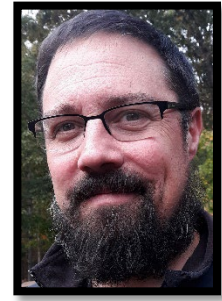




# ***Science and the Catholic Church:*** **Conflict and Controversy, or Crucible and Caritas?**



## **ELIGIBLE STUDENTS:**

Grades 8-9; 10-11th graders welcome: Students must be able to read independently and to create notes that are organized and easy to follow. Students should be able to express themselves effectively through writing, and must be capable of reviewing information and concepts on their own throughout the year outside of class.

**Class Dates: Begin** January 25, 2023 and concludes May 26, 2023

**Class Times: W/F 12:30-1:45 PM (EST)**

**Instructor:** Mr. Chris Hall

**E-mail:** [chris@alwayslearningeducation.net](mailto:chris@alwayslearningeducation.net)

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## ***SCHEDULE FOR SCIENCE AND THE CATHOLIC CHURCH:***

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### **CLASS SESSIONS DATES:**

**Classes will take place on Wednesdays and Fridays 12:30-1:45 PM (EST) for 32 classes on the following dates\* --**

**January (2):** 25, 27

**February (6):** 1, 3, 8, 10, 15, 17

**March (10):** 1, 3, 8, 10, 15, 17, 22, 24, 29, 31

**April (6):** 12, 14, 19, 21, 26, 28

**May (8):** 3, 5, 10, 12, 17, 19, 24, 26

*\*Please note the above dates and times are the anticipated class sessions for this course. However, all dates are subject to change as the instructor's circumstances might dictate (e.g. illness, family emergency). Any classes canceled by the instructor will be made up at an alternate time designated by the instructor.*

## ***SCIENCE AND THE CATHOLIC CHURCH COURSE MAP:***

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NOTE: Readings from encyclicals and other primary sources will be excerpts, not full readings. The excerpts will be selected for specificity to the topic at hand, and for discussion potential.

### **What is Science? What is Catholic Theology?**

- What is the Scientific Process? What is revelation and how do we interpret it through the lens of theology?
  - The difference between the Scientific Method, The Scientific Process, and the Engineering Process.
  - How does theology lead to dogma, canon law, and liturgical practice? (The mass, as the center and focal point of all of these aspects, will be the core focus, along with tradition.)
- Three perspectives on the cosmos- atheism, agnosticism, theism. What are the implications of each of these perspectives on science and theology?
  - Premises about reality. How does a change in premise change the reasoning (and arguments) that follow?
  - Anthony Flew, and his late-life conversion to theism after a life of atheism. Why did this happen, and what did Flew have to say about it?
- Natural philosophy vs. science- what is the difference, how do we practice each? (C.S. Lewis, *The Abolition of Man*; Pope Pius X, *Pascendi Dominici Gregis*)
  - The role of worldview, embodiment, and epistemology in the process of science and theology.
  - How do we rightly-order our pursuit of science in the modern moment, and what are the implications of that ordering in the social sphere, as well as in lab practice?

### **Conflict**

- How do conflicts arise between people, institutions, and between people and institutions?
- Pius IX, *The Syllabus of Errors*: how were the errors listed here products of conflict in the world, and what did Pius IX feel the strong need to write this document?

**How does science agree with or come into apparent conflict with the Catholic notion of man in our current moment?** (Reading and discussion points from Pope Francis, *Laudato Si*; Dawson, *The Crisis of Western Education*; Lanier, *You Are Not A Gadget*; Kurzweil, *The Singularity Is Near*; Smith, *How NOT To Be Secular*)

- Cases of Apparent Conflict Between Science and the Catholic Church
  - Copernicus
  - Galileo
  - Descartes and Pascal (two practicing Catholics, seen today as having opposing viewpoints on science, but not necessarily so...)

At appropriate points throughout the course, we will learn about prominent Catholic scientists who exemplify both practice of natural philosophy/science and the Catholic faith.

## **REQUIRED COURSE TEXTS AND MATERIALS:**

- New American Bible
- Catechism of the Catholic Church
- Commonplace notebook
- Pencil
- Highlighter
- A variety of resources and course readings will be posted on the course website for students to download, print, and read. These will include excerpts from books, papal encyclicals, and articles relevant to the topics at hand.

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## ***SCIENCE AND THE CATHOLIC CHURCH COURSE DESCRIPTION:***

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In our modern moment, the public narrative pits science against Christianity. Adherents of one simply cannot adhere to the tenets and truths of the other, so it seems, and our young Catholic students are perpetually hearing about their church's squelching of Galileo, Copernicus, and other Heroes of Modern Science in particular.

And yet, is there truth to these claims? What actually happened in those controversies, and are they being portrayed accurately? Have there been Catholic laymen, vocations, and even saints among scientists? Is science inimical to faith, or vice versa? As Catholics, what can we hold forth from the nearly two thousand year history of our faith in support of science, and what can we say that science has also offered our faith as a reflection of God's truth?

In this course, we will explore these questions through the lenses of scientific method, resources in Catholic theology from scripture to papal encyclicals, and informal logic. We will discuss readings, perform scientific experiments as they were historically performed, engage in Socratic discussion, and debate the merits of various perspectives and arguments often encountered along the frontiers of science and faith. We will learn about historical natural philosophers and scientists through the lenses of their writings, professional and personal, to see how they reconciled their craft and their faith. We will see in them, and in their work, echoes and shadows of our own time, our own concerns, and our own walks in faith.

As we wrangle with the ideas, narratives, and historical facts, we will form a picture of the relationship between science and faith that honors the notion that all Truth is God's Truth, and that God has given us the tools of intellect and discernment to serve him in a variety of ways, alongside and in resonance with truth, hope, and love.

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## **STUDENT EXPECTATIONS: EXECUTIVE FUNCTION SKILLS**

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Students enrolling in this course will be expected to show development of Executive Function skills throughout the semester. Executive Function is a set of qualities and skill sets students can develop and hone to better approach the courses, lectures, readings and teachers they will face as their academic coursework matures.

Each teacher will invariably have his own set of requirements and skills he requires students to bring to their studies. Generally speaking, I believe there are five such qualities that are necessary for my students in various subjects:

**1. An Engaged Student:** One who is willing to step into the arena of class discussion, ask questions, supply answers, take in what is being discussed, and apply it to his own experience.

**2. Note Taking:** A student who during and after being engaged with the class has been trained to note important and relevant content in an organized fashion. His notes would then be consulted, independently, for application in assignments and assessments. For those who need a framework from which to begin or refine this process, Cornell notes is a helpful system.

**3. Attention to Detail & Preparedness:** Students should consistently adhere to deadlines, submission requirements, proper reporting formats (ex. citations, quotation format), confirm technology is working prior to the start of class, determine how to proceed after an absence, be responsible for consulting his course syllabus and adjusting as the class proceeds, etc..

**4. Employ Critiques:** When students receive feedback to one of their submissions, they should apply that feedback to future assignments. Students should also glean information from the live class critiques to learn from the experience of others.

**5. Initiative/Maturity:** Students should hear the teacher comments and be able to assess whether or not the teacher was describing his work, and then take the initiative to schedule office hours with his teacher if necessary.

### **STUDENT EXPECTATIONS IN ACTION**

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Students are expected to arrive to class on time and with all assigned material completed. The instructor will facilitate learning for the student, but the responsibility for staying up-to-date with classwork and assignments ultimately falls to the student.

Students will be expected to listen attentively and to participate actively in class discussions and practices. During class discussion, students will review answers, pose questions, explain and justify their answers and solution. Each week the teacher will lead discussions informed by issues and problems raised by students, as well as issues introduced by the teacher.

Students will also be expected to maintain their commonplace notebook, and be prepared to share the public-oriented portions at any time. The more private, reflective sections are, of course, not for public share unless the student wants to do so.

All assignments will be due into the appropriate Schoology Assignment folder prior to the start of class each day. Students turning in late work will earn a 10% penalty for each day the assignment is late. Students will submit their work by scanning their homework pages and uploading it into the Schoology assignment window. Photographs of projects are the best way to document the physical artifacts we'll create during this course, but all written work must be scanned for submission, not photographed.

## **STUDENT EVALUATION: GRADING**

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As the teacher I can assign the following grades to your student's level of achievement: *magna cum laude* (with great praise); *cum laude* (with praise); *satis* (sufficient, satisfactory) and *non satis* (not sufficient).

Ideally, every average student working diligently should do praiseworthy work (*cum laude*). Those who excel beyond this expectation will be the *magna cum laude* students. Students who do adequate but not praiseworthy work be designated *satis*. *Non satis* means lacking sufficiency or adequacy.

## **STUDENT EVALUATION: MASTERY PORTRAIT**

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Students who are prepared to take this class are typically early to late teens, adolescents approaching young-adulthood. It's imperative, then, that this course not only provide the academic components necessary to achieve mastery of course content and skills associated with analytical thought, but also to help engage the student in development of their moral virtues. These aspects of the course would comprise the "learning target".

- Students will be able to define science and theology, tell how each of them claims knowledge, and identify the places in which the two may either work together or come into apparent conflict.
- Students will define the process of science, and define the use of the terms fact, theory, and truth as they are used both in science and in common parlance.
- Students will identify key resources by which we can research Catholic theology, including sacred scripture, the Catechism of the Catholic Church, and encyclicals.
  - Students will know how to read and research within these resources.
- Students will explore and understand how conflicts come into being between people, between institutions, and between individuals and institutions.
- Students will tell the history of several famous instances of apparent conflict between the Catholic Church and science, including:
  - Copernicus
  - Galileo
  - Descartes and Pascal (or the seeming conflict between their positions, even as two practicing Catholics)
- Students will identify and summarize the positions and stories of prominent Catholic scientists, who practiced both science and the Catholic faith, including:
  - Albertus Magnus- patron saint of natural science
  - Fibonacci- advocated Arabic numerals and noticed geometric patterns in nature
  - Roger Bacon- proposed the foundations of the Scientific Method
  - Brunelleschi- architect (designer of the dome of the Duomo)
  - Regiomantus- Father of Modern Astronomy
  - Descartes and Pascal- competing thought and philosophy during the late Reformation and Counter-Reformation
  - Lavoisier- Father of Chemistry
  - Pasteur- inventor of pasteurization, biologist
  - Lemaitre- first proposed the "Big Bang" theory,
- Students will learn how to spot key fallacies of informal logic that are often used to claim an apparent conflict between the Catholic Church and science.
- Students will learn faithful and winsome ways to engage in arguments with others about the relationship between the Catholic Church and science.

## **STUDENT EVALUATION: ASSIGNMENTS, TYPES & WEIGHTS**

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Mr. Hall will communicate with students regarding assignment feedback and grading through the free online grading system, Schoology. The teacher will provide students with more detailed information and access to the *Science and the Catholic Church* course page.

Student's grades will be comprised of:

1. Exams: 30% of the grade
2. Quizzes: 10% of the grade
3. Research Projects: 25% of the grade
4. Assignments: 25% of the grade
5. Class Participation: 10% of the grade

## **STUDENT EVALUATION: ACADEMIC DISHONESTY**

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Students will often take assessment tests and/or quizzes privately at home. Students are on their honor to abide by [Scholé Academy's Learning Philosophy](#) which assumes the personal cultivation of Student-Virtues described in the Student-Parent Handbook.

Additionally, plagiarism is a serious and punishable offense. Proper citation of all sources is essential to the academic endeavor. Remember to cite any source if the information is not common knowledge or is an opinion obtained through any source. A plagiarized assignment will result in a failing grade. Students should consult their chosen style manual (see Student Expectations above) for specific direction on obtaining, quoting and paraphrasing sources.

## **THE VIRTUAL CLASSROOM:**

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We will be using the free online "virtual classroom" software provided by Zoom, one of the leading companies that provides such software. The virtual classroom will provide students with interactive audio, text chat and an interactive whiteboard in which texts, diagrams, video and other media can be displayed and analyzed. We will provide students with a link (via email) that will enable students to join the virtual classroom.

Specific information regarding the technology used by Scholé Academy (including required technology) can be found by visiting the [Technology in the Classroom](#) section of the Student Parent Handbook.

Students will submit documents by scanning and uploading them to their personal computer, then attaching those files as .pdfs to an email. They will submit their work to the *Science and the Catholic Church* Schoology assignment page (access granted after enrollment is secured).

## ABOUT THE INSTRUCTOR:

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**Chris Hall** has a BA in philosophy from Gettysburg College and an MAT in elementary education from Towson University. He has been a classroom educator and administrator for 26 years, having served in public, independent, and classical schools. In that time, he has served as a classroom teacher in grades K-12, primarily as a science educator, PK-8 Science Department Chair, and a Lower School Academic Dean. Along with his professional pedigree, he is a convert to Catholicism (2005) and a lifelong practitioner of several of the common arts profiled in his book *Common Arts Education: Renewing the Classical Tradition of Training the Head, Hands, and Heart* (Classical Academic Press, 2021). He is the founder of Always Learning Education, an organization dedicated to teaching, learning, and propagating the common arts. He lives on a small, homesteaded farm in central Virginia with his wife and three homeschooled sons.