand the risks and benefits of testing as well as the results. Elective testing is generally not paid for by health insurance companies. With the advent of personalized medicine, also called precision medicine, an increasing number of individuals are undertaking elective genetic and genomic testing. An elective genetic test analyzes selected sites in the human genome while an elective genomic test analyzes the entire human genome. Other DNA-based tests, such as a genealogical DNA test do not require a physician's order. This testing includes Mendelian conditions and polygenic diseases. have evidence of the disease under investigation

Biostatistics It encompasses the design of biological experiments, the collection and analysis of data from those experiments and the interpretation of the results. Biostatistics (also known as biometry) is a branch of statistics that applies statistical methods to a wide range of topics in biology. after the rediscovery of Mendel's Mendelian inheritance work, there were gaps in understanding between genetics and evolutionary Darwinism

Epidemiology disease transmission Pages displaying short descriptions of

redirect targets Mendelian randomization – Statistical method in genetic epidemiology Occupational Epidemiology is the study and analysis of the distribution (who, when, and where), patterns and determinants of health and disease conditions in a defined population, and application of this knowledge to prevent diseases 22534e106f

Julian Huxley He was a proponent of natural selection, and a leading figure in the mid-twentieth-century modern synthesis. with essays on taxonomy, evolution, natural selection, Mendelian genetics and population genetics. London: Chatto & Windus with Hogarth Sir Julian Sorell Huxley (22 June 1887 – 14 February 1975) was an English evolutionary biologist, eugenicist and internationalist. He was secretary of the Zoological Society of London (1935–1942), the first director of UNESCO, a founding member of the World Wildlife Fund, the president of the British Eugenics Society (1959–1962), and the first president of the British Humanist Association. " Democracy Marches 22534e106f

Genetic drift may cause gene variants to disappear completely and thereby reduce genetic variation. It can also cause initially rare alleles to become much more frequent and even fixed. 22534e106f

Quantitative trait locus 97. Ricki Lewis A quantitative trait locus (QTL) is a locus (section of DNA) that correlates with variation of a quantitative trait in the phenotype of a population of organisms. QTLs are mapped by identifying which molecular markers (such as SNPs or AFLPs) correlate with an observed trait. PMID 17246615 – via www. 16 (2): 97–159. 1093/genetics/16. genetics. doi:10. PMC 1201091. 2. This is often an early step in identifying the actual genes that cause the trait variation. Genetics. "Evolution in Mendelian Populations",. org 22534e106f

Huxley was well known for his presentation of science in books and articles, and on radio and television. He directed an Oscar-winning wildlife film. He was awarded UNESCO's Kalinga Prize for the popularisation of science in 1953, the Darwin Medal of the Royal Society in 1956, and the Darwin–Wallace... 22534e106f Pseudoscientific claims of inherent differences... 22534e106f

Ronald Fisher For his work in statistics, he has been described as "a genius who almost single-handedly created the foundations for modern statistical science" and "the single most important figure in 20th century statistics". Mendel and Charles Darwin, as his work used mathematics to combine Mendelian genetics and natural selection; this contributed to the revival of Darwinism Sir Ronald Aylmer Fisher (17 February 1890 – 29 July 1962) was a

British polymath who was active as a mathematician, statistician, biologist, geneticist, and academic. In genetics, Fisher was the one to most comprehensively combine the ideas of Gregor Mendel and Charles Darwin, as his work used mathematics to combine Mendelian genetics and natural selection; this contributed to the revival of Darwinism in the early 20th-century revision of the theory of evolution known as the modern synthesis. For his contributions to biology, Richard Dawkins declared Fisher to be the greatest of 22534e106f

Genetic drift genetic drift. Ronald Fisher, who explained natural selection using Mendelian genetics, held the view that genetic drift plays at most a minor role in evolution Genetic drift, also known as random genetic drift, allelic drift or the Wright effect, is the change in the frequency of an existing gene variant (allele) in a population due to random chance 22534e106f

When census data (comprising every member of the target population) cannot be collected, statisticians collect data by developing specific experiment designs and survey samples... 22534e106f When few copies of an allele exist, the effect of genetic drift is more notable, and when many copies exist, the effect is less notable (due to the law of large numbers). In the middle of the 20th century, vigorous debates occurred over the relative importance of natural selection versus neutral processes, including genetic drift. Ronald Fisher, who explained natural selection using Mendelian genetics, held the view that... 22534e106f Scores from intelligence tests are estimates of intelligence. Unlike quantities such as distance and mass, a concrete measure of intelligence cannot be achieved... 22534e106f

History of the race and intelligence controversy factors in individual differences, and the slighting of the role of genetics in the study of intelligence can only hinder investigation and understanding The history of the race and intelligence controversy concerns the historical development of a debate about possible explanations of group differences encountered in the study of race and intelligence. Today, the scientific consensus is that genetics does not explain differences in IQ test performance between racial groups. Since the beginning of IQ testing around the time of World War I, there have been observed differences between the average scores of different population groups, and there have been debates over whether this is mainly due to environmental and cultural factors, or mainly due to some as yet undiscovered genetic factor, or whether such a dichotomy between environmental and genetic factors is the appropriate framing of the debate 22534e106f

Major areas of epidemiological study include disease... 22534e106f

Statistics Statistics deals with every aspect of data, including the planning of data collection in terms of the design of surveys and experiments. seminal paper The Correlation between Relatives on the Supposition of Mendelian Inheritance (which was the first to use the statistical term, variance) Statistics (from German: Statistik, orig. "description of a state, a country") is the discipline that concerns the collection, organization, analysis, interpretation, and presentation of data. Populations can be diverse groups of people or objects such as "all people living in a country" or "every atom composing a crystal". In applying statistics to a scientific, industrial, or social problem, it is conventional to begin with a statistical population or a statistical model to be studied 22534e106f

It is a cornerstone of public health, and shapes policy decisions and evidence-based practice by identifying risk factors for disease and targets for preventive healthcare. Epidemiologists help with study design, collection, and statistical analysis of data, amend interpretation and dissemination of results (including peer review and occasional systematic review). Epidemiology has helped develop methodology used in clinical research, public health studies, and, to a lesser extent, basic research in the biological sciences. 22534e106f

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