

January 25, 2013

Dear Members of the House Education Committee,

We the undersigned multi-discipline members of the Carroll College Faculty & Staff oppose House Bill 183 for several reasons. Now more than ever, when the citizens of our country and our world are facing the perils of infectious disease, malnutrition and hunger, cancer and other diseases, the necessity of providing our children a strong science education cannot be overemphasized. Currently, scientific literacy in this country is hovering around 30%, and our national efforts to compete on a global scale and produce productive, educated members of society mandate that we do not undermine science education by allowing non-scientific "alternative viewpoints" to be introduced into science curricula.

First, although the "whereas" statements are not codified, they do indicate legislative intent and should at least describe scientific concepts accurately, especially since part of HB183 is to emphasize critical thinking and scientific understanding. In the "whereas" statements, several scientific concepts are linked together that should not be. Evolution explains how species change over time. Contributions to evolutionary understanding include the processes random mutation and natural selection (among others), and evidence includes fossil discoveries, DNA evidence, and patterns observed in living organisms (among other observations). Evolutionary theory does not explain the origins of life or the origin of the universe. These are separate scientific questions, pursued in scientific disciplines outside of biology (chemistry, geology, physics). Furthermore, the scientific community does not use "opinions" or "beliefs" to address questions related to the origins of life or the origins of the universe. The scientific community instead uses observable evidence and testable hypotheses to explain these phenomena. Questions indeed remain; we do not know for certain what the first living, replicating organism was, but we continue to ask the question and seek answers using the scientific method.

We oppose House Bill 183 because in the scientific community, scientific theories are not controversial. In fact, quite the opposite is true. In science, a theory is a mature, coherent body of interconnected statements, based on reasoning and evidence, of what are known to be the general laws, principles, and causes that explain some known or observed natural phenomena. It should be clear then that scientific theories, including evolutionary theory, are not controversial in the scientific community. Evolutionary theory explains how organisms on Earth have changed over time, having descended, with modification, from ancestors through the processes of genetic mutation combined with natural selection and genetic drift. It is the guiding, theoretical framework for modern biomedical and life sciences and should not be treated differently from other mainstream sciences. Of course, there are unresolved questions and open issues within the field of evolution; this is typical of all other scientific fields.

We oppose House Bill 183 because of the original legislative intent as documented by the original bill draft request by Legislator Clayton Fiscus. The Bill Drafting Request dated 11/5 [2012] requests a bill that would: "Require schools to teach intelligent design along with evolution". This is clearly unconstitutional as most recently decided in the 2005 Kitzmiller vs. the Dover Area School District case in which it was concluded that intelligent design is a religious view, simply a relabeling of creationism, and is not a scientific theory. Therefore, it is clear that the original intent of this bill was to bring creationism into the public school science curriculum. We should continue to ensure that the science classroom is not the venue to discuss the existence or non-existence of a designer or higher power. Furthermore, to allow discussion about the existence of a designer as an example of scientific theory does a disservice to science by proposing a hypothesis that cannot be tested using the scientific method. It also diminishes religion by subjecting religious faith in the work of God to scientific proof.

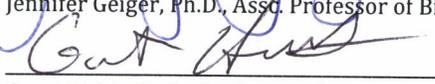
We also oppose HB183 because this bill does not actually encourage critical thinking. Critical thinking should already be taking place in the science classroom. Part of understanding scientific theories is to evaluate and weigh the evidence upon which they are based. Teaching critical thinking does not mean presenting irrelevant and ill-founded "alternatives" to basic knowledge. Certainly it would be appropriate to discuss genuine disagreements within the scientific community; examples may include discussions about what the significance of a particular fossil may be, or the rate at which evolutionary change occurs or has occurred in the past. Furthermore, science teachers are not claiming to present a definitive proclamation of truth for all time. They are teaching a field of study, with rules and standards and conventions. You cannot teach a child grammar while pointing out places where good writers can break grammatical rules. You cannot teach a teenager the basics of history while giving them critical theory that undermines the very practice of historiography. And you cannot teach high school students the basics of scientific theory while introducing philosophical and religious arguments designed to undermine those theories. The result will not be critical thinkers. The result will be young people who have not learned the basic theories that they can build upon to develop critical thinking as they go through life.

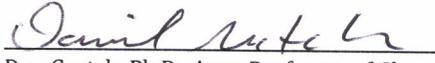
We oppose HB183 because "some teachers may be unsure of the expectations concerning how they should present information on these subjects" is not an acceptable reason to pass laws to allow non-scientific "alternative viewpoints" to be presented and discussed in the science classroom. Instead, we should ensure our science teachers have a thorough understanding of current scientific theories and know the difference between what is and is not science.

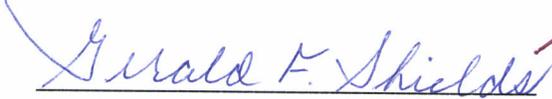
For the sake of preserving quality science education in Montana's public schools, we respectfully ask the members of this committee to vote against HB 183. The views expressed in this statement are ours alone and do not necessarily represent the views of Carroll College.

Sincerely,


Jennifer Geiger, Ph.D., Asst. Professor of Biology & Chair of the Dept. of Natural Sciences

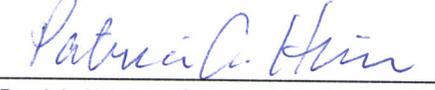

Grant Hokit, Ph.D., Professor of Biology

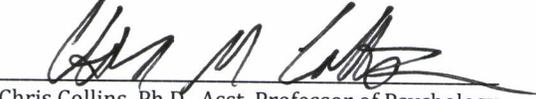

Dan Gretch, Ph.D., Asst. Professor of Chemistry & Biology

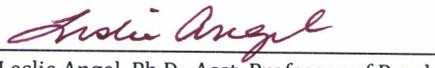

Gerald Shields, Ph.D., Professor of Biology


Colin Thomas, Ph.D., Asst. Professor of Chemistry


Kyle Strode, Ph.D., Asst. Professor of Chemistry

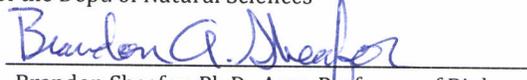

Patricia Heister, Ph.D., Asst. Professor of Earth Science


Chris Collins, Ph.D., Asst. Professor of Psychology

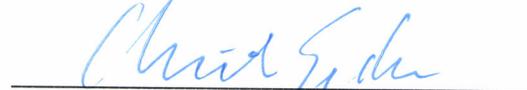

Leslie Angel, Ph.D., Asst. Professor of Psychology


Christopher Fuller, Ph.D., Asst. Professor of Biblical Studies

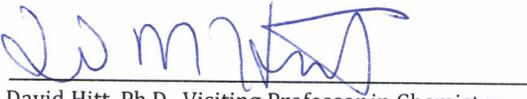

Scott Haile, M.Div., Adjunct Professor of Theology

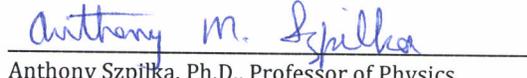

Brandon Sheafor, Ph.D., Asst. Professor of Biology


Stefanie Otto-Hitt, Ph.D., Asst. Professor of Biology

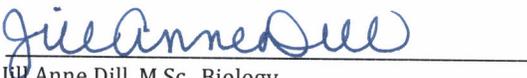

Christine Eckel, Ph.D., Asst. Professor of Biology


Caroline Pharr, Ph.D., Asst. Professor of Chemistry

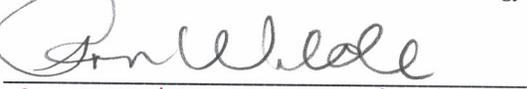

David Hitt, Ph.D., Visiting Professor in Chemistry


Anthony Szpilka, Ph.D., Professor of Physics


Anne Perkins, Ph.D., Professor of Psychology


Anne Dill, M.Sc., Biology


Beth Haile, Ph.D., Asst. Professor of Theology


Ron Wilde, Ph.D., Prof. of Chemistry

Jennifer L. Lowell

Jennifer L. Lowell, Ph.D. Prof. of Health Sciences
