

CANCELED SCIENCE

WHAT SOME ATHEISTS
DON'T WANT YOU TO SEE

ERIC HEDIN

Description

Eric Hedin was enjoying a productive career as a physics professor at Ball State University when the letter from a militant atheist arrived and all hell broke loose. The conflict spilled first onto the pages of the local newspaper, and then into the national news. The atheist attack included threats from the Freedom from Religion Foundation, which targeted Hedin after learning his Boundaries of Science course exposed students to an evidence-based case for design and purpose in cosmology, physics, and biochemistry. *Canceled Science* tells the dramatic story of the atheist campaign to cancel Hedin's course, reveals the evidence the atheists tried to bury, and explores discoveries that have revolutionized our understanding of the nature and origin of matter, space, and even time itself.

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Library Cataloging Data

Canceled Science: What Some Atheists Don't Want You to See by Eric Hedin.

252 pages, 6 x 9 x 0.5 & 0.75 lb, 229 x 152 x 13 mm & 0.34 kg

Library of Congress Control Number: 2021931751

ISBN-978-1-63712-000-2 (paperback), 978-1-63712-001-9 (EPUB), 978-1-63712-002-6 (Kindle)

BISAC: SCI015000 SCIENCE / Space Science / Cosmology

BISAC: SCI075000 SCIENCE / Philosophy & Social Aspects

BISAC: SCI027000 SCIENCE / Life Sciences / Evolution

BISAC: SCI005000 SCIENCE / Physics / Astrophysics

BISAC: SCI098010 SCIENCE / Space Science / Planetary

Publisher Information

Discovery Institute Press, 208 Columbia Street, Seattle, WA 98104

Internet: <http://www.discoveryinstitutepress.com/>

Published in the United States of America on acid-free paper.

First Edition, First Printing, March 2021.

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1. THE BOUNDARIES OF SCIENCE

“The science of cosmology may be suggesting that science itself provides reasons for doubting scientific naturalism.”

RODNEY D. HOLDER¹

I DIDN'T GO INTO PHYSICS AND ASTRONOMY TO END UP IN THE MIDDLE of a national media controversy. Seeking the limelight was never my passion. My career interest began with reflection and a love of nature.

I was eighteen years old, and having awakened in the middle of the night, I stepped out of the stone and sun-bleached timber shelter at Camp Muir on the east slope of Mount Rainier. I was at 10,000 feet elevation, and the cold air and a silent breeze from across the glacier quickly replaced my drowsiness with keen excitement. And then I looked up.

The night sky was awash in a wake of brilliant stars, so many that they seemed to blend together into a jeweled blanket of light. The Milky Way streaked across the dome of the heavens like the exultant stroke of a masterful artist. Uncountable in their profusion, the myriad stars in this heavenly panorama made me feel at once awestruck and exhilarated, as if in that moment I had been invited to join in the cast of an ancient celestial drama.

Experiences like this one on our family's climb up Mount Rainier fostered in me a deep love and appreciation of nature. I was blessed to grow up in the Pacific Northwest, where unspoiled nature, both ocean and mountains, lay close to home. My father was also an avid outdoorsman, and even when I was very young my life was filled with camping and hiking in the beautiful outdoors of Washington State.

I also enjoyed reading science fiction stories. Their far-flung settings and plots engaged a longing in me. Even in junior high, however, I began

to think that I needed to read some real science books so that my understanding of the natural world would become more grounded in reality. An astronomy book on quasars fascinated me, as did another that explained Einstein's theory of special relativity.

My decision to major in physics in college hardly needed any deliberation. I really didn't know then what to do with such a degree, and in the science building at Seattle Pacific University one day I was startled to hear my physics professor nonchalantly say, "When you go to graduate school..." I had never considered such a thing, but given how much I enjoyed physics, it began to make sense.

I went on to earn a PhD from the University of Washington for my study and research on experimental plasma physics. Having completed about twenty-four years of schooling by that point, I reasoned that the last thing I wanted to do was work in academia. My dream job came through when I received an invitation to serve as a guest researcher at the Royal Institute of Technology in Stockholm, Sweden.

Both of my grandfathers had immigrated to the States from Sweden in the early nineteen hundreds, and so an opportunity to work and live in "the old country," as my grandmother called it, felt almost too good to be true. I got a chance to work alongside some terrific people on experimental fusion energy research, became fluent in Swedish, met more relatives there than I ever knew back home, and made great friends within an international community.

It was a good experience, but along the way I began to sense that my life could have a greater and more lasting impact through teaching than in pure research. That desire eventually led to me to a tenure-track faculty position in physics and astronomy at Ball State, a public university in Indiana. The institution is named after a manufacturer of glass canning jars—a benign backstory for an utterly benign university campus.

Or so I imagined.

Science and the Big Questions

I HADN'T been at Ball State long before I discovered that my astronomy students were fascinated by modern discoveries in physics related to the origin and fine tuning of the universe, and by questions raised by those discoveries, questions concerning purpose and the meaning of life. So I approached the chair of the Department of Physics and Astronomy, a seasoned physicist with decades of teaching and research experience, and asked him about the possibility of developing a course that explored these questions alongside astronomy and cosmology.

He suggested the Honors College would be the appropriate place to introduce a course at the interface of science and human concern. So, I drafted a course proposal with a course description that read as follows: "In this course, we will examine the nature of the physical and the living world with the goal of increasing our appreciation of the scope, wonder, and complexity of physical reality. We will also investigate physical reality and the boundaries of science for any hidden wisdom within this reality which may illuminate the central questions of the purpose of our existence and the meaning of life."

I titled it "The Boundaries of Science."

The next step was to meet with the dean of the Honors College. We were ushered into a quiet conference room with a long, polished wooden table, the top of which must have been four inches thick. The dean came in and sat on the opposite side. I don't remember much of the conversation, which mostly took place between the dean and my department chair. The dean probably said something about needing to respect students' widely differing views on faith and religion, and I assured him that I'd do that and let the evidence of science speak for itself.

One of the goals of the Ball State Honors College for their Symposium in the Physical Sciences courses was to promote critical thinking about the societal implications of science and scientific discoveries. And since that was what I had in mind, the course was a good fit. The dean quickly greenlighted it, and I was off and running.

The class rooted its inquiry and content in science, with the primary subject matter involving an overview of classical and modern physics and an introduction to cosmology, stellar life cycles, and planetary formation. This allowed the students to appreciate how the laws of nature have acted to produce the backdrop, stage, and props necessary for our own existence.

Pushing religion was never on the agenda, but neither did I quash discussion of topics based on scientific evidence with religious implications. My goal was to give a presentation of well-accepted and mainstream scientific evidence and theories, and let the students explore the larger implications.

I would write a question on the board and a lively discussion would ensue. The students came from a variety of backgrounds with respect to their levels of scientific literacy and views on religion. Most of the time the class taught itself as the students offered insights and challenged each other with follow-up questions.

These discussions confirmed my earlier impressions that many of the deepest concerns of my students at Ball State related to questions about the meaning of life in general, and their own significance in particular.

Some scientists insist that the twentieth-century discovery of how vast the universe is demonstrates that Earth and humanity are insignificant compared to the cosmos. This outlook often makes it into high school and university science courses, giving students the impression that science drains the meaning and significance from human experience and affirms a philosophical outlook known as nihilism.

Some public scientists and science professors enthusiastically promote this interpretation of the scientific evidence. But not every scientist is especially thrilled by this. "Science, and particularly the narrowly focused and reductionist science of the present day, is perceived as denying the world meaning," writes distinguished cell biologist Franklin Harold, "and without meaning humans cannot live."²

Is the nihilistic perspective unhealthy, as Harold suggests? A good question. But there is a more fundamental question: Is nihilism actually supported by the scientific evidence? As we will see, there are world-class scientists on both sides of this issue. Where did my Boundaries course land? Rather than pushing nihilism, I encouraged my students to evaluate the broad range of scientific evidence related to our significance and come to their own conclusions.

In the semesters that followed, the course was reviewed positively by both the dean and the associate dean of the Honors College, my student evaluations were consistently good, and demand for the course remained brisk.

After six years of teaching it, there was another happy development. Ball State decided to hire a brilliant young scientist to join the faculty, an astrobiologist I had a lot of respect for and who had co-authored a book that touched on some of the very issues raised in my Boundaries course. It looked like smooth sailing ahead for me at Ball State.

My rude awakening came in the spring of 2013.

The Letter

ASTRONOMER AND astrobiologist Guillermo Gonzalez had just been hired to join our department. At the meeting to announce this, the chair of the faculty search committee said Dr. Gonzalez had previously been a tenure-track faculty member at Iowa State University. He also added that Gonzalez had been railroaded out by a group of aggressive atheists who objected to a book he'd co-authored, titled *The Privileged Planet*. I was familiar with the book, in which astronomical, cosmological, and geological evidence was presented that pointed towards the purposive design of Earth and its place in the cosmos.

I left the meeting and headed back to my office feeling encouraged. Gonzalez had an impressive body of academic publications for his age; his work on galactic habitable zones had even been featured on the cover of *Scientific American*.³ I was excited to have him on board. Back in my

office I sat down at my paper-cluttered desk and opened my email. The first thing I saw was a forwarded note from the department chair.

The email contained disturbing news about my Boundaries of Science course. Jerry Coyne, a nationally known atheist, blogger, and evolutionary biologist, had acquired a copy of my class syllabus and asked my chair to verify if it was being used in a science class at Ball State. Dr. Coyne opined that the course amounted to teaching a “religiously infused science course” at a public university and violated the separation of church and state.⁴ On his view, the course was simply “religion served under the guise of science.”

I couldn’t believe that anyone could accuse me of violating the First Amendment with my teaching, and I was later pleased to learn that even some of Coyne’s fellow atheists found his tactics repugnant. As commentator David Klinghoffer noted:

Even Coyne’s fellow atheist bloggers PZ Myers and Laurence Moran are troubled by the implication that it’s appropriate to try to strike with the weapon of the law at a professor at another university whose views you don’t like.

Moran, a biochemist at the University of Toronto, has been surprisingly good on this. As he notes, there’s something really offensively weasel-like about going after Eric Hedin by complaining to his employer. You want to criticize Dr. Hedin’s ideas on your blog or in some other appropriate medium? Sure, definitely. Go for it. But try to get him punished or reined in by his supervisors? That’s contemptible. Writes Moran, “I ban people from *Sandwalk* [his blog] if I ever hear of them trying to intimidate someone by complaining to their employer. That’s unacceptable behavior in my book.”⁵

I was none too happy to be under attack, of course. And yet, as concerned as I was, I really had no idea what I was in for in the months to come. That day in April 2013 marked the beginning of an escalating dispute, one that would spark a national media firestorm.

At the heart of the controversy was the thesis that some things we find in the universe require more than a purely material cause, a view

held by many philosophers and scientists down through the ages and into the present. In my course I exposed my students to some of these thinkers, along with some on the opposite side of the question. But for Coyne, that was too much. Naturalism holds that nature is all there is, and that the order of the universe, including the order of the living world, is merely the result of the laws of nature, or, as some put it, of “chance and necessity.” Coyne went a step further. He insisted that this view cannot even be questioned in a public university science course—or to be more precise, cannot be questioned even in a cross-disciplinary course on scientific discoveries and their larger cultural implications.

But the question as to whether philosophical naturalism is true is too important to shove into a corner. This and other closely related questions are precisely those anyone striving to live an examined life will ask, and I encouraged my Boundaries students to ask those questions in the light of modern discoveries in astronomy and physics.

We will explore such questions in these pages. They include: Are matter and the laws of matter all there is? Do the things we have discovered about physical reality undermine or support a conclusion of human significance? When we experience a sense of wonder in contemplating the vastness of our universe, what if anything does that feeling signify? If we feel small and lost as we contemplate the vast reaches of the universe, what if anything does that tell us? Is either emotional response informative? How do we fit into the overall scheme of things? Is life meaningful, or meaningless? Can science shed light on what we might most earnestly desire to know? What are the implications of the fact that our universe is not eternal, but had a beginning? Why is there something rather than nothing? What about intelligent design (ID), the idea that certain features of the natural world are best explained by reference to an intelligent cause rather than to any purely mindless material cause? And going beyond that hypothesis, can science provide support not just for intelligent design but for the existence of God?

Those were some of the questions that my interdisciplinary course posed, and Coyne made clear that he didn’t like it one bit. After his ini-

tial accusatory email, he took his case against me onto his blog, where his overripe rhetoric was lapped up by the media like yellowjackets gorging on a rotten apple. Soon the Freedom from Religion Foundation, a group of militant atheists based in another state, launched a media attack against me, insisting that my presenting scientific evidence in the Boundaries course in support of human significance was tantamount to establishing a state-sponsored religion.

From here rumors spread quickly through the internet, and I became the target of numerous email attacks from other zealous atheists.

One said, “You should be ashamed of yourself, pushing that nonsense onto impressionable young minds.” My razor-sharp Honors College students would have taken issue with being described as “impressionable young minds.” Also, I am soft-spoken and non-domineering by nature, and if any pushing of religious viewpoints occurred in class, it didn’t come from me. I feel that most people would not like to have anything foisted on them, including atheism.

The attack emails were only the beginning. Before long, the media got wind of the story, and more than a few news reporters played along with the atheist hit pieces in their attempts to sensationalize the story. If some atheist who didn’t know me and who had no firsthand knowledge about my course said on a personal blog that I was “proselytizing” in my class, newspapers would report that I had been accused of pushing religion down my students’ throats.

Throughout the media storm, I was repeatedly amazed at how misinformed the news reports were. One such instance came from the *Star Press*, the local newspaper there in Muncie, Indiana. As Evolution News noted, the *Star Press* article made it sound as if I had required students to read numerous pro-ID articles as part of a mandatory reading list. In fact, the “reading list” was actually just a bibliography of some resources relevant to the class, and was not part of any assigned reading. Muffing that distinction was just the tip of the misinformation iceberg. Evolution News explained at length:

By transforming Hedin's "Partial Bibliography" into an assigned "reading list," the *Star Press* article misleads readers about the list's importance and misrepresents the content of Hedin's course. But the unfairness of the article goes deeper than that: If the reporter was going to discuss Hedin's "Partial Bibliography" fairly, he should have noted that it includes writings that attack both intelligent design and creationism, such as Francis Collins's *The Language of God*, which devotes an entire chapter to bashing intelligent design in biology. The bibliography also includes writings by scholars who hold a variety of religious positions. Physicist Roger Penrose is an atheist. The late philosopher Antony Flew was an atheist-turned-deist. Physicist Paul Davies is perhaps best described as a pantheist. The authors represented by the "Partial Bibliography" are much more diverse than the critics of Hedin have claimed.

The *Star Press* article does eventually discuss one of the two books that are genuinely assigned to be read in Hedin's course: *God's Undertaker* by John Lennox. However, the second book required by Hedin isn't even identified, let alone discussed. That second book is a straight science text, *The Expanding Universe: A Beginner's Guide to the Big Bang and Beyond*, by Mark A. Garlick. Of course, discussing Garlick's book wouldn't fit the caricature being offered by critics of Hedin's course either.

The article's discussion of the book by John Lennox, meanwhile, is preceded by a quote from the Freedom from Religion Foundation complaining about the supposed lack of science credentials of some of the authors assigned by Hedin. Lennox's book is then described dismissively as a work of "apologetics." Readers are left to assume that Lennox must be one of the alleged authors without science credentials because Lennox's background is not described in any way.

In reality, Lennox is a distinguished Professor of Mathematics at Oxford University and a Fellow in Mathematics and the Philosophy of Science at Oxford's Green Templeton College. Lennox is one of the major players in debates over science and religion, and he is certainly qualified to write a book about the relationship between science and faith. His book *God's Undertaker* has been widely praised by a number of leading scien-

tists, theologians, and other intellectuals, including agnostic Alan Emery, Professor of Human Genetics at the University of Edinburgh, and Oxford University Professor of Human Metabolism Keith Frayn.⁶

Other hit pieces on the course were less subtle. The Huffington Post printed the following statement from a well-known atheist physicist: “Hedin promotes notions that, for the most part, have as much honest scientific support as a flat Earth.”⁷ What notions does this atheist have in mind? Since the course is rooted in scientific findings widely acknowledged in the mainstream astronomy/physics community, I can only guess. Sometimes people react with alarm to factual science that they haven’t been accustomed to hearing. For example, a large body of scientific research shows that many aspects of the universe and planet Earth are finely tuned to allow life to exist. This can be startling to the uninitiated—which, I suspect, is why a few students (and only a very few, over many years) made comments suggesting that I had a religious bias in highlighting this body of evidence.

Fine tuning, keep in mind, is a point that scientists are broadly in agreement about. The conflict arises in working out the larger implications of this finding. Leading scientists are divided. Some see fine tuning as pointing to deism or theism, to a cosmic intelligence behind the universe. Others suggest ways to avoid this conclusion. There’s a robust conversation about it among scientists at the highest levels of the profession, with even some Nobel laureates putting their money on God as the best explanation.

Notice that there is no such robust scientific controversy over whether the Earth is round or flat. The jury, as we all know, is well and truly in on that one. Accusing me of presenting evidence on par with flat-Earth advocacy is just so much ham-fisted caricature. The attack is all bluff and bluster. “Nothing to see here. Keep moving. No possible evidence for God in physics and astronomy. Carry on as you were.”

In fact there is something to see here—something astonishing and very much worth slowing down to consider. If anything ever deserved a tapping of the brakes and a bit of curious rubbernecking, it’s the aston-

ishing discovery of fine tuning at both the cosmic and planetary level. We did so in my Boundaries course, and we'll do so in this book.

Establishing Atheism

SO, WHAT was the immediate reaction to the attacks from Coyne and the atheist group? My department chair, who had known me for ten years, responded to the attackers. He explained that the Boundaries course was taught in the Ball State Honors College, where it is both normal and expected for courses to explore issues related to the intersection of science and society. And he confirmed that he, the dean, and the associate dean of the Honors College were all aware of the course's content. "Such a course is quite appropriate in an honors college," he concluded, "where students are expected to challenge their ideas and beliefs."

For my atheist antagonists, this wasn't good enough. The Freedom from Religion Foundation (FFRF), an atheist organization that works to remove the freedom of religion from American culture, directed a complaint against me to the president of Ball State, threatening legal action against the university unless my Boundaries class was canceled.

In their letter, the group stated that my class violated the First Amendment's religious freedom clause. In fact, the First Amendment should protect what was going on in my Boundaries course. The religion clause of the First Amendment was intended to prevent the federal government from imposing any particular religion upon its citizens. The amendment reads, "Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; or abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble, and to petition the Government for a redress of grievances." The amendment is important because it prevents government oppression based on belief, speech, written expression, and assembly. America was founded on freedom of religion, implying a tolerance of varying viewpoints of faith within the public square.

The foundational concept of academic freedom interprets these First Amendment rights within the university setting. The Ball State

University Faculty and Professional Personnel Handbook states, “Academic freedom and freedom of expression include but are not limited to the expression of ideas, philosophies, or religious beliefs, however controversial, in classroom or other academic settings.”⁸

The Boundaries of Science course did not violate any aspect of the First Amendment or academic freedom. On the contrary, several Ball State students saw the attack on the course as a violation of academic freedom. In an increasingly multi-cultural society such as ours, total freedom *from* religion is untenable and suggests an antagonism towards the people and cultures we strive to understand and interact with. Among those who expressed the most distress at the Freedom from Religion Foundation’s attack on my course were several international students, including those with Muslim, Buddhist, and Hindu backgrounds. Some of them protested that they had been taught that the United States was a country with freedom of religion and freedom of speech. They understood that public censorship of the course contradicted these First Amendment rights.

Many other people felt outrage at the effort to cancel the course. A national academic freedom petition that the Discovery Institute’s Center for Science and Culture organized on my behalf quickly gathered over 7,000 signatures (including more than 1,200 from fellow Indiana residents), which were delivered to the president of Ball State University. The petition statement read, “We, the undersigned, urge the administration of Ball State University to support Prof. Eric Hedin’s academic freedom to discuss intelligent design and related issues in the classroom. We call on you to reject demands by the Freedom from Religion Foundation to censor or punish Dr. Hedin for exercising his right to free speech.”

Our university’s student body president at the time, Malachi W. Randolph, sounded a similar note:

I could say that I know many students who took Professor Hedin’s classes and loved them. I could say that every student comment I’ve heard has been in support for Professor Hedin. I could even say that we’re old enough to decide what we want to believe when controversial topics are

brought up fairly in the classroom. And while all these things are true, they don't address the issue.

The university setting has historically been fertile ground for ideas. Many major American research universities were actually religiously based. But it was their open minds and embrace (instead of fear) for outside perspectives that have allowed effective research to occur... and minds to change. (Don't make me use the "flat earth" example!)

Our university administration understands that, in order for education to be effective, there must be tolerance for ideas outside our own. That's why our Honors College offers unique classes on such topics as the Holocaust, Islam, and (ironically) Controversial Issues in Education.

Thank goodness our school isn't as narrow-minded as Dr. Jerry Coyne!⁹

Alas, this may have been the highwater mark for Ball State's allegiance to academic freedom. The media attention stirred up by the ill-informed accusations from Coyne and the Freedom from Religion Foundation made it difficult to carry on with business as usual. A public university doesn't want to be perceived as going soft on science or of violating academic freedom. When the attacks came, I naïvely assumed that the university administration would quickly and vigorously stand up for me much as my department chair had, since the course had been reviewed and approved by the Honors College and was subsequently approved by a separate faculty committee as a university core curriculum course. Instead, the university issued the following response to the FFRF: "The university received a complaint from a third party late yesterday afternoon about content in a specific course offered at Ball State. We take academic rigor and academic integrity very seriously. Having just received these concerns, it is impossible to comment on them at this point. We will explore in depth the issues and concerns raised and take the appropriate actions through our established processes and procedures."

Subsequently the provost mandated that a special faculty review committee be established to determine the appropriateness of the course

content, pedagogy, and academic integrity, and my credentials to teach such a course.

The *Chronicle of Higher Education* covered the story:

Andrew Seidel, a lawyer for the Freedom From Religion Foundation, an advocacy group that sent the university a letter of complaint over Mr. Hedin's teachings, said on Wednesday that his organization was "very, very pleased" with President Gora's statement.

Although Ball State has not released the results of the review of Mr. Hedin's class and it remains unclear exactly how the class will be changed, the university appeared to be taking the foundation's concerns "very seriously," Mr. Seidel said.

But John G. West, vice president of the Discovery Institute... said in an e-mail that Ms. Gora's position is "anti-academic freedom and Orwellian in the extreme."¹⁰

Indeed. To single out a course for such scrutiny, based on a complaint by a notoriously militant atheist group (the FFRF), raises serious questions of academic justice. Also, the four professors appointed to the review committee included two who were openly against the intelligent design movement, and one of these, along with a third member of the committee, were key speakers at a Darwin Day event at Ball State, sponsored by an atheist group. If a courtroom assembled a jury with such obvious biases, the public would be justifiably outraged.

In a June 25, 2013, article, West highlighted this problem, but also another:

According to the syllabus for Hedin's course, the vast majority of the course focuses on issues in physics, cosmology, and astronomy—not evolutionary biology," he wrote. "Yet fully half of the members of his review panel seem to have been chosen for their interest or expertise in biological evolution. At the same time, even though a central theme of Hedin's course (again, according to its syllabus) is the relationship between faith and science, not one of the reviewers appears to have expertise in the area of faith and science. Why?"¹¹

Having reviewed my course materials and after meeting with me for just one hour, the committee politely concluded that I practiced sound pedagogical methods and that I was qualified to teach the physics and astronomy content of the course. Beyond that, their written review contained so many misrepresentations of the course, its curriculum, and texts that, at the provost's invitation, I provided a fifteen-page response. The university, however, ignored my clarifications about the course content and how it was actually taught.

One might imagine that this was simply how the administration routinely handled such complaints. Perhaps they were inveterate conflict-avoiders and easily cowed by pressure from outside groups. It wouldn't appear so. *Evolution News* made the point forcefully by comparing my case to a similar one from nine years before at Ball State. The relevant excerpt is worth quoting at length:

In both cases, there was a prominent public activist lurking behind the complaint. In 2004, the activist was conservative firebrand David Horowitz, founder of Students for Academic Freedom. In 2013, the activist is atheist Darwinian biologist Jerry Coyne....

The contrast with how BSU handled the complaint against Professor Wolfe couldn't be more stark. Instead of appointing a review panel or launching an extensive investigation in 2004, BSU officials quickly circled the wagons around Professor Wolfe and defended him to the media, the state legislature, and the public at large. The minimal investigation of the complaint against Wolfe seems to have consisted of the provost talking to both Wolfe's supervisor and Professor Wolfe and reading some letters. The provost apparently did not even bother to interview the student who had come forward to allege discriminatory treatment in class. As a result, the Wolfe complaint was quickly disposed of....

Compare that approach to the Hedin case today. By any objective measure, the complaint submitted by the Freedom from Religion Foundation against Hedin was far less serious, and far less credible, than the allegations lodged against Professor Wolfe. In saying this, I am not taking sides about who was right in the Wolfe controversy. Professor Wolfe vig-

orously challenged the allegations made against him at the time, and David Horowitz has continued to defend his criticisms of Wolfe. My point is merely that the complaint originally leveled against Wolfe put forward much more serious allegations of misconduct than the complaint against Hedin. The complaint against Wolfe identified a student by name who made specific charges of discriminatory treatment and the intimidation of students. By contrast, the complaint against Hedin did not identify any student who was willing to complain on the record against Hedin.

Instead, it merely highlighted a few anonymous (and ambiguous) comments from RateMyProfessor.com, a website that doesn't even verify whether those posting comments are in fact college students, let alone whether they ever took courses from the professor in question.

More importantly, and unlike in the Wolfe case, the complaint against Hedin did not allege that Hedin had actually intimidated students or threatened to grade them down for holding different beliefs than himself.

Despite the fact that the allegations against Hedin were far less weighty than those against Wolfe, BSU's current provost Terry King did not dispose of FFRF's complaint quickly. Instead, he created a review panel that appears to be stacked with faculty with conflicts of interest who are likely to be hostile to Professor Hedin's point of view. In the meantime, Professor Hedin has been left hanging without any clear support from the top officials at his university. It is now more than forty days (and counting) since FFRF's complaint—a far cry from the ten days it took for the university to resolve the more serious complaint against Professor Wolfe.¹²

Discovery Institute also advocated on my behalf to state legislators, who sent a letter to BSU president Jo Ann Gora and the Ball State board of trustees in March of 2014 expressing concern about the policy she had instituted “restricting faculty speech on intelligent design.” The three senators and one representative wrote, “We are concerned about whether improper procedures were followed while investigating Professor Eric Hedin's course, and whether an ad hoc committee appointed to investigate him was filled with persons with conflicts of interest, who were predisposed to be hostile to his viewpoint.... We are also concerned

about the cancellation of Hedin's class and the policy you announced last summer restricting faculty speech on intelligent design."¹³

The letter resulted in top legislators meeting with university officials about my situation later that semester.

Some may complain that allowing students to learn about scientific evidence that might conflict with the paradigm of naturalism could incline them to believe in a divine creator. So, does teaching that scientific evidence equate with teaching religion in a science course? Is censorship the preferred option? Atheism has never been and is not now the established religion of our country. The First Amendment, after all, forbids the establishment of any religion, and it certainly wasn't intended to privilege the atheistic worldview over non-atheistic religious outlooks, as much as some atheists might wish that to be the case. Nor do scientific discussions of the potential limits of naturalism constitute an unfair treatment of atheism, for if atheism were true, an objective pursuit of the evidence from nature would support it. Only if atheism has something to hide can the objective pursuit of evidence threaten to undermine it.

Student Comments on The Boundaries of Science

SEVERAL FORMER students wrote letters to the editors of local newspapers or to the university administration in support of their experience in my class. At the time Discovery Institute's Joshua Youngkin reported, "Although the committee is apparently not required to examine witnesses to or take statements on the conduct of Dr. Hedin's course, some of Dr. Hedin's students have privately and voluntarily offered such statements to BSU's president, Jo Ann Gora. This we discovered through public documents requests to BSU."

One student wrote:

Students were encouraged to share any and all thoughts we had, especially if it was a different perspective than one already shared. Discussions included a wide variety of topics, such as the nature of time and reality, the definition of truth, whether there were categories of life, and the fine-tuning of universal parameters for life to exist. These conversations were

fascinating, engaging, and challenging in the best of ways. Never once did I personally hear any complaints from my fellow students; on the contrary, the mood was always positive—we enjoyed stretching our minds. Dr. Hedin was always respectful and kind.¹⁴

This student also voiced concern about some of the sensationalistic mischaracterizations in the media of me and of the course. “Simply on the words of people who did not actually attend Hedin’s class (and can therefore not make a reliable assessment of his methods), Hedin’s credibility will be trashed and he will continue to be portrayed as a professor who did nothing but decry evolutionary theory and criticize non-Christians (neither of which, of course, are true),” she wrote. “This is already happening—someone in the IndyStar.com article compared him to a Holocaust denier.”¹⁵

This student was one of many people who rallied to my cause. After the initial spate of hate emails from atheists sputtered out, I was greatly encouraged by a steady flow of supportive letters and emails from former students, friends, and people I’d never met. One former student wrote, “I just read in the news the controversy over your class. I just wanted to encourage you in the good that you have done thus far on campus. Your class has been my favorite class in my college career.” She added that it really helped her understand what science was about, and to think freely.

The last section I taught of the Boundaries of Science course was in the middle of the accusations and media attention. One of my students in that section described the course’s discussion-based format:

The only time the professor even delves into the students’ debates is to refute any arguments that are just blatantly incorrect, do not consider all of the possibilities, or seem derogatory and opinionated in nature, *much like the arguments posed by the people who are generating this tirade* against Professor Hedin. I’m an agnostic and I find absolutely nothing wrong with his teachings... as far as intelligent and thought-provoking discussions go, it is one of the most *innovative* classes I have had during my time at Ball State.¹⁶ [emphasis in original]

Not once did anyone from the university ever contact me to try to contradict the truth of what I taught. The university administration simply said that I couldn't continue teaching the course. But what they said I couldn't teach (religion) was not what I taught. In ignoring the many comments and letters from students writing in support of the course, and in heeding only the anti-theists who wanted to label my course religious propaganda, the administration built up a straw man which could then be torn down. This accomplished their purpose; the course was canceled, with the administration manufacturing an impropriety to serve as the basis of the censure: violation of "academic integrity."

As West commented later, "In the Orwellian world of Ball State's president, academic freedom apparently means only the 'freedom' to support the majority's view. This is exactly how the academic 'consensus' against the theory of intelligent design is maintained—by intimidation, fiat, and legal threats."¹⁷

To make the administration's position even more untenable and dubious than it already was, they soon defended another honors course in which the sole assigned textbook was an anthology of anti-religious essays titled *What Is Your Dangerous Idea?* The BSU administration's public relations arm claimed that some of the essays in the anthology were pro-religion. But this was not the case; only a small handful of the essay titles even appeared to support traditional religion, and in fact the essays themselves were militantly anti-religious.

The problem isn't that such a textbook was assigned at a public university. The problem is the flagrant inconsistency of the administration. Science writer Casey Luskin explained in a March 17, 2014, essay:

BSU spokesman Tony Proudfoot tries to defend the course on the grounds that the book includes religion-friendly chapters, and therefore isn't a polemic against religion. In fact, BSU has badly misrepresented the hard-to-miss anti-religious goals of the book, as well as the three supposedly religion-friendly chapters it cites.... of the three chapters BSU cites as being religion-friendly, one has nothing to do with religion and the other two are explicitly anti-religious.

... *What Is Your Dangerous Idea?* is framed, billed, and marketed as a book of ideas by leading new atheist-types. The intended readership seems to be intellectual atheists, as its cover advertises the fact that the introduction is by new atheist (and evolutionary psychologist) Steven Pinker, and the afterword is by leading new atheist Richard Dawkins.

Indeed, the man behind *What Is Your Dangerous Idea?*, who served as its editor, is John Brockman, has been called one of “the 25 most influential living atheists.” ...

Again, this book is the sole textbook for BSU’s “Dangerous Ideas” course according to the syllabus supplied to us by BSU through a public documents request. If it had been assigned along with readings from a different perspective, that would have been a different situation. Indeed, if BSU allowed other professors (like Eric Hedin) to present an alternative view about the compatibility of faith and science in their classes, then BSU could claim that this book is simply part of allowing a forum for various views, and that would be fine. But BSU canceled Professor Hedin’s course—and now it is defending a course that uses as its lone textbook an anti-religious polemic.

The authors in *What Is Your Dangerous Idea?* have every right to express their views, and likewise, individual faculty at public universities may, generally speaking, critique religion. But when a state university permits religion-bashing in the name of science while censoring other views, that government institution has strayed into constitutionally treacherous waters.¹⁸

If my Boundaries course had, for instance, presented only the statements and arguments of famous physicists and astronomers promoting the idea that fine tuning is evidence of a supreme designer, this would have been roughly the mirror opposite of the Dangerous Ideas course, and one might reasonably have expected the administration to either support both courses, or to disapprove of both courses. But in fact my course pointed students to scientists and arguments on both sides of the fine-tuning debate, whereas the Dangerous Ideas course had at its center a textbook that was unswervingly pro-atheist. And yet it was my course

that was canceled and the all-in-for-atheism course that was studiously defended.

Here, no doubt, some atheists will accuse me of “whining” about the administration’s decision. This is a common attack strategy against anyone speaking up about injustice. Call it whining. Call it speaking truth to power. Call it whatever you want, but ask yourself, why are the atheists so keen to only have their side of the story told? What evidence are they afraid of you hearing?

My Boundaries course had been taken away under pressure from atheists keen to shut down the sort of open-ended conversations I encouraged in the course, conversations that surfaced scientific evidence which does not easily fit into an atheistic paradigm. I mourned the loss of that course and moved on. But the drama for me wasn’t quite over. You see, I was a tenure-track professor, but I wasn’t yet tenured. Another battle lay on the horizon, one for my job at Ball State. How that one ended I’ll save for a later chapter. Now I want to begin the work of giving fresh life to some of the material from my canceled Boundaries course, through the pages of this book.

I say “some of the material” because a single book of this length cannot cover all the material included in my honors university course. To get the breadth of direct exposure that my Boundaries course provided, you’d have to read the material by the atheistic/naturalistic scientists that I assigned there, material that in these pages I only cite, summarize and, at times, briefly quote. I will strive to present their arguments accurately, to be sure, but the primary aim of this book is to present the evidence and arguments that the atheists who targeted me don’t want you to see.

Questions from the Edge

I ENCOURAGED the students in my Boundaries of Science course to ask some big questions. The course was canceled after some of the questions, evidence, and arguments covered in the course were deemed radioactive by the Ball State administration. This book won’t shy away from those

big questions. We'll ask those questions and, in looking for answers, we'll consider clues from the body of accepted scientific evidence.

The great ancient Greek philosopher Socrates said the unexamined life isn't worth living. In our frenetic, plugged-in society, living an unexamined life is as easy as breathing. When do we have the opportunity to stop and explore questions of significance to our lives? So often our conversations are limited to the breezy small talk of the moment, or to practicalities of the hour. But our lives mean more than checking off a to-do list, paying the bills, and feeding our various appetites.

If you've chosen to read this book, you've determined to pause at the intersection of science and some deep questions about our existence, refusing to be swept along by the push and crush of the urgent. But, you may wonder, can science speak to questions of deep significance? Your notion of science may call to mind things like pressure gauges, lab mice, black holes, complex math, and such, all of which can seem far removed from questions of meaning and purpose. We'll see, however, that some scientific discoveries do cast significant light on questions many of us have about the meaning of life.

Religion, the arts, philosophy, and other fields of human inquiry and experience also can contribute to answering deep questions related to our existence, and sometimes much more directly. So, why use science as an avenue into such matters?

Because science is the study of our natural world, and we all have that world in common. We all live in the same universe, and the laws of nature affect us all the same—whether we believe in them or not, and whether we are aware of them or not. The common ground of nature is a starting point that includes everyone.

What is the Meaning of Your Existence, or the Purpose of Life?

WHEN I'VE surveyed students about their views on the meaning and purpose of life, their answers reveal a wide range of perspectives:

- To live for others.

- To live life to the fullest.
- To learn.
- To live for God.
- To live and then die.
- To procreate.
- To be part of the food chain.
- There is no meaning.
- I've never thought about the meaning of life.

Out of all these typical responses from my students during my time at Ball State, the most common one was usually the fourth one listed here: "To live for God." But not uncommon were "To live and then die," "to procreate," and "to be part of the food chain." Some students giving the latter answers explained that they answered in that way because of what they had learned concerning the theory of evolution. But what if every human has off-the-scale significance? How sad would it be to fail to grasp one's own great significance.

As unfortunate as that seems to me, the response which most impressed upon me the importance of asking such a question was the last one on the list: "I've never thought about the meaning of life." To drift through life without direction, thoughtless about whether a purpose for living even exists, strikes me as such a waste of the human capacity for reflection and wonder.

So, how about you? What would you say is the purpose of life? And what can science tell us about this big question? Are there clues in the science of origins? In the chapters ahead, we'll look carefully at some of the fascinating backstory of life on planet Earth. We'll discover that this universe exhibits fine tuning for supporting life, and that our planet is remarkable in its life-supporting properties.

We'll learn how the very atomic elements that make up our bodies, the ground under our feet, and the air we breathe had their genesis in the nuclear furnaces of massive stars. We'll consider explanations for why

the universe is the way it is, and weigh those explanations against the scientific evidence.

Of course, in the end, you are free to believe whatever you choose, and we'll even consider the implications of the fact that you are free to believe whatever you choose. But for now, let's move on to a second big question I regularly posed in my Boundaries of Science course.

What One Question Would You Most Like Answered?

THE REASON for this question is that the questions we would most like answered can reveal what's most important to us. Would your question be one of these?

- How do we know what to believe?
- What happens when you die? Is there life after death?
- Is heaven real, and how can I get there?
- Is there a God?
- How should I live my life?
- How did the universe begin?
- How did life begin?
- Is there life on other planets?
- What's the purpose of life?

Those are some of the common responses my students gave at Ball State. The most common ones had to do with questions about the existence of God and our relationship with him. Other common questions centered around science topics relating to origins. And the question of purpose, or just, "Why?" was often on the list. A range of scientific disciplines can speak to several of these questions—physics, astronomy, cosmology (the study of the universe as a whole), biology and biophysics, and the science of consciousness, to name just a few. Will the evidence we explore answer every question definitively? No, but it can provide some potentially useful clues.

Climbing the Mountain of Science

A THIRD big question deals with science itself: Can science yield material explanations for everything? Some of my students answered yes, and their reasoning was pretty straightforward: science explains more and more as time goes on, and will eventually explain everything.

This response indicates a faith that although science can't explain everything yet, it will in the future. What assumptions lie behind this view? One is that the cosmos is a closed natural system, self contained. If that's true, then natural laws govern everything in the cosmos, including every detail of our lives. This assumption deserves a thorough examination.

To be sure, it's easy to see how one might assume that purely material explanations will know no bounds. In the past, what is sometimes referred to as the "god-of-the-gaps" approach filled holes in our knowledge of the world with supernatural miracles. If you didn't understand what causes storms, or why a plague visits your village every few years, you might just shrug and attribute it to the gods. A handy explanation, but invoking a miracle every time you encounter something in nature you don't understand is a poor way to advance our knowledge of the natural world. The founders of modern science recognized this and discouraged god-of-the-gaps thinking.

Various natural phenomena attributed to divine intervention have given way to natural explanations over the years as scientific knowledge advanced. Some people have thereby assumed that this process will go right on until everything in the cosmos has a fully satisfactory, material explanation. But is this extrapolation warranted? Consider an illustration. I grew up hiking the alpine trails and peaks of the Cascade Mountains. After I toiled up the thickly forested mountainside, the trees would thin out and the view would open up across the valley below. Alpine firs and spruces, looking like perfect Christmas trees, poked up through a tidy undergrowth of green and purple heather dotted with late-blooming wildflowers. But while these views were certainly charm-

ing, they were not the ultimate goal of those hikes. When the trail was long and our packs heavy, we often longed to reach our destination, and it was easy to fall prey to “false summits.” On the way up, certain high points on the trail can look like the summit to those who haven’t taken the trail before, but those points turn out to be just a shoulder or a knoll, with the trail continuing on higher.

Seeking to understand the universe is akin to such hikes, with each step on the way representing a further understanding of the laws of nature. The false summits are places where people wrongly concluded that science could take us no further, and then it was discovered that science could indeed explain the given mystery in purely natural terms. But naturalists would have us believe that because we have encountered several such false summits, there is no true summit, that it’s all just shoulders and knolls—false summits—unending, and that every apparent limit to purely material explanations is always only apparent. But that doesn’t follow. It’s still logically possible that there indeed are things that cannot be explained by purely natural causes.

To expand our illustration, if we picture the scientific enterprise as not a mountain trek but the exploration of a vast mountain range stretching beyond the horizon, we can expect to continue to discover fresh vistas and many new things, but also many real summits along with some false ones.

Simply making up a rule that says we won’t ever regard anything as a real summit—that is, a real limit to what the blind forces of nature can accomplish—doesn’t magically grant to natural forces powers they may simply not possess.

In the pages that follow we will explore evidence from nature that suggests there indeed are limits to what nature without intelligent guidance can accomplish. In this we will be following ordinary canons of reasoning about clues and causes. If, for example, you find that your car has a flat tire, you don’t expect that the problem will remedy itself if you just wait a few days (or a few millennia). If a neighbor’s pet goldfish dies in its fishbowl, we don’t try waiting a couple of weeks to see if it will return

to life. Our study of nature will reveal evidence suggesting that neither should we expect an interstellar gas cloud to eventually turn itself into a goldfish.

Evidence that nature is limited and unable to generate some of the things we observe around us also suggests that reality may be bigger than naturalism. It suggests that consciousness, significance, meaning, and purpose may not be mere foam on a churning universe of particles but in fact aspects of a deeper, immaterial reality.

Philosopher Antony Flew, once described as “the world’s most notorious atheist,” committed himself to following the evidence wherever it leads. In the course of that investigation, he concluded that over the last hundred years, scientists “have built a philosophically compelling vision of a rational universe that sprang from a divine Mind” and “as it happens, this is the particular view of the world that I now find to be the soundest philosophical explanation of a multitude of phenomena encountered by scientists and laypeople alike.”¹⁹ Specifically, he cited three questions that ultimately led him to renounce atheism:

1. How did the laws of nature come to be?
2. How did life originate from non-life?
3. How did the universe come into existence?²⁰

We will explore those questions and more in these pages.

Is the evidence that led Flew out of atheism overruled by other reasonable considerations? This book, an outgrowth of my Boundaries of Science course, provides an uncensored opportunity for readers to engage this body of evidence and ask the questions many of us would like to thoughtfully explore—questions about the meaning of our existence and whether the world is ultimately just so many particles in the cosmic void.

In my Boundaries course I strove to stay above the fray and focused on asking thought-provoking questions while introducing physical evidence relevant to the discussion, including scientific evidence that may not have been considered in a course biased towards naturalism. Here in

these pages I also strive to be as fair as possible with the evidence, but I will go a step further than I did in my Boundaries course by laying out the particular chain of reasoning that for me strongly affirms that nature is the work of a masterful intelligence. I intend to make a case, based on physical evidence and widely accepted canons of reasoning, that we were purposefully made, and made for a purpose.