

Apologetics 101

Week 4: Connecting Faith and Science

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Class Objectives

After completing this class, you will understand:

- the definition and scope of the natural sciences
- how Christianity provides a better foundation for science than naturalism (and why this is more important than downstream matters like the evolution debate and the flood!)
- how to handle downstream, seemingly apparent conflicts between Christianity and science:
 - proper interpretation of Genesis and the “days” of creation
 - Young Earth vs. Old Earth Creationism
 - The Flood and Dinosaurs
 - Darwin’s Theory of Evolution
- the overwhelming evidence for Intelligent Design in the natural sciences!

Bottom Line: Science finds its basis in Christianity! It is NOT in conflict with it!

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Definition of Science

VIDEO INTRODUCTION: Does Science Argue For or Against God?

Science: *"In general, a science involves a pursuit of knowledge covering general truths or the operations of fundamental laws."*¹

- In the general sense, this includes both the 'hard,' or 'natural sciences' (e.g. physics, biology, chemistry, and geology) as well as the 'soft' sciences (e.g. psychology, sociology, and anthropology)

Natural Science: *"The goal of natural science is to explain contingent natural phenomena strictly in terms of other contingent natural phenomena. Explanations should refer only to natural objects and events and not to the personal choices and actions of human and divine agents. Natural science seeks knowledge of the physical properties, behavior, and formative history of the physical world."*²

1. Encyclopedia Britannica, s.v. "Science," accessed March 6, 2021, <https://www.britannica.com/science/science>.

2. J.P. Moreland and William Lane Craig, *Philosophical Foundations for a Christian Worldview* (Downers Grove, IL: InterVarsity Press, 2017), 381.

Scope of Natural Sciences

What is the scope of the natural sciences? Can science explain everything?

Video: John Lennox explains the scope of natural science¹ (2 min)

The natural sciences **cannot** answer questions such as: *What is the purpose of life? What has value? What is beautiful? (aesthetics)* Though the natural sciences might provide information and insights to help guide one in their conclusions on such matters, these matters are outside the scope of the natural sciences

Examples:

- Science can explain the ingredients of a cake, how they interact, and how they affect the final composition and structure of a cake, *but science cannot explain why a baker makes a cake*
- Science can be used to diagnose a baby in the womb with Down's syndrome, *but science cannot determine whether it is moral, or ultimately good, to abort the baby*

The answers to such questions are assailed by religion and philosophy.

1. John Lennox, "Lennox vs Atkins - Can science explain everything? (Official debate video)" (debate), February 17th, 2019, <https://youtu.be/fSYwCaFkYno?t=1025>. (17:05 – 19:00)

Foundation for Science

Christianity provides a robust foundation for the employment of the natural sciences¹

- The natural sciences rely on the **uniformity of nature**, which is the assumption that the future will resemble the past.² *This finds a basis in the Christian belief that God has created, and now providentially sustains the universe* (Gen 1:1; Joh 1:1; Col 1:16-17; Heb 1:3)
- In other words, *the patterns, order, and regularity* in the laws of nature *make science possible*
 - Alternatively, upon naturalism the universe is unintended, unguided, and random! There is no guarantee for its uniformity. Further, the mind is just the result of the random processes of nature, so why should it be trusted to know truth? (recall from week 2!)
- Since humans are made in God's image as rational beings, they have the ability to understand the rational and orderly world He created (Gen 1:26-27)
- The intellectual virtues necessary for employing the natural sciences (studiousness, honesty, integrity, humility, and courage) are written on the hearts of all humans (Rom 2:14-15)

1. Kenneth Samples, *Without a Doubt* (Grand Rapids: Baker, 2004), 192-194, quoted in Douglas Groothuis, *Christian Apologetics: A Comprehensive Case for Biblical Faith* (Downers Grove: InterVarsity Press, 2011), 102-103.

2. Moreland and Craig, *Philosophical Foundations for a Christian Worldview*, 373.

Foundation for Science

Christianity has influenced the rise of modern science

- From the 1500's to the late 1800's, the relationship between science and religion could have been called an 'alliance.' Many scientists were believers who saw no conflict between the two (Kepler, Boyle, Maxwell, Faraday, Kelvin)

*"Many scholars have recognized that the scientific revolution which developed in the 16th century rested on a Christian foundation. The early scientists of the sixteenth and seventeenth centuries in particular believed that the scientific method—observation, experiment, and logic—could give them reliable information about the world and about the universe because the God who made their minds had made the world. There was intellectual common ground. Furthermore, the biblical God was a purposeful being, and thus one could with confidence expect to find regularity, order, and patterns in the natural world."*¹

*"The chief aims of all investigations of the external world should be to discover the rational order which has been imposed on it by God and which he revealed to us in the language of mathematics."*² -**Johannes Kepler** (1571-1630, Christian scientist who discovered the laws of planetary motion)

1. L. Russ Bush, *The Advancement: Keeping the Faith in an Evolutionary Age* (Nashville, TN: B&H Publishing Group, 2003), 19.

2. Quoted in John Lennox, *Can Science Explain Everything* (United Kingdom: The Good Book Company, 2019), 20.

A History of 'Warfare'

The ensuing history of supposed 'warfare' between science and religion

- In 1896, Andrew Dixon White of Cornell University published a book entitled "*A History of the Warfare of Science with Theology in Christendom*." This metaphor of 'warfare' took root and become widespread.
 - Other secular thinkers used this as an opportunity to undermine the cultural dominance of Christianity. They were remarkably successful.
- However, today, many do not regard science and faith as **foes**, but neither are they friends.
- **British physicist P. T. Landsberg** began to explore the *theological* implications of the scientific theory. He observed,

"To talk about the implications of science for theology at a scientific meeting seems to break a taboo. But those who think so are out of date. During the last 15 years, this taboo has been removed, and in talking about the interaction of science and theology, I am actually moving with a tide."

<https://www.reasonablefaith.org/writings/popular-writings/science-theology/what-is-the-relation-between-science-and-religion/>

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In the Beginning, Big Bang

The Big Bang Theory Summarized, according to National Geographic:

- First postulated in the 1920s by George Lemaitre, when he theorized that the universe began from a single primordial atom. Theory boosted in 1960s by Edwin Hubble, and the exploration of space through the Hubble telescope.
- In the first $1/10^{43}$ seconds of its existence, the universe was very compact, less than a million billion billionth the size of a single atom.
- In an unimaginably small fraction of a second, all that matter and energy expanded outward more or less evenly, with tiny variations provided by fluctuations on the quantum scale.
- After inflation, the universe continued to expand but at a much slower rate. *It's still unclear what exactly powered inflation.*
- By the time the universe was a billionth of a second old, the universe had cooled down enough for the four fundamental forces to separate from one another.

<https://www.nationalgeographic.com/science/article/origins-of-the-universe>

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In the Beginning, Big Bang

The Big Bang Theory Summarized, according to National Geographic:

- Within the universe's first second, it was cool enough for the remaining matter to coalesce into protons and neutrons, the familiar particles that make up atoms' nuclei. And after the first three minutes, the protons and neutrons had assembled into hydrogen and helium nuclei. By mass, hydrogen was 75 percent of the early universe's matter, and helium was 25 percent. The abundance of helium is a key prediction of big bang theory, and it's been confirmed by scientific observations.
 - The Skeptic's obvious question: **HOW** has that been confirmed through observation?
- Despite having atomic nuclei, the young universe was still too hot for electrons to settle in around them to form stable atoms. The universe's matter remained an electrically charged fog that was so dense, light had a hard time bouncing its way through. It would take another 380,000 years or so for the universe to cool down enough for neutral atoms to form—a pivotal moment called recombination.
 - The Skeptic's question: **HOW** could anything NOT cool in less than 380,000 years?

<https://www.nationalgeographic.com/science/article/origins-of-the-universe>

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In the Beginning, God

Gen. 1:1 "In the beginning God created the heavens and the earth."

How do we properly interpret Genesis 1?

- **There are at least 10 different models (and likely more) that have been proposed for interpreting Genesis 1!** Generally speaking, we can separate these interpretations into two categories:
 - Concordism** – treats Genesis 1 in a more literal, historical manner and seeks to reconcile it with the findings of modern science (seeks to establish a *concordance* between Genesis 1 and science)
 - Non-Concordism** – treats Genesis 1 in a more figurative or poetic manner. Does not believe it intends to provide a literal historical, or scientific account of creation, but rather that it seeks to convey theological truths
- **The exegetical and hermeneutical challenge** – regardless of how you do or do not integrate modern science into your reading of Genesis 1, our approach must bear in mind proper rules of interpretation (literary genre, historical context, immediate intended audience, original language nuance, word studies, whole counsel, etc..)

The challenge with Genesis 1 is that many disagree on its literary genre, or how the author intended it to be read

Perhaps the most Important Part of Genesis 1 - not **HOW** God did it, but **THAT** God did it.

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In the Beginning, God

Most Common Interpretations of the 6 Days of Creation:

Concordist Interpretations

- **YOUNG EARTH CREATIONISM**
 - results in a view of a relatively young earth that is 6,000-10,000 years old. Expects science to confirm this
 - interprets the “days” as 6 literal 24-hour days
 - typically uses the genealogies furnished throughout Scripture to reverse engineer an age of the earth, or at least to calculate the amount of time that has elapsed since Adam & Eve were created
- **GAP THEORY**
 - holds that an indeterminate period of time exists between Gen. 1:1-1:2, thereby permitting a very old universe (this approach avoids the conflict with science that a fully literal approach inevitably produces)
 - 6 Days are still literal days
- **DAY-AGE THEORY**
 - each of the 6 Days of Creation represented an epoch of time, of undefined length (this approach also avoids conflict with modern science, permitting a very old universe as science posits)
 - e.g. *Gen. 1:11 “Let the land produce vegetation...”*
 - possibly allows for 'theistic evolution'

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In the Beginning, God

Most Common Interpretations of the 6 Days of Creation

Concordist Interpretations

- **APPARENT-AGE THEORY**
 - God created in 6 Days, but he created the earth (and universe) with 'apparent age'
 - This view postulates a young earth consistent with literalist translations while accommodating scientific data
- **RE-CREATION THEORY**
 - Gen. 1:1 contains an ancient world that went extinct, so God started over in Gen. 1:2
 - This theory is preferred by some as it accommodates the fossil record by suggesting an ancient world existing before the 6 Days of 're-creation'

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In the Beginning, God

Most Common Interpretations of the 6 Days of Creation

Non-Concordist Interpretations

- **MYTHO-HISTORICAL VIEW**
 - holds that Gen. chapters 1-11 are to be understood in light of a literary genre called *mytho-historical*
 - this view is preferred by some as it avoids various interpretive difficulties that arise from modernity.
 - EXAMPLES: Biological (evolution), geological (sedimentation), linguistic (language, Tower of Babel)
- **CREATION POEM**
 - The number and ordering of days in Gen 1 are only significant for thematic or poetic reasons, and not for historical reasons
- **ANCIENT NEAR EASTERN (ANE) COSMOLOGY**
 - Gen 1 matches the picture of the world held by ANE religions, but sets itself apart by proclaiming one God as the Creator of all rather than many gods

OR,

- **ECLECTIC / A LA CARTE**
 - A blend of the aforementioned theories, to the user's discretion 😊

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Literal or Figurative?

Difficulties with Concordist (more literal) Interpretations: Video: Challenges with the Various Views¹ (6 min)

- **Scientific Discovery in General** – most of modern science agrees on a very old universe (13.8B) and earth (4.5B)
- **Gen. 1:11-12 - Language here suggests that the 'land produced' – plants don't grow in a day!?** Did God suspend natural law in order to cause plant life to flourish in a single day??
 - Also Notable: Gen. 1:20, 24 - "Let the water teem with..." and "Let the land produce live creatures..."
 - Some use these passages to suggest evolution was implied. BUT, in vs. 21 and 25 Moses circles back to say that "God created/made" the creatures...
- **Gen. 2:19-20 - Animal Naming – How could Adam name all the animals?** How many species, or even proto-species. The text doesn't seem to limit Adam to one day for this job.
 - This sounds like an impossible and wearying job, and a creativity challenge. However, consider the fact that the curse of sin had not yet taken its toll on Adam, or the earth. Was Adam's brain and cognitive/creative ability far beyond what we understand today, in his pre-fallen state??
- **Distant Starlight**
 - If stars from distant galaxies are visible today, and are more than 10,000 LY away, why do we see their light?? And some are millions of LY away, whose light would have taken millions of years to reach earth.
 - Should we assume that God didn't suspend natural law in order for starlight to reach earth? Why now, since God seems to have suspended the natural formation of life by creating all living creatures, including Adam & Eve.

1. Frank Turek, "What Does The Bible And Science Say About The Age Of The Universe?," July 16th, 2018, <https://youtu.be/yXrHJquPtsU>.

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Literal or Figurative?

Difficulties with Non-Concordist (more figurative) Interpretations:

- **Ex. 20:11** “For in six days the LORD made the heavens and the earth, the sea, and all that is in them, but he rested on the seventh day. Therefore, the LORD blessed the Sabbath day and made it holy.”
 - Context and word study suggests a literal meaning is intended here
 - Likewise, his ‘7th’ Day of rest, some suggest is still on-going. However, when you look at the verb tense and context, both in Gen. 2:2-3, Ex. 20:11 and Heb. 4:4, all passages seem to indicate a clear past-tense of God’s rest on a past Day.
- **Paul – Rom 5:12-19, 8:19-21 – sin and death entered the world at the same time**
 - Death before the Curse? Gen. 2 suggests that death entered the world as a result of sin. Animals eating each other?
 - The fossil record, if accurate, discovers animal remains with cancer, disease, brain tumors, arthritis, etc. Also thorns in the fossil record, yet thorns entered the world after the curse.
 - Also, when God said it was ‘very good’ would that include disease, death and predation?? Did sin only affect mankind and not animalkind?
 - Is there a single biblical passage that indicates animal death before sin?? Probably not.

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Literal or Figurative?

Difficulties with Non-Concordist (more figurative) Interpretations:

- **Paul taught that Adam was a real man, and that Christ’s death was in some manner a 1:1 exchange.** (1 Cor. 15:21)
- **YOM – the word for ‘day’ in Gen. 1 almost always means a 24 hr period.**
 - Each day is also described as having evening and morning, suggesting 24 hr cycle
 - Other biblical passages (Ex. 20:11) strongly suggest a 24 hr day was in mind
- **Jesus – when one reads the Gospels, it seems clear that Jesus’ own interpretation of Genesis was literal.** (Matt. 19:4 (Adam & Eve), Luke 11:50 (Abel), etc.)

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Literal or Figurative?

Variety of Interpretations Through Church History

- **Key historical figures in church history also held various views on Genesis, even before Darwinism in the 1800's¹**
 - **Justin Martyr** (c. 100 – c. 165 CE) in *Dialogue with Trypho* and **Irenaeus** (c. 130 – c. 202 CE) in *Against Heresies* suggested the days in Genesis may have been long epochs
 - **Clement of Alexandria** (c. 150 – c. 215 CE) believed the creation did not take place in time and that the days communicated priorities of created things and not the timing of their creation
 - **Philo** (10 BCE – 50 CE) and **Augustine** (354 – 430 CE) believed God created everything in a moment, and the purpose of the days in Genesis is to represent a logical sequence
 - Church reformers **Martin Luther** (1483-1546 CE) and **John Calvin** (1509-1564 CE) as well as many who crafted the Westminster Confession held a 24-hour day view
 - *“These men were not arm chair theorists. Some of them were tortured and martyred for their faith: among them Justin Martyr (as his name implies), Irenaeus, and Origin. Nor, obviously, were they influenced by contemporary science, such as geology and evolutionary biology.”² –John Lennox*
- Even before the findings of modern science... key, influential, prominent figures of church history held varying interpretations of the creation account!**

1. John Lennox, *Seven Days that Divide the World: The Beginning According to Genesis and Science* (Grand Rapids, MI: Zondervan, 2011), 39-44.

2. Ibid., 42.

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In the Beginning, God

Video: Keller, Moore, and Duncan on the Non-Negotiable Beliefs About Creation¹ (4.5 min)

What are some essential, “non-negotiable” beliefs pertaining to the origin of humans and the universe?

- God created the universe ex-nihilo, “out of nothing” (Gen 1:1; Heb 11:3), and said it was good (Gen 1:31)
- God created the earth to be inhabited by humans (Isa 45:18)
- God created humans in his image (in his likeness), and unique from other living things. Therefore, humans are endowed with intrinsic worth (Gen 1:26-27)
- The creation of the human family is a blessing to be rejoiced over (Pro 8:29-31)
- God is a personal being who loves, and desires relationship with the humans he created (Exo 34:6-7; Deu 31:6; Hos 6:6; Joh 3:16; Rom 5:8; Rom 8:35-39; 1 The 5:16-18; 1 Joh 4:7-12)

How can we approach this topic with unbelievers?

Convey the following 3 points as paramount:

- Draw on relevant cultural issues: if people believe in racial equality and human dignity, they should want the essential beliefs above to be true, as opposed to naturalism’s answers to human origin
- Demonstrate that Christianity provides a foundation for science whereas naturalism does not (see slides 5-6)
- Explain the way Christianity influenced the rise of modern science (see slide 6)

1. Tim Keller, Russell Moore, and Ligon Duncan, “Keller, Moore, and Duncan on the Non-Negotiable Beliefs About Creation” The Gospel Coalition, August 29th, 2017, <https://youtu.be/HfKBCXAOarY>. (Start - 4:24)

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The Young Earth View

A 'Young Earth' Timeline:

- Creation: 4004 BC
- The Flood: 2348 BC
- Tower of Babel: 2246 BC
- Abraham: 1996 BC
- Joseph: 1745 BC
- Moses and the Exodus: 1491 BC
- David: 1085 BC
- Monarchy divides: 975 BC
- Assyrian destruction of Israel: 722 BC
- Babylonian captivity of Judah: 586 BC
- Jesus: 4 BC

<https://answersingenesis.org/bible-timeline/>

Resource Recommendation:

- <https://answersingenesis.org/creation-vs-evolution/evidence-for-young-earth-creation/>
- Gives 10 evidences for a 'young earth' as it relates to common dating techniques.

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Noah's Ark and the Flood

What understanding would one have if they read the Bible without any presuppositions from modern science?

- **Ark Logistics**
 - Biblical math suggests it took Noah 55-75 years to construct the ark
 - Was the ark big enough to hold '2 of EVERY kind'? And food for them for 370 days?
 - Some estimates suggest it could have housed 30,000 sheep-sized animals
 - Were there dinosaurs on the ark?
- **Flood Logistics**
 - The 'great springs of the deep' burst forth, and it began to rain for 40 days & nights (Gen. 7:11-12) – Plate tectonics?
 - Gen. 1:6-8 - Firmament '*raqia*' around the earth. Did this hold or provide the waters for the flood? Some say a solid structure.
 - Was it Global or Local?? Gen. 7:19 – all the mountains were covered. EVERY living thing on earth was deluged.
 - What does the language of Gen. 6-9 seem to indicate? Throughout, complete descriptors are used: all, every
 - How did the two-toed sloth travel from Turkey, where they disembarked, to South America?
- **How did NT writers view the OT narratives about this fantastical story?**
 - Matt. 24:37-39, Luke 3:36, 17:26-27, Heb. 11:7, 1 Peter 3:20, 2 Peter 2:5
 - Mentioned in the genealogy, suggesting a real person
 - Jesus himself seems to have viewed it as a literal event – Matt. 24:37-39

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Where do Dinosaurs fit?

Where do the Dinosaurs fit with the Biblical Narrative?

- Were they created on Day 6 as Gen. 1:25 says?
- Land animals created on Day 6, as were Adam & Eve – 6,000 years ago
- With this view, they must have cohabited the earth with humans. They were herbivores.
- Flood came, less than 50 dinosaur 'kinds' entered the ark? The average dino size is that of a sheep.
- But if this is true, what happened after the flood? Perhaps they became extinct because the newly flooded habitat didn't support their life.
- Dragon legends all over the earth. Were these 'dinosaurs'?
- Cave paintings also resemble dinosaurs.
- Job 40:15 – Behemoth sounds like the description of a dinosaur
- Dinosaur bones have been discovered with red blood cells and soft tissue inside, indicating they would not be millions of years old.

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The Theory of Evolution

What is Evolution?

Evolution: *"theory in biology postulating that the various types of plants, animals, and other living things on Earth have their origin in other preexisting types and that the distinguishable differences are due to modifications in successive generations."*¹

Two Types of Evolution:

Micro-Evolution: small-scale changes in organisms occurring over short periods of time ***within a species. This type of evolution is observed all the time and is not controversial!*** Simply requires the alteration, or loss of genetic information through successive organisms (e.g. the peppered moth, Galápagos finch beaks, new strains of flu viruses, antibiotic-resistant bacteria)

Macro-Evolution (Darwinian Evolution): large-scale changes in organisms occurring over long periods of time ***above the species level.*** According to macroevolution, ***ALL living things stem from one common ancestor (or primordial microorganism) This type of evolution has not been observed and is not indisputable. In fact, many are skeptical of it!*** This type of evolution would require increases of functional genetic information which is difficult to achieve. (e.g. origin of different phyla, development of vertebrates from invertebrates)

1. Encyclopedia Britannica, s.v. "Evolution," accessed March 9, 2021, <https://www.britannica.com/science/evolution-scientific-theory>.

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The Theory of Evolution

What are the Mechanisms of Evolution?

- **Natural Selection** - when organisms best suited to survive in a given environment pass on their genetic traits to subsequent offspring.
- **Mutations** - when a genetic mutation occurs to create an entirely new *favorable* trait that is beneficial in its environment. *"Given enough time, and beneficial mutations, New-Darwinists believe that one kind of an organism can become another kind of organism."*¹
- **Gene Flow** - the transfer of genetic material from one population to another. This exchange of genetic material, repeated over the course of time, can contribute to today's variation.
- **Genetic Drift** - a mechanism of evolution that refers to random fluctuations in the frequencies of alleles from generation to generation due to chance events. Genetic drift can cause traits to be dominant or disappear from a population. The effects of genetic drift are most pronounced in small populations.²

Generally Speaking, Creationists do NOT accept that the above forces created new "species".

1. <https://answersingenesis.org/evolution/>

2. <https://www.genome.gov/genetics-glossary/Genetic-Drift#:~:text=Genetic%20drift%20is%20a%20mechanism,or%20disappear%20from%20a%20population.>

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The Theory of Evolution

But Can These Mechanisms Account for the Diversity of Life?

The Theory of Evolution takes the observations of microevolution along with its mechanisms (natural selection and mutations, etc.) and **extrapolates them to account for the origin of the vast diversity of ALL life! Are these mechanisms enough to account for the biological complexity of all life forms?** This is the matter which is controversial, and of which there is a growing skepticism in the scientific community.

*"The diversity of the living world is staggering. More than 2 million existing species of organisms have been named and described; many more remain to be discovered—from 10 million to 30 million, according to some estimates."*¹

- Recently David Gelernter, a highly regarded Yale University computer scientist, published an essay "Giving Up Darwin" in which he reviews a book "Darwin's Doubt" and expresses his skepticism towards Darwinism.
 - Regarding the book, Gelernter states it is *"one of the most important books in a generation,"* a *"landmark in the intellectual history of Darwinism,"* and even says that, *"Few open-minded people will finish it with their faith in Darwin intact."* Article: <https://claremontreviewofbooks.com/giving-up-darwin/>
- See also:
 - <https://evolutionnews.org/2019/05/yales-david-gelernter-darwins-doubt-is-one-of-the-most-important-books-in-a-generation/>
 - <https://creationtoday.org/giving-up-darwin/>
 - **Video:** Peter Robinson, David Berlinski, David Gelernter, and Stephen Meyer, "Mathematical Challenges to Darwin's Theory of Evolution" Hoover Institution, June 6, 2019 in Italy, <https://youtu.be/noj4phMT9OE>.

1. Encyclopedia Britannica, s.v. "Evolution," accessed March 9, 2021, <https://www.britannica.com/science/evolution-scientific-theory>.

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The Theory of Evolution

But Can These Mechanisms Account for the Diversity of Life?

One additional resource for further reading:

16 Steps to Generating Advanced Life (John Barrow, Brandon Carter, and Frank Tipler)

*"Sixteen steps punctuate the history of life on Earth. Each of these steps is critical for making possible the entry of advanced life. **The likelihood of all these steps occurring from a naturalistic perspective is essentially zero.** This zero probability does not take into account either life's origin or the origin of the mind and the human spirit."*¹

Main point: Even if macroevolution were true, it would be a miracle in itself, and thus lends support to God's existence! Don't let evolution become a red herring!

Video: Evolution Proves God's Existence (2.5 min)²

1. Hugh, "16 Steps to Generating Advanced Life," Reasons to Believe, accessed March 9, 2021, <https://tnrtb.wordpress.com/2014/05/15/16-steps-to-generating-advanced-life/>.
2. William Lane Craig, "Evolution Proves God's Existence" December 17th, 2008, <https://youtu.be/fHQsaiMcPLc>.

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Intelligent Design

A Brief Explanation of ID:

Intelligent design refers to a scientific research program as well as a community of scientists, philosophers and other scholars who seek evidence of design in nature. The theory of intelligent design holds that certain features of the universe and of living things are best explained by an intelligent cause, not an undirected process such as natural selection. Through the study and analysis of a system's components, a design theorist is able to determine whether various natural structures are the product of chance, natural law, intelligent design, or some combination thereof.

- ID is not necessarily Creationism, but rather "an effort to empirically detect whether the "apparent design" in nature acknowledged by virtually all biologists is genuine design (the product of an intelligent cause) or is simply the product of an undirected process such as natural selection acting on random variations."
- Creationism starts with a religious presupposition and fits science to it. ID starts with observation and seeks to discover if the natural conclusion leads to a Designer.
 - "experimentally reverse-engineering biological structures to see if they require all of their parts to function. When ID researchers find **irreducible complexity** in biology, they conclude that such structures were designed."

1. <https://intelligentdesign.org/whatisid/>

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Examples of Design

An Example of Design from the world of Biology: DNA

- <https://www.yourgenome.org/video/dna-replication>
- **From Science Focus:** The DNA in your cells is packaged into 46 chromosomes in the nucleus. As well as being a naturally helical molecule, DNA is supercoiled using enzymes so that it takes up less space.
- Try holding a piece of string at one end, and twisting the other. As you add twist, the string creates coils of coils; and eventually, coils of coils of coils. Your DNA is arranged as a coil of coils of coils of coils of coils! This allows the 3 billion base pairs in each cell to fit into a space just 6 microns across.
- If you stretched the DNA in **one cell** all the way out, it would be about 2m long and all the DNA in all your cells put together would be about twice the diameter of the Solar System. (356 billions miles)
- The **DNA** in each human cell is around 3 billion digits long and has to be **copied** every time a cell divides—which occurs nearly 2 trillion times each day. If errors occur in **DNA replication**, cells can become abnormal and give rise to disease. (Phys.org)

On Guard, William Lane Craig

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Examples of Design

CONTINUED:

Biochemist and molecular biologist Franklin Harold acknowledges the design aspects of molecular machines, like the bacterial flagellum: *"Here we reach an edge, and are left contemplating the disquieting notion of an orchestra without a conductor."*

Richard Dawkins likewise acknowledged that "Biology is the study of complicated things that give the appearance of having been designed for a purpose." (100)

Michael Behe suggests numerous examples of design:

- Cellular cilia
- Interconnected molecular processes of blood clotting
- Specified complexity of cellular protein delivery systems (100)
- Bacterial Flagellum (dubbed by Harvard Biophysicist Howard Berg as 'the most efficient machine in the universe.')

On Guard, William Lane Craig
God's Crime Scene, J. Warner Wallace

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Examples of Design

A Closer Look at the Bacterial Flagellum:

- Requires over 40 different, specifically shaped proteins, precisely employed, to create the structure of the rotary motor
- The flagellum is powered by energy generated by a flow of acid through the bacterial membrane
- The instructions (DNA blueprints) for the flagellum are housed in over 14 distinct 'operons' – areas of DNA coding. The operons are categorized by numbers 1-14
 - When a bacterium begins construction, it activates each coding operon in sequence, to bring protein formation (building blocks) in their necessary order.

On Guard, William Lane Craig
God's Crime Scene, J. Warner Wallace

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Examples of Design

THE HUMAN EYE – YOU DECIDE

- Your eyes focus on 50 different objects **every second**.
- Your eyes can distinguish approximately **10 million different colors**.
- **80 percent** of all learning comes through the eyes.
- Your eyes can detect a candle flame 1.7 miles away.
- Your iris (the colored part of your eye) has 256 unique characteristics; your fingerprint has just 40.
- Your eyes are comprised of rods and cones. Rods allow you to see shapes, while cones are responsible for detecting and deciphering colors.
- The average person blinks **500 million times in a lifetime** (bet you just blinked!).
- Your eye is the fastest contracting muscle in the body, contracting in less than 1/100th of a second.
- The optic nerve contains more than **one million nerve cells**.

<https://www.readersdigest.co.uk/health/wellbeing/six-wonders-of-the-human-eye>
<https://versanthealth.com/blog/15-facts-about-all-things-eyes/>

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Eternal Building Blocks

To build the universe, the creation of protons, neutrons, and electrons had to meet 5 requirements:

1. All three had to be created at the very beginning of the universe.
2. They had to be created in a flash of time.
3. There had to be an enormous number of them to build the 200 billion trillion stars estimated to be in the universe.
4. They had to have an incredible lifetime and robustness given that the universe is currently 13.8 billion years old.
5. They had to be crafted with incredible precision.

Current scientific understanding of the universe shows that all of these conditions were met. With regard to the first three requirements, according to the big bang model, essentially all of the protons and electrons that exist today were created, incredibly, within the first second of the bang. Scientists estimate that greater than 10^{80} (1 followed by 80 zeros) protons and electrons were created in this brief period of time.

1. Don C. Olson, *The Incredible Ultramicro Building Blocks of Creation*

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Eternal Building Blocks

BUILDING BLOCKS CONTINUED:

The number of neutrons has a more complex history. Initially, the n/p ratio was close to 1:1, but it rapidly shifted in the first second to 1:6 due to reactions with other subatomic particles. In addition, vast numbers of neutrons were later produced by nucleosynthesis reactions in stars. (*HOW* can we know this?!)

Regarding the fourth requirement, the fact that we still have a vast universe crafted from these particles means they *both* have a lifetime at least greater than the age of the universe, 13.8 billion years.

- In fact, it's astonishingly greater. Although no proton decay has ever been observed in experimental studies, one study put a minimum limit on its half-life of 1.67×10^{34} years (that's 167 followed by 34 zeros). Physicists have also failed to observe even a single decaying electron. The results of one study put an estimate of the lifetime of an electron at greater than 10^{28} years⁴.

1. Don C. Olson, *The Incredible Ultramicro Building Blocks of Creation*

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Great Resources

BOOKS:

- Lee Strobel, *The Case for a Creator*
- J. Warner Wallace, *God's Crime Scene*
- John Lennox, *Seven Days that Divide the World*
- John Lennox, *Can Science Explain Everything?*
- John Lennox, *God's Undertaker: Has Science Buried God?*
- Alex McFarland, *10 Answers for Atheists*

WEBSITES:

- AnswersinGenesis.com (Ken Hamm)
- ReasonableFaith.org (William Lane Craig)
- Creation.com
- icr.org (Institute for Creation Research)
- Reasons.org (Dr. Hugh Ross, Reasons to Believe)
- Intelligentdesign.org Intelligent Design