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Should we Teach Scientific Criticisms of Neo-Darwinism? Many Authorities say YES!

1. **U.S. Congress:** "[A] quality science education should prepare students to distinguish the data and testable theories of science from religious or philosophical claims that are made in the name of science. **Where topics are taught that may generate controversy (such as biological evolution), the curriculum should help students to understand the full range of scientific views that exist**, why such topics may generate controversy, and how scientific discoveries can profoundly affect society."[1]
2. **The U.S. Department of Education:** "The department, of course, embraces the general principles – reflected in the Senate Resolution – of academic freedom and inquiry into scientific views and theories.[2]
3. **Various States and School Districts have successfully implemented such a policy:**

Texas: Students must "analyze, evaluate and critique scientific explanations … including examining all sides of scientific evidence of those scientific explanations so as to encourage critical thinking," and also "analyze and evaluate" core evolutionary claims, including "common ancestry," "natural selection," "mutation," "sudden appearance," the origin of the "complexity of the cell," and the formation of "long complex molecules having information such as the DNA molecule for self-replicating life."

Minnesota: "The student will be able to explain how scientific and technological innovations as well as new evidence can challenge portions of or entire accepted theories and models including... [the] theory of evolution...."[3]

New Mexico: Students will "critically analyze the data and observations supporting the conclusion that the species living on Earth today are related by descent from the ancestral one-celled organisms."[4]

Pennsylvania: "Critically evaluate the status of existing theories (e.g., germ theory of disease, wave theory of light, classification of subatomic particles, theory of evolution, epidemiology of aids)."[5]

Missouri: "Identify and analyze current theories that are being questioned, and compare them to new theories that have emerged to challenge older ones (e.g., Theory of Evolution…)."[6]

Alabama: "[E]volution by natural selection is a controversial theory. ... Instructional material associated with controversy should be approached with an open mind, studied carefully, and critically considered."[7]

South Carolina: "Summarize ways that scientists use data from a variety of sources to investigate and critically analyze aspects of evolutionary theory."[8]

Mississippi: "No local school board, school superintendent or school principal shall prohibit a public school classroom teacher from discussing and answering questions from individual students on the origin of life."[9]

Grantsburg, Wisconsin: "Students shall be able to explain the scientific strengths and weaknesses of evolutionary theory. This policy does not call for the teaching of Creationism or Intelligent Design."

Ouachita Parish, Louisiana: "[T]he teaching of some scientific subjects, such as biological evolution, the chemical origins of life, global warming, and human cloning, can cause controversy … [T]eachers shall be permitted to help students understand, analyze, critique, and review in an objective manner the scientific strengths and weaknesses of existing scientific theories pertinent to the course being taught."[10]

Louisiana Science Education Act: Louisiana schools shall "create and foster an environment...that promotes critical thinking skills, logical analysis, and open and objective discussion of scientific theories being studied including, but not limited to, evolution, the origins of life, global warming, and human cloning."[11]

4. **The United States Supreme Court has sanctioned such a policy:** "We do not imply that a legislature could never require that scientific critiques of prevailing scientific theories be taught."[12]
5. **Charles Darwin himself would have supported such a policy:** "A fair result can be obtained only by fully stating and balancing the facts and arguments on both sides of each question."

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[1] Conference report to No Child Left Behind Act; House Committee of Conference, *Report to Accompany H.R. 1*, 107th Cong. 1st sess., 78 (2001) H. Rept. 334, 78 (emphasis added). This language was originally supported by a 91-8 vote by the U.S. Senate.
[2] Letter from Gene Hickock, Acting Deputy Secretary, U.S. Dept. of Education, March 8, 2004. The "Senate Resolution" is the resolution which formed the basis for the Congressional statement cited above in the first citation.
[3] Minnesota Academic Standards, History and Nature of Science, Grades 9-12, *available at* tis.mpls.k12.mn.us/Science.html
[4] New Mexico Science Content Standards, Benchmarks and Performance Standards, Standard II (Life Science) (Biological Evolution) (9), *available at* http://sde.state.nm.us/MathScience/standards/science_standards.pdf
[5] Pennsylvania, Academic Standards for Science and Technology, Standard 3.2.12., *available at* http://www.pacode.com/secure/data/022/chapter4/chap4toc.html
[6] Missouri Science Standards, at http://www.dese.mo.gov/divimprove/curriculum/GLE/SciGLE_FINAL-4.2005.pdf
[7] Alabama State Board of Education, Resolution (Nov. 8, 2001), *available at* http://www.alsde.edu/html/boe_resolutions2.asp?id=309 Note: this policy is stated on a textbook emplaced into biology textbooks.
[8] South Carolina Biology Science Standards, indicator B-5.6 available at: http://ed.sc.gov/agency/offices/cso/standards/science/documents/ScienceStandardsNov182005_001.doc
[9] http://billstatus.ls.state.ms.us/documents/2006/pdf/HB/0200-0299/HB0214SG.pdf
[10] http://www.opsb.net/downloads/forms/Ouachita_Parish_Science_Curriculum_Policy.pdf
[11] See Louisiana Science Education Act 473, at http://www.legis.state.la.us/billdata/streamdocument.asp?did=503483
[12] *Edwards v. Aguillard*, 482 U.S. 578, 593 (1987).