

THE WAGNER FREE INSTITUTE OF SCIENCE

Fall 2021: HISTORY OF SCIENCE SERIES
Technologies of Time
Professor Darin Hayton

Dates: 6 Wednesdays, October 6 to November 17, 2021

Time: Class meets from 6:30 to 7:45 PM

The course will be held online. A Zoom link will be sent to registered students.

To register for the course, you must sign up through EventBrite. To sign up, click on the link on the course schedule webpage. If you need assistance, please call 215-763-6529 x14.

Course Description

“For what is time? Who can easily and briefly to explain it? Who can comprehend it even in thought, so as to express it in words? And yet what in speaking do we more familiarly and knowingly make mention of than time? And surely we understand it well enough when we speak of it. We also understand it when speaking to another person we hear it. What, then, is time? If nobody asks me, I know. But if I wish to explain it to the person asking me, I do not know.” St. Augustine, Confessions, Book XI.

St. Augustine highlights the challenge and promise of studying time. It is at once familiar and foreign, obvious and inscrutable. We know it when we invoke it and when we hear it used. Like Augustine, this course is not concerned so much with the philosophical questions about the nature of time, but rather about how time is used, how we experience time, how we mark, calculate, measure, and track time. And how time has become a type of technology that is used to measure, discipline, and track people. Astronomical observations, sundials, clocks, calendars, calculations, vibrating Cs atoms, and almanacs are some of the technologies that humans have developed to control time and to control people.

Course Schedule – lectures begin at 6:30 PM

1. Wednesday, October 6, 2021 - Astronomy, Seasons, and the Experience of Time

The first class will explore the ways time was linked to human experience in Greek and Roman antiquity. We will see how time grew out of traditional observations of the planetary motions and the rising of constellations. We will also look at some of the difficult problems early scholars tried to solve through detailed mathematical analyses and ingenuity.

NO CLASS – October 13, 2021

2. Wednesday, October 20, 2021 - Telling Time in Antiquity: Sundials and Waterclocks

Scholars in Greek and Roman antiquity developed a variety of time-telling and time-tracking technologies. The most common were sundials and waterclocks. We will trace not only the development of these technologies, but also how they became linked to imperial projects, especially in the Roman Empire. We will also look at the growing community of craftsmen who specialized in making sundials.

3. Wednesday, October 27, 2021 - Calendars in Pre-modern Europe

The calendar continued to vex scholars throughout the European middle ages. The core issue was one of timing, of getting the astronomical phenomena that undergirded the calendar to correspond to the civil calendar that tracked the days. But the calendar was more than simply a problem, calendars also became important mechanisms for structuring life. Elites often commissioned beautiful calendars of saints' days and astrological/astronomical phenomena. With the advent of printing, rulers realized that by controlling the printing and distribution of calendars, they could exercise a degree of control and establish shared identities. This class will examine the problems the calendar presented as well as the opportunities.

4. Wednesday, November 3, 2021 - Mechanical Clocks in Pre-modern Europe

Mechanical clocks were marvels and wondrous mechanisms, sometimes suspected of operating through magic and sorcery. They were large, at least most early clocks were, and often on towers or in churches. Although few had minute hands, many had elaborate astronomical and astrological dials. Attendants had to reset the time, often once a day, for these early clocks did not keep accurate time. This week we will look at a number of these early mechanical clocks, in particular, the astronomical clocks on towers and in churches.

5. Wednesday, November 10, 2021 - Luxury Sundials in Pre-modern Europe

Counterintuitively, the market for luxury sundials exploded in the sixteenth and seventeenth century, well after mechanical clocks had become relatively common (at least among the elites and wealthy). Unlike earlier sundials, these later sundials were as much markers of affluence and prestige as they were time-telling devices. We will look at these later sundials both to recover what they can tell us about time in pre-modern Europe, but also what they suggest about luxury goods and the dependability of mechanical clocks.

6. Wednesday, November 17, 2021 - Clock Time as Disciplining Technology

Marking and tracking time not only prompted the development of various technologies, in turn time itself became a sort of technology that could be used to shape life. This class will look at some of the ways time seems to have been deployed as a technology, and the consequences that has had for both lived experience and for our understanding of time.

Suggested Readings

Readings for this course will be available on the course EventBrite page.

About the Professor

Dr. Darin Hayton is a historian of science whose research focuses on the creation and dissemination of scientific knowledge, especially the science of the stars (astrology and astronomy) in pre-Modern Europe and the late Byzantine Empire. He is an Associate Professor of the history of science at Haverford College and Chair of the Editorial Board of Lever Press, an innovative Open Access scholarly press. He recently published “The Crown and the Cosmos. Astrology and the Politics of Maximilian I.” He has taught for the Wagner since 2016.

Contact information for the Wagner Free Institute of Science

Office hours: Monday – Friday, from 9 to 5 PM Main telephone: 215-763-6529

Wagner staff will coordinate course registration and questions about online participation. For more information, please contact:

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