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The Natural Sciences at Wheaton College: Understanding Their Significance in Light of Our Christian Educational Mission

INTRODUCTION

The natural sciences have been taught at Wheaton College for well over a century and are central to the liberal arts curriculum of the institution. Taught with great enthusiasm by practicing scientists who possess expertise in specialized areas, they form an integral part of our General Education program today, and are required of all undergraduates enrolled at the College. Additionally, nine majors afford students the opportunity to pursue in-depth study in the natural sciences. Dedicated to liberal arts learning, Wheaton College approaches instruction in the natural sciences in a manner that is commensurate with its educational tradition, contextualized within the historic relationship of science and Christianity. The natural science faculty teach students how to examine knowledge and to discern truth. They provide opportunities for science majors and nonscience majors to consider and to apply effective methodological approaches, whether in discovering the characteristics of the created world, or in applying science, or in examining the competing theories about creation, or in understanding the relationship of the Creator to His handiwork in nature.

Clearly, the natural sciences represent a legitimate realm of study for Christians. By offering a rigorous natural science curriculum to students, Wheaton College affirms the "calling" of individuals to be scientists. Furthermore, the College encourages the study of creation, which bears the marks of the Creator, and it acknowledges that the creation is worthy of investigation. When science is properly conducted, it honors God, and the valid findings of science are wholly consonant with the inspired and authoritative revelation of the Bible.

THE GENERAL EDUCATION CURRICULUM AND NATURAL SCIENCE

Each student at Wheaton College participates in the General Education curriculum, designed to introduce men and women to an understanding and appreciation of God, His creation, His grace, and our place of privilege and responsibility in the world He has made. To this end, the curriculum encourages students to ground all aspects of life in the



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Word of God, leading to a firm commitment to Christ and His Kingdom. The General Education curriculum exposes students to the fundamental ideas of important theological, cultural, intellectual, and scientific traditions, including concepts and issues outside of the students' respective backgrounds.

At Wheaton, General Education courses offer a rich set of experiences that have been designed to acquaint students with physical and life sciences. Both laboratory and non-laboratory courses are required of undergraduate students. The following list represents some of the General Education offerings available to students: Planetary Astronomy; Stellar Astronomy; Chemistry and Its Applications; Contemporary Issues in Biology; Environmental Ethics; Environmental Science; Human Genetics; Public Health and Nutrition; Drugs and Society; Natural Disasters; General Oceanography; Environmental Geology in the Field; Earth Resources and Environment; Great Ideas in Mathematics and Their Influence; Physics of Music; Origins of Science; Ideas of Science; Ideas in Quantum Mechanics; Meteorology; and Theories of Origins. Science courses are offered in different venues: at the main campus, in Wheaton; and at the Wheaton College Science Station's field setting and laboratory, in the Black Hills of South Dakota. The General Education courses are designed to teach students how to think critically, including analytic and quantitative reasoning. Students also become acquainted with several core concerns, such as the practice of science, a Christian view of science, and some of the characteristics of creation.

DISCIPLINARY MAJORS WITHIN THE NATURAL SCIENCES

Students who major in any one of the natural sciences at Wheaton are encouraged to engage in the work of their chosen discipline. They are also challenged to learn the appropriate methods of discovery in the discipline(s) of their interest, grasping relationships between the different fields of knowledge within the natural sciences, along with content areas in the social sciences, humanities, and arts undertaken in their General Education courses. Through study of the natural sciences in the liberal arts context at Wheaton, students begin to grasp relationships between fields of knowledge, and they begin to appreciate and experience the unity of God's truth. Majors are offered in biology, chemistry, computer science, environmental studies, geology, liberal arts



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engineering, liberal arts nursing, mathematics, and physics. Students who are granted degrees in these disciplines are expected to integrate Christian and natural science perspectives, influencing their careers and enriching their practice as stewards of God's creation.

WHAT IS SCIENCE?

In the contemporary academy, science represents a theoretical discipline that addresses natural phenomena; by its accepted standards and procedures, it does not go beyond the natural realm for explanations. The hypotheses and theories generated in scientific study are based upon empirically measured phenomena. Like all endeavors of disclosing truth, including theology, the practice of science is dynamic and the theories it generates are always in a state of self-correction as new data are evaluated. Although science uses a naturalistic methodology, the use of that methodology does not necessarily imply a metaphysical naturalism (a philosophical commitment to the idea that the material world is all there is), nor does it imply that the scientist who is a Christian believes that naturalistic factors can fully explain all phenomena. The following analogy should make this clear.

A Christian physician may witness the dramatic and seemingly miraculous recovery of a patient for whom many have been praying. Even while celebrating the unexpected but hoped-for "miracle," that physician, whose profession focuses on cures for "natural" disease processes, could and should explore whether there are "natural factors" (such as dietary changes, drug interactions, environmental factors, or non-traditional treatments) that might have affected the miraculous recovery. Such a search for natural explanations is by no means an indicator of any lack of faith in the supernatural by the doctor. Instead, it reflects the physician's respect for the physical processes affecting human health, which are created and sustained by God; it also demonstrates intellectual and professional curiosity.

Along with the Christ-centered medical practitioner, Wheaton faculty members reject the idea that we live in a closed universe, devoid of miraculous phenomena. Indeed, on the basis of Scripture, we affirm the mysterious manifestations of both divine and demonic realities in the created realm, acknowledging that many of these phenomena do



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not easily lend themselves to empirical analysis. We affirm that at least some aspects of the supernatural are understandable to humanity through divine revelation and through careful rational reflection, intuition, and other ways of human knowing.

One final but important point must be noted about science in relation to mathematics. As do the Christian natural scientists, the Christian mathematicians view the creative God as the source of knowledge in their studies. The way of knowing called mathematics develops its results differently from natural sciences. While the topics and results of mathematics are often motivated by the study of natural phenomena, mathematics may also be developed as an abstraction apart from the observable world. Its results are verified by logical axiomatic arguments, and are not subject to change unless the underlying axioms are modified. One of the wonders of mathematics is its effectiveness as a tool in modeling and understanding natural and social phenomena.

SCIENCE AS A LIMITED HUMAN ENTERPRISE

Modern Science emerged in the seventeenth century and has been in rapid development up to the present time. Aristotle is sometimes considered the founder of modern science, since he advocated the careful study of what is, of the observable physical world, and because he developed a comprehensive system of understanding ultimate reality (metaphysics). Only in hindsight have scholars recognized how profoundly Aristotle's prior philosophical commitments shaped and limited his science, despite his brilliance in observation. In the period preceding what was later called the Renaissance, Christian theologians and scholars began questioning the Aristotelian framework. Descriptive practices gave way to empirical observations, coupled with the logical process of induction for theory formation. Objectivity was strengthened by a strong process of questioning and challenging presuppositions, as well as a priori constraints. This was a period of explosive growth in scientific knowledge that later came to be called the Scientific Revolution. The best modern scholarship (e.g., John H. Brooke, *Science and Religion*, 1991) establishes that Christian theology was integral in these developments, serving as fertile ground for the advancement of science. It is no coincidence that modern science developed most rapidly in Western Europe and America, where its assumptions formed an ideal cultural framework in which science could develop.



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The tremendous success of empirical investigation in discovering new truths about the physical world (and the resulting technological advances in everything from engineering and manufacturing to the discovery of new treatments for disease) led to growing support for ever-wider application of scientific methods of knowing. The Enlightenment was characterized by a confidence (even over-confidence) in the human mind's ability, often in a manner hostile to Christianity. When disciplined to utilize scientific methodology and when freed from constraining religious and philosophical beliefs, the mind was presumed to be able to discover all truth and to advance the cause of human welfare. Out of these developments, a movement declaring science and religion to be at war with one another began in the late nineteenth century, and it gathered momentum after the famous Scopes trial. Positivism, which reached its zenith in the mid-twentieth century, was one of the most extreme of these influential Enlightenment movements. Positivism explicitly denied the usefulness of any mode of human thought, outside of scientific empirical inquiry and formal logic, to discover or apprehend truth. The new conceptual framework of the Enlightenment, one in which all beliefs were expected to have empirical grounding, eroded religious belief systems and undermined the authority of the Church. Philosophy, religion, and metaphysical phenomena were discounted in light of the empiricist requirements for understanding reality.

Positivism has been in decline for fifty years or more. Most importantly, the movement lost credence due to an internal contradiction - the universal claim that "all valid knowledge is a product of empirical scientific study." Such a claim, ironically, cannot be conclusively shown through empirical scientific study. Therefore, by its own standard, it is neither true nor false. Moreover, for scientists interested in theory formation and those who wished to do comparative studies on certain phenomena of the universe, such as in verifiability of only one "universe," there were no bases for empirical comparison and/or controls. As a result, positivism went through decline as an effective means of explanation for natural phenomena once the challenges to the verifiability principle ensued. It must be noted that some positivist approaches are still practiced and a small number of positivist adherents still write in the twenty-first century.



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There are two additional reasons why Christians must reject the positivist view of science. First, Christians must acknowledge that those doing science are limited and fallible human beings. We serve an omniscient (all knowing), omnipotent (all powerful), and perfectly rational God. We, in contrast, can know, but we can never know all. Likewise, we have power, but our power is always limited and partial. And we possess rational minds, but they are less than perfect. In short, we are human; our Creator is God. Therefore, the positivists' aspirations for near universal and perfect knowledge are unrealistic and out of keeping with biblical Christianity.

In addition, we recognize that humans are sinful and fallen. Where positivists promoted an ideal of human scientific rationality that was disconnected from and unaffected by human foibles, we recognize the effects of humankind's disobedience on all of our being, including our rational, scientific capacities. Insofar as the Fall also affects the power of intellect, especially by turning our knowledge and/or our own minds into idols, we acknowledge the corrupting influences of sin on our ability to see the world as it is. The struggle of scientific inquiry to discern something of the nature of the creation requires that we remain humble, conscious of the fallible outcomes of our efforts and of our tendencies to sinfully distort all of our knowledge (Proverbs 9:10; 11:2).

Many scientists in the larger science academy have philosophical commitments to metaphysical materialism. Proponents of this view assert that physical reality is the only reality, and they espouse the view that all things can be explained in terms of physical matter and phenomena alone. Needless to say, metaphysical materialism is not compatible with the views that Wheaton affirms. Some materialists go as far as to say that science rightly supplants the traditional role of religious beliefs, given that it fully answers humanity's ultimate questions about existence. We counter such overtly materialistic accounts of reality on several grounds: first, with the reality of God's own existence (since God exists, materialism is simply wrong); second, with the growing realization among many scientists that neither the existence of the universe nor of life explain themselves; and third, with the confidence that comes from knowing that God is working in creation through the laws He designed and created. We are convinced that God is active in His creation and in the work of providence; He is not just a "mystery



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variable," plugging a gap in the knowledge that is undemonstrated by scientific means. His purposes in creation remain clear and His direction of the cosmos, including phenomena and living creatures, is governed by His wise and holy providence. As teachers of natural science, we train students at Wheaton College, acquainting them not only with the practice and presuppositions of science, but also with the history and philosophy of science, highlighting the points of intersection between Christian worldviews and scientific practice. With this type of training, students are prepared to see scientific excellence as fully compatible with devout, biblically-grounded Christian faith. Clearly then, we believe that science and Christian faith are not at war. The facts speak for themselves: among world-renowned scientists of the past and present, Christians represent a significant number. Notwithstanding, some continue to promote the erroneous notion that science and religion are at war, including those who object on scientific grounds to the claims of Young Earth Creationism, and those who use science to advance the case for metaphysical materialism (discussed above). But because advances in science have been repeatedly interpreted by philosophical materialists (who believe that nature - the natural world - is all that exists) to undermine Christian faith, it is insufficient to merely note that we dispute and reject the notion of warfare between science and Christian faith. We encourage scientific excellence among believing Christians so our lives can present a living witness to the truth that science and Christian faith, when properly construed, are not at war.

Furthermore, we can serve the Church by developing positive rationales for how accomplished scientists who understand the remarkable advances and findings of the sciences can still enthusiastically embrace biblical faith. Hence we encourage Christian students at Wheaton College to consider the possible "call" to serve as scientists. In so doing, we provide solid moral and ethical guidance for the application of scientific findings to establish standards of honesty, charity, and other Christian virtues in the pursuit of truth in the created order. We also encourage students to pursue the types of humanitarian goals demanded by a Christian worldview and establish alternative theoretical paradigms to the prevailing naturalistic ones. In this context, we urge students to examine new empirical research programs and conceptual frameworks for interpreting the results of scientific investigation.



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CHRISTIAN FOUNDATIONS FOR THE STUDY OF SCIENCE

The goal of scientific inquiry, from a Christian perspective, is to explore and understand what we can of God's creation, particularly the entities, powers, processes, underlying structures, relations, and mechanisms of the natural world. God has made humanity such that we are able to grow in this type of knowledge through our rational encounters with the created world.

This temporal world, given to us by Christ, bears the marks of its Creator; consequently, some knowledge of the Creator God can come from the study of the good world that He has created. This type of knowledge of God, described by the Apostle Paul (Romans 1:18-20), has been called God's "general revelation" in His creation. The existence of such revelation means that we, as believers, can enhance our opportunities to worship and enjoy our Redeemer forever, through the study and understanding of His creative handiwork. Our knowledge of the creation provides an occasion to acknowledge, to thank, to praise, and to worship the Creator. The world was created and is sustained by Jesus Christ, who has all knowledge and power, and we acknowledge that the full scope and complexity of creation far exceeds the limits of human understanding. The sciences are ultimately grounded in the final authority of Scripture. As Christians engaging in the study of science, we are committed to discerning truth wherever it may be found, including God's general revelation in creation.

We cannot, however, only celebrate the created order as good. We also recognize the effects of the disobedience of humankind, both in the world around us and upon the human race. Even our own capacities to know truth have been adversely affected. We learn in Scripture that the creation groans in brokenness and decay (Romans 8:22-25) and awaits, just as we do as broken human beings, the final redemption, the ultimate healing of all that is wrong. Nevertheless, in this post-Fall context, we are to do our best in faithfulness to God to care for the physical world as its God-appointed stewards. The faithful steward does the work of his or her Master. Still, the effects of the Fall on the cosmos and our commitment to its renewal instruct our view of this work of stewardship (Genesis 3:17-19; Romans 8:18-23; Revelation 21:1-5; Revelation 22:1-5). We expectantly work as stewards of the land, and representatives of the Lord, who have received the



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blessing in creation and the command to rule it (Genesis 1:28 and Psalm 8:6-8), but insofar as the Fall also affects the power of intellect, we acknowledge the corrupting influences of sin on our ability to see the world as it is. At times, even our knowledge and our own minds can become idols. The struggle to discern something of the nature of creation, through scientific inquiry, requires us to remain humble and conscious of the fallible outcome of our efforts (Proverbs 9:10; 11:2).

BIBLICAL PRINCIPLES SUPPORTING THE STUDY OF CREATION

The following principles are essential to our Christian worldview as we undertake the study of creation at Wheaton College.

- God is rational. Scripture attests to God's mind, and when we study the world we may gain insight into the mind of God (Amos 4:13; Proverbs 3:19-20). To use our minds in rational ways reflects one aspect of how we are created in His image.
- The physical world was created distinctly by God; this created order presents a coherent cosmos that bears the imprint of the rational mind of God. The world is not God; conversely, the Creator is not the creation. Therefore it is right to utilize, where morally appropriate, various modes of legitimate inquiry (i.e., physical manipulation and intrusive experimentation) in an effort to understand the world. When we engage in a study of the world, we are not merely involved in a mental phenomenon; we are studying a world wholly dependent on its Creator for its origin and sustenance, both in form and function (Romans 11:36; Colossians 1:16, 17). This world is a distinct reality to which God has given inherent powers, properties, processes and structures that govern its interactions and operations. It rests fully and always on God's sustaining power for its very being and operations (Job 38, 39; Psalm 24:1, 2; Psalm 104).
- God created the world *ex nihilo*; in other words, He brought the world into existence out of nothing. Unlike humans, who create things from preexisting matter, God created "something" out of nothing, and that reality is distinct from Himself (Genesis 1:1, 2; Acts 17:24; Hebrews 11:3).
- The physical world, originally created by God, was perfectly good. God observed that the creation was "good" on several occasions in His creative process (Genesis 1). God saw that each thing was performing its assigned functions within the



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- economy of creation. The Incarnation - God becoming fully human in Jesus Christ while remaining fully divine - supports the goodness of creation in that it would have to be good for the perfectly good God to take on physical existence while remaining divine and utterly holy. The good, however, has been corrupted. We believe that our first parents sinned by rebelling against God's revealed will. The Fall, subsequent to the Creation, resulted in all humans being born with a sinful nature, fully in need of redemption. Christ - in the mystery of the Incarnation, conceived by the Holy Spirit, born of the Virgin Mary, true God and true man, existing in one person and without sin - served as the representative and substitutionary sacrifice for the sins of humankind (Hebrews 10:5-10).
- Human beings are made in such a way as to be able to discern, to some degree, the rational mind of God as conveyed through creation. Insofar as the creation reflects the beauty of the Creator, in its essence, the world continually manifests God's glory, majesty, simplicity, symmetry, order, power, and elegance (Psalm 8:1; Job 38, 39; Psalm 104). This beauty elicits our humble respect and appreciation. Because the world has its beginning in the God of truth and beauty, we also recognize in this beauty evidence of God's glory (Isaiah 40:5). Even more, insofar as the world is, in its original state, the product of a wholly good God, we can recognize its inherent worth (Genesis 1:4, 10, 12, 18, 21, 25, 31). While having suffered the effects of the Fall, the world remains in its present condition, on the whole and in the main, worthy of our best efforts to comprehend (Genesis 3:14ff.). Although fallen, all humans retain something of the image of God; thus, they demand our full respect. So, also, the world retains, in some measure, its original dignity, beauty, and value (Psalm 19:1; Isaiah 40:5). While affirming the ability of science to accurately depict certain of its features, we make no pretense that a complete comprehension of the created order is possible. While continuing to affirm the value and responsibility of grasping what we can of reality, we must acknowledge with circumspection the inescapable limitations of all forms of human knowledge.
 - The cosmos was created as a free act by God. And we must recognize that He could have created it in limitless other ways. It is the result of a free, creative act of God, and it is contingent in its form and function (Revelation 4:11; Isaiah



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40:26; 45:12; Ephesians 1:5, 6, 9). The world does not embody a necessary form, one that emanates from a primordial source more basic than God and the free act of His will; rather, it has just the form and function that it has pleased God to give it.

- Since the cosmos was created as a free act by God, then the only way to find out how the universe works, apart from special revelation, is to study it carefully. Insofar as the creation is the intentional product of the ongoing efforts of an intelligent designing agent (Psalm 104:24; Proverbs 3:19-20), it contains a degree of coherence, regularity predictability, dependability, consistency, and reliability that enables the sciences to produce potentially accurate and enduring representations (Hebrews 11:3). The models and theories by which we seek to account for the world can, in fact, reflect salient features of the properties and structure conferred upon the world by its Creator. Furthermore, while rational inquiry constitutes a fully human, decidedly fallible endeavor, nonetheless, because humans originated from the mind of the very same God (Isaiah 45:12), who fashioned the world on their behalf (Isaiah 45:18), all human inquiry facilitates a tentative and incomplete grasp of social and natural reality. The world we study has an integrity born of its singular source; inasmuch as we also proceed from the mind of God, we believe that the outcomes of human inquiry ultimately should reflect the unity of that source. Moreover, since we have been created in the image of the Father, Son, and Holy Spirit, whose interrelations are characterized by perfect trust and love (Genesis 1:26, 27), we believe that scientific inquiry requires our collective cognitive faculties, functioning in an environment of mutual faith and self-sacrifice, under the proper moral constraints of community. Consequently, we affirm that our collaborative efforts, if properly utilized, provide a reliable means by which to gain an accurate glimpse into the workings of this world. Together, we proceed with humility (Psalm 25), confident that those explanatory models deemed best, according to our shared community standards of excellence, may accurately, even if only approximately, represent some aspects of reality (Proverbs 1:7).
- Christ's acting in the world is providential, either working through natural law and secondary causes, or is miraculous, occurring beyond the ordinary operation



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of natural law. We view the unity of Christ's action as important in that He works providentially in structures and through processes and causal powers that are constantly operative within the physical world, but also in ways beyond those commonly operative in the natural order. Health and disease can serve as illustrations of this truth. Most diseases are presumed to originate from natural causes, which can have natural explanations that are discoverable. Although diseases often are subject to cures resulting from discoveries in the physical world (as when an infection responds to antibiotic treatment), we cannot infer that God lacks an operative role in the "natural course" of a disease. God can be as active in a predicted, expected response to antibiotic treatment or surgery as He is in performing a miracle (which can not be accounted for through explanations of natural law, as we know it). Hence, the absence of some occurrence that transcends natural law should not lead one to conclude that God is not at work. We should praise Him as fervently for what is accepted as a natural recovery, such as from a cold, as we should for the miraculous recovery of a paralytic. Christ is constantly working to moderate pain, and since we are working as His stewards, we must be His partners in applying reason and compassion to healing, all with the confidence given to the disciples in the Great Commission (Matthew 28:18). We know that all authority in heaven and earth has been given to Christ, and He will be with us at all times as we observe and participate in miraculous and providential occurrences. Still, God is sovereign over nature and can suspend or alter nature's actions, if He so wills (John 11:1-44; John 2:1-12).

- The dominion mandate directs us to learn about and "subdue" the physical universe, though not as selfish and exploitive owners but as loving stewards who care for the garden of the Master. In knowing God, we also enter into service with God as stewards of creation. The first chapter of Genesis provides a creation mandate that blesses and commands humankind to rule over the earth. Gaining knowledge of the creation provides a basis for understanding it; such knowledge and understanding are vital if responsible care is to occur. The second chapter of Genesis appoints Adam and Eve to work in and care for God's garden, to have dominion over the creatures God created, and to name them (Genesis 2:15;



- Genesis 2:20). Likewise, humans are caretakers of the physical world God created. We affirm our stewardship by meeting needs through development of instruments of righteousness and modes of healing and service. Through the hard labor of inquiry and application, we exercise a form of dominion over creation.
- God has revealed Himself and His will in the Scriptures. The Holy Scriptures are the very Word of God and are completely truthful in every assertion they make; this includes those places where they address matters of relevance for scientific study. Consider, for instance, the biblical descriptions of miraculous interventions by God in the natural order, whether striking a wet altar with fire from heaven, or parting a sea, or turning water into wine, or raising a dead man back to life. These are understood as literal, historical events. Even so, complex matters of interpretation face us. Obviously, the Scriptures were never meant by God to be treated as a modern science textbook. So, when we find in the Bible a reference to "windows in the firmament" above (which, when opened, let loose the flood waters in Genesis 7:11), or the "pillars" that hold up the earth (Job 9:6), we understand these to be informal, nonscientific descriptions of aspects of the natural world. Scientific inquiry establishes that there are not windows above or pillars below. It is our solemn obligation to ascertain when the inspired, biblical authors are speaking with factual intent, and when they are using a type of phenomenological or poetic language - the kind we use today when we say, "The sun is rising!" (when actually the earth is rotating and exposes us to the sun). In summary, we believe that God has revealed Himself and His Truth in the created order, in the Scriptures, and, supremely, in Jesus Christ; and that the Scriptures of the Old and New Testaments are verbally inspired by God and inerrant in the original writing, so that they are fully trustworthy and of supreme and final authority in all they say.¹

A CONSIDERATION OF ORIGINS

In the beginning God created the heavens and the earth, and all that is in them (Genesis 1). Before God spoke as recorded in Genesis 1:1, the Triune God existed and His word brought all things into being. He ordered the entire universe (Psalm 33:6, 7, 9). In the New Testament, we learn that Jesus Christ, God the Son, was the agent of this work of



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creation: "In the beginning was the Word, and the Word was with God, and the Word was God. He was with God in the beginning. Through Him all things were made; without Him nothing was made that has been made" (John 1:1-3). Further, Christ "is the image of the invisible God, the firstborn of all creation. For by Him all things were created: things in heaven and on earth, visible and invisible, whether thrones or powers or rulers or authorities; all things were created by Him and for Him. He is before all things, and in Him all things hold together" (Colossians 1:15-17). Christ brought into being the fundamental materials and laws of nature, matter, and energy in abiotic and biotic forms, and designed interdependencies that demonstrate the extraordinary complexities of His design and order in nature. The creation is good, Christ's will to sustain it is immeasurable, and creation continually manifests God's glory and majesty (Romans 1). Most special in this creation is the creation of humankind - a remarkable event when Christ marked us with having His own image and gave us special work in a dominion mandate where we are stewards of creation.

In considering the foundations of science and the biblical principles supporting the study of creation, we ought not to ignore the matter of "origins of humans," a complex issue on which the Christian church today is divided. Wheaton College has an historic theological stance that pertains to this controversial matter: the affirmation "that God directly created Adam and Eve, the historical parents of the entire human race; and that they were created in His own image, distinct from all other living creatures, and in a state of original righteousness" (Wheaton College Statement of Faith). The issue of human origins has foundational significance for us because of our commitment to the scriptural teaching that as by one man (Adam) humankind fell, and by one man (Jesus Christ) humankind is being and will be redeemed (Romans 5:12-21; 1 Corinthians 15:21-23). Jesus of Nazareth - who lived, died, and rose again in first-century Palestine - is the central figure of Christian faith. He lives and reigns now with the Father and the Holy Spirit, the one Triune God of heaven and earth. We celebrate God as the source and end of the entire created order - through Jesus Christ, we claim the Lordship of Jesus Christ over every area of life and learning, and we await with joy the consummation of all things at the imminent return of our King.



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At Wheaton, special emphasis is given to integration of the Christian faith with all areas of learning and applied practice. This emphasis is, in turn, rooted in our deep commitment to the complete truthfulness and authority of the Scriptures. Nevertheless, we encourage the careful examination of all worthwhile ideas in our curriculum, including those that may seem to contradict our own institutional commitments. When we confront seeming contradictions between the "findings of science" and our understanding of the teaching of Scripture, for instance, we reaffirm our belief in an inerrant Bible. However, we also humbly realize that neither our interpretations of Scripture nor the "findings of science" are without error. Hence, we carefully examine all relevant evidence to seek resolution of the seeming contradiction, but we also are willing to accept uncertainty in matters where we have insufficient certainty, either regarding the teaching of Scripture, the findings of science, or both. We approach such matters in the confidence that our God will lead us into a deeper understanding of His Truth, and that the practice of critical inquiry - grounded in trust in the truthfulness of Scripture - will prepare our students to respond wisely to the challenges they will face. In all endeavors, Wheaton College remains firmly committed to structuring its programs in service "For Christ and His Kingdom."

Aspects of our institution's confessional stance are disconcerting to many nonreligious scientists, including our confidence that Christ designed and created the physical world, that this world bears the imprint of its rational Creator, that He is the author of all life, and, especially, that He directly created the first human pair. Yet our institution's confessional stance leaves certain issues open, issues which some in the Christian community regard as properly closed. The most notable of these issues are the age of the Earth, the age of the cosmos, and the methods by which God did His work of creation. Indeed, among our faculty there are a variety of interpretations of the age of the Earth and the age of the cosmos, as well as the means used by God to create the variegated array of life on our planet. The faculty are firm in their conviction that Christ created all of humankind through the direct creation of an historical Adam and Eve. As stated earlier in this document, and of such great significance that it bears repeating here, is that we hold fast to the truth that through one man (Adam) humankind fell, and through one man (Christ) humankind is saved. While all faculty believe in the complete



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truthfulness and authority of Scripture, some embrace or lean toward a creationism, of the Young Earth variety, others a punctuated or progressive creationism. Nonetheless, our faculty embrace Christ's creative design and action in the created order. They strive to treat all views charitably, respectfully, and intelligently as they lead campus discussion regarding these controversial matters. We believe that we honor Christ by taking precisely this approach, and we think that this is an academically honest way to impart knowledge to our students.

SCIENTIFIC INQUIRY AS WORSHIP

An important goal of Christians in science is to comprehend what can be learned about God's creation, particularly the entities, powers, processes, underlying structures, relations, and mechanisms of the natural world. As those whose hearts have been illuminated by the Holy Spirit, we recognize the created world as the "theater of God's glory" (John Calvin), and we see evidence of His majesty and power all around us (Psalm 19). Knowledge of God that results from reflection on the creation complements our knowledge of God that comes through His special revelation of Himself and our experiential knowledge of Him. Through prayer, reflection, and careful study of God's creation, we can come to know Him more fully and praise Him more worthily. As stated previously, our knowledge of the creation provides an occasion to acknowledge, to thank, to praise, and to worship the Creator. Our world was created and is sustained by Him who possesses exceedingly great knowledge and power. Therefore, we realize that the full scope and complexity of creation far exceeds the limits of human understanding.

For serious students, an in-depth study of science provides insight into the invisible qualities of God, including His eternal power and divine nature. All creation speaks of His glory. In addition, the study of science provides occasions for thanksgiving, for praise, and for worship of the Creator. Considering our faculty's dedication to the Word of God and their ongoing application of scriptural truth to their disciplines, they have regular occasions to share spiritual reflections with students, who are also seeking to increase their knowledge of God.

Through contemporary scientific approaches, we are privileged to study and comprehend the creation to a degree unfathomable to previous generations. We also are



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thankful for this unique and privileged glimpse into the creation. Science has allowed us to understand more and more about God's creation. And with such a tremendous increase in knowledge, compared to that of previous generations, we should be even more enthusiastic in directing our praise to God. Through the eyes of faith, scientists who are Christians can understand and appreciate different aspects of the creation from those outside the faith; as a result, they can affirm God's handiwork. Most of us can see the beauty of a sunset, but not many get the opportunity to marvel at the mechanism that produces the proteolytic cleavage of proteins. Science makes that knowledge possible. Study of the physical universe gives us a more profound understanding of our frame, that we are indeed made up of dust (natural elements) and that we will one day return to dust. Despite our finite, physical frame, as Christians we live by faith and are confident of the blessed hope of the resurrection leading to everlasting life and fellowship with God. The uniqueness of being human and being made in the image of God places us in special relationship with the Creator and assigns us special value. If we can begin to comprehend this profound truth, then it will affect how we relate to others, to the creation, and to our God.

TEACHING SCIENCE AS AN ACT OF DISCIPLESHIP

At Wheaton, we are committed to a thoughtful pursuit of truth, which should be understood as a lifelong journey. This quest, taken by our students, is enhanced by their education within the academy. The journey of learning takes students into realms of knowledge where they encounter concepts and issues outside their zones of familiarity or comfort. Wisdom and discretion are required as professors plan the experiences by which students are introduced to new areas of knowledge. As our students engage in the study of science, in particular, we claim Romans 12:1, 2 over their lives: "I appeal to you therefore, brethren, by the mercies of God, to present your bodies as a living sacrifice, holy and acceptable to God, which is your spiritual worship. Do not be conformed to this world but be transformed by the renewal of your mind, that you may prove what is the will of God, what is good and acceptable and perfect." When students practice the virtues of this passage, especially as they pursue scientific inquiry, they will gain insights into reality. We anticipate that our graduates will become respected members of the larger scientific community where they may serve with integrity as salt and light. They will



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continue the rich tradition of excellence by serving Christ and His Kingdom within their ranks, all the while acknowledging that they are standing upon the shoulders of those who have preceded them.

OPPORTUNITIES TO DO GOOD THROUGH SCIENCE

We anticipate that the study of science will help students develop their vision of the means by which to serve God. Such is the work and ministry of redemption and reconciliation, which involves diminishing the suffering of all creation. As we serve Christ and strive to counteract the evil effects of the Fall, we actually contribute to the triumph of good. The study of creation helps students in interpreting God's revealed Word, for it contributes significantly to their comprehensive grasp of reality. Part of this study pertains to human and social realities, and a good approach to scientific study will result in a greater understanding of the self and a more robust commitment to community. Social transformation can occur when a devoted community of inquiring young scientists joins together to experience collaboration. Such efforts, conducted with mutual respect, can result in a meaningful and lasting understanding of reality. For example, the extraordinary efforts essential to steward the earth and enhance human health demand the presence and skills of Christians who are scientists. We are called to cultivate the world, to use and sustain it in service of both God and those who bear God's image, and to maintain and seek to restore it to its full glory. Scientific studies constitute a crucial component of our labor serving God in the ongoing tasks of restoration and renewal of all creation, undertaken with earnest dedication, even as we fully anticipate that day when all things are fully and finally restored to their former state of perfection (Revelation 21:1).

Many examples of specific contributions to civilization can be cited as results of scientific study. For instance, medical advances that relieve pain and suffering, cure disease, and improve well-being. Likewise, developments in materials science, from metallic substances to plastics, contribute to quality of life for countless millions of people. The construction of detection systems to identify substances beyond the solar system; the implementation of technologies that conserve and/or capture energy; the study of natural disasters like earthquakes, floods, and volcanic eruptions; and the advancement



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of genetics to improve food products and health care products are among the types of contributions science is making for good to our civilization.

In noting that science is an important influence in positively shaping the contemporary world, we also recognize that educating students involves a consideration of how science can be a force for good or ill. Most certainly, the practice of Christian virtues plays a significant role in a Christian education, particularly for students who major in the natural sciences. We are committed to training future scientists to welcome the wisdom and guidance that comes from a rigorous Christian ethic. Individuals who practice science at Wheaton develop character through relationships with peers and professors. For example, teachers can mentor students, working in science labs shoulder to shoulder, offering advice and direction on how to follow protocol, whether in respecting the inherent worth of a cadaver or properly citing another scholar's work in a paper. Students realize that ethics are embodied, and virtues are only as good as they are lived. The practice of science presents many ethical questions that students must wrestle with when they begin their careers, and many of these questions hinge upon moral concerns that connect with their personal lives and their lives in the Church at large. As scientists, we understand that it is our obligation to challenge our students with difficult questions, guiding them in their moral formation as they develop habits that reflect their faith and practice. In fact, as we train leaders who pursue careers in science, we are compelled to do our best to develop their character and to promote the practice of Christ-like behaviors and attitudes.

Generally, those who embrace the morality taught in the Scriptures, which reveal the character and nature of God, draw their moral guidance from such direct teachings as the Ten Commandments and the Beatitudes. Our institution has embraced our Community Covenant as a distillation of biblical moral teaching, and one of the key commitments of that document is that we will "uphold the God-given worth of human beings, from conception to death, as the unique image-bearers of God (Gen. 1:27; Psalm 8:3-8; 139:13-16)."² We seek to apply this commitment to the sanctity of human life, and to other biblical absolutes, to the dizzying array of ethical challenges that confront us. Rigorous discourse is common among all faculty and students at Wheaton; but this is



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especially important for our science faculty and students, who apply biblical principles to the discussion of controversial issues, including cloning, the environment, the human genome, interpretations of tectonic plate movements, origins and evolution, technology, and many other issues of import to contemporary Christians. We attempt to be a community that exhibits respectful dialogue on these topics, reflecting a variety of views grounded in biblical absolutes. We train our students for careers in the natural sciences, equipping them to pursue their calling as servants and leaders, obedient to Jesus Christ, the Creator and sustainer of the universe.

Beyond revealing moral absolutes and guidelines, Scripture brings into focus for Christian believers many examples of righteous living, exemplified foremost by Christ, as well as by other biblical characters who were considered righteous. Such accounts of God's redemptive work in history are reflected in particular persons' lives. The Bible illustrates the need for human discernment, especially directed by the work of the Holy Spirit. Serious Christians, persons of faith who are students of the Word, find wisdom in God as they attempt to act ethically in science. Contemporary technological advances bring into question whether humankind has developed the wisdom to use its great knowledge and wealth. While there is significant debate about whether the virtues can be taught, the scientists at Wheaton College believe that the study of Scripture and the cultivation of morality, directed by Christian tradition, can form the foundations for ethical behavior.

Studying science at Wheaton College provides an opportunity for students to mature in their Christian walk. The method by which we conduct scientific inquiry is essentially communal and collaborative. We learn about the social and natural worlds through careful observations, fair interpretations, and deference to truth, all the while being motivated to respect, to restore, and to recreate. Learning is enjoined with trust and compassion, mutual respect, and charity within the community of inquirers. Its success requires developing such moral virtues as honesty, humility, self-effacement, and tenacity for service. In our teaching, we strive to model for our students the appropriate and biblical means by which to gain a proper understanding of reality. Since effective scientific inquiry embodies these specific virtues, we strive in our endeavors to model



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and teach them, and so to instill in our students the virtues of the Christian life. Intrusive and manipulative science methodologies must have moral bounds, as we tell our students. We remain committed to treating the world ethically in every form of inquiry and invention. In this respect, we affirm scientific inquiry as a noble calling, worthy of our commitment. The work of science can be a means of grace to the Christian community and to secular communities.

CONCLUSION

The societies of the world depend upon the development of science and technology and draw upon the educational institutions of our nation that train a steady stream of talented undergraduates who possess skill and competence in the scientific disciplines. To many people's surprise, the largest percentage of undergraduates who go on to complete doctorates in the natural sciences comes not from universities but from liberal arts colleges. Wheaton College ranks among the top liberal arts colleges in the country, providing high-quality, science education from a Christian perspective.

State-of-the-art technology and good laboratories prove to be indispensable tools for the study of science, and Wheaton students benefit from such tools. However, these alone cannot shape a future generation of scientists who will study the creation with a love for the Creator. To train a good scientist, good science teachers are needed. Our well-credentialed faculty not only teach, they inspire, challenging students to see science as an adventure full of curiosity and discovery. Wheaton science professors teach the facts, of course, but they also teach the faith, encouraging their students to develop Christian vision so that they can apply scientific knowledge to world problems - whether feeding the hungry, healing the sick, or cleaning the environment. Pursuing science at Wheaton is more than just a major; it is an opportunity to put knowledge into practice, for the sake of Someone greater than one's self. "O Lord how manifold are your works! In wisdom you have made them all" (Psalm 104:24).

PARTICIPATING FACULTY

The following faculty have participated in our process of discussion and creation of this document, *The Natural Sciences at Wheaton College: Understanding Their Significance in Light of Our Christian Educational Mission*. Some of this discussion occurred within



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respective departments, some in whole division discussions, and some among the faculty in the Science at Wheaton Task Force.

Dr. Dean Arnold, Chair, Sociology and Anthropology

Ms. June Arnold, Coordinator, Pre-Health Professions

Dr. Robert Brabenec, Chair, Mathematics and Computer Sciences

Dr. Greta Bryson, Chemistry

Dr. Daniel Burden, Chemistry

Dr. Jennifer Busch, Biology

Dr. James Clark, Geology

Dr. Jeff Davis, English

Dr. Dillard Faries, Physics

Dr. Larry Funck, Chemistry

Dr. Cary Gray, Computer Science

Dr. Jeffrey Greenberg, Chair, Geology

Dr. John Hayward, Computer Science

Dr. Joyce Ho, Computer Science

Dr. Paul Isihara, Mathematics

Dr. Don Josephson, Mathematics

Dr. Roger Kennett, Chair, Biology

Dr. Raymond Lewis, Biology

Dr. James Mann, Mathematics

Dr. Stephen Moshier, Geology

Dr. Bruce Myers, Mathematics

Dr. Mark Niemczyk, Chemistry

Dr. Mark Noll, History

Dr. Bob O'Connor, Chair, Philosophy

Dr. Dennis Okholm, Biblical and Theological Studies, Archaeology, and World Religions

Dr. Kristen Page, Biology

Dr. Terry Perciante, Mathematics

Dr. Pattle Pun, Biology

Dr. Steven Rauseo, Physics (deceased)



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Dr. Nadine Folino-Rorem, Biology

Dr. Rodney Scott, Biology

Dr. Joseph Spradley, Physics

Dr. Fred Van Dyke, Director of Environmental Studies, Biology

Dr. Peter Walhout, Chemistry

Dr. William Wharton, Chair, Physics

Dr. Timothy Wilkinson, Chair, Chemistry