

## - Les "sundials"

Nous vous faisons suivre un message de North American Sundial Society (NASS) concernant des cours à distance sur la gnomoniques.

Thanks a lot to NASS

----- Message transféré -----

**Sujet :** A NASS Course: Elements of Dialing

**Date :** Sat, 8 Jan 2022 12:31:51 -0500

**De :** NASS <[sundial.society@gmail.com](mailto:sundial.society@gmail.com)>

**Pour :** Sundial Society <[sundial.society@gmail.com](mailto:sundial.society@gmail.com)>

Beginning in February, NASS will offer a virtual course on the Elements of Dialing. The course is intended as a basic introduction to the world of sundials. It literally begins with the question: What is a sundial? It does not presume any previous knowledge of dialing and the approach throughout will require a minimum of mathematics.

The course closely follows a course on Dialing written and successfully conducted for a number of years by Frans Maes of the Dutch Sundial Society. Frans has kindly provided us with his materials, which we are now actively translating and adapting to a (mostly) North American audience. Thank you, Frans!

**The course is free and open to all\* – but you must register in advance. To register, send your name, postal address, and email address to [sundial.society@gmail.com](mailto:sundial.society@gmail.com) along with a request to enroll in the course. Please do so before February 1.**

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\* Fine print: Although the course is open to all, the announcement of this first offering will go out only to NASS members. We expect to offer the course every 6 months, so if more people enroll than we think we can handle this time around, we may ask later registrants to defer until the next time it is offered. So don't delay registering.

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The course comprises 13 lessons. At the beginning of February, the first lesson will be emailed to students as a pdf document (approx. 15 pages). The material will be introductory but will grow over time to cover a variety of traditional dials, basic history, and some more modern varieties. For a brief description of the topics (possibly subject to change) for each lesson, see below.

Each lesson will end with a number of self-assessment questions for students to test their understanding. One week after the lesson is distributed, 'official' answers to all but one of the questions will be emailed and students will be welcome to ask for help if more clarification is needed.

Students will have 2 weeks to send in their answer to the one question not given an ‘official’ response. Submitting an answer to this question is a requirement in order to get access to the next lesson.

At the end of the course, students may opt to take a final exam and receive a certificate of completion of NASS’ first course.

Register today!

Syllabus (subject to adjustment)

1	<p><b>Location of the sun in the sky</b></p> <p>We discuss altitude, local meridian, azimuth, graphs of the sun’s altitude across azimuth; introduction to simple concepts of trigonometry</p>
2	<p><b>Orientation on the globe</b></p> <p>Look at sunlight on the equator, use of geographical coordinates latitude and longitude</p>
3	<p><b>The earth as a sundial</b></p> <p>We look at the rotating earth and pole-style sundials, introduce the solar hour angle and measuring time from the equatorial sundial at other latitudes. The armillary sphere represents a view of the celestial sphere and the sun’s path.</p>
4	<p><b>Earth and sun</b></p> <p>Down to some details of the earth’s rotation about its axis, the orbit of the earth, and terms to describe where the sun is on the celestial sphere. This includes solar declination, ecliptic, zodiac, declination and date, and declination and solar altitude. A bit of trigonometry and equations for azimuth and altitude are provided; tables of the sun’s declination and the cause of the sun’s poor timekeeping are explained and use of The Equation of Time (EoT)</p>
5	<p><b>Plane sundials / Pocket sundials</b></p> <p>We explore seven major directions with the BSS Educational Multi-Dial kit: horizontal dials, direct south and north vertical dials, equatorial dials, polar dials, direct east and west vertical dials; declining vertical dial, inclining dial; pocket dials: Augsburg, Butterfield, diptych, compound dials</p>
6	<p><b>What is a gnomon</b></p> <p>Sundials use a variety of shadow casting devices including vertical poles and slanted gnomons. Wide gnomons have a noon gap. We then introduce the concept of the shadow plane and hour plane and learn how to construction the hour lines for polar dials, horizontal dials, direct south facing vertical dials, and with a bit more complexity, declining vertical dials; shadow plane dials, and what happens when moving a sundial to another location</p>
7	<p><b>Date lines</b></p> <p>Index or nodus on the gnomon allows a mark on the shadow to date lines, other date lines. Most common are the lines for summer and winter solstice and the straight line for the equinox. We look at other date lines, and date lines as they appear on vertical declining dials, the horizon line, altitude and azimuth lines</p>
8	<p><b>Sun and clock</b></p> <p>The Equation of Time (EoT) is easy to define but hard to compute. We’ll look at solar time, mean local time, time zones, origins of the EoT with a nod to Johannes Kepler showing the orbit of the earth as an ellipse. But nothing is easy and the axis of the earth tilted to the orbit plane adds a complication to the EoT.</p>

9	<p><b>Calculating sundials</b>  Shadows; ZW2000; Sonne; Orologi Solari; measuring wall declination</p>
10	<p><b>Non-plane pole-style dials</b>  Spherical dial, terrella, the hollow sphere, polar cylinder dial, cylinder dial without style, vertical cylinder dial, diverse dial faces</p>
11	<p><b>Other sundial types</b>  Azimuth dials: analemmatic dial, sun compass, equator projection dials, azimuth dial with fixed gnomon;  Altitude dials: cylinder or shepherd's dial, farmer's ring, universal equatorial dial, quadrant, navicula, Regiomontanus dial;  Some other types: self-orienting combination, digital dials</p>
12	<p><b>Historical development</b>  Antique hours from Babylonia, altitude dial from Egypt, the Arab connection, Middle Ages: canonical dial, Renaissance: equal hours, meridian lines, Babylonian and Italian hours, heliochronometer, bifilar dial, monofilar dial</p>
13	<p><b>Miscellaneous</b>  Special sundials: reflection dials, sundials in art, sundials carried by figures, the sun pointer, moon dial, nocturnal  Accuracy of sundials: construction accuracy, reading accuracy, disappearing shadows;  atmospheric effects: refraction, twilight; Polaris; mottoes</p>