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Physics Literacy for All Students

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Physics teachers must broaden their focus from physics for scientists to physics for all. The reason, as the American Association for the Advancement of Science puts it, is: “Without a scientifically literate population, the outlook for a better world is not promising.” Physics for all (including the first course for scientists) should be conceptual, not technical. It should describe the universe as we understand it today, including special and general relativity, quantum physics, modern cosmology, the standard model, and quantum fields. Many science writers have shown this is possible. It should include physics-related social topics such as global warming and nuclear weapons, because citizens need to vote on these issues. Above all, it should emphasize the scientific process and the difference between science and nonsense. Science is based not on beliefs but rather on evidence and reason. We should constantly ask “How do we know?” and “What is the evidence?”