

## Credit and Webinar Information

### Continuing Education Credit Information

These webinars are open to the public. They offer continuing education credits to land surveyors in most states. Course approvals have been applied for in Florida, Missouri, and Tennessee, which are pending. Continuing education credits are not being sought in New Jersey or Rhode Island. HalfMoon Education is deemed an approved continuing education provider in New York land surveyors.

Continuing education credit is offered to professional and civil engineers licensed in all states. HalfMoon Education is an approved continuing education sponsor for engineers in Florida (Provider No. 0004647), Indiana (License No. CE21700059), Maryland, New Jersey (Approval No. 24GP00000700), North Carolina (S-0130), and North Dakota.

HalfMoon Education is deemed an approved continuing education provider for engineers and land surveyors licensed in New York (Regulations of the Commissioner §68.14(i)(2) and §69-1.5(i)(2)). The Landscape Architecture Continuing Education System has approved HalfMoon Education Inc. as a continuing education sponsor.

HalfMoon Education is an approved continuing education sponsor for land surveyors licensed in Indiana (License No. CE21700059), Maryland, North Carolina (S-0130), and North Dakota.

Tracking the Railroads is approved by the American Planner Association AICP for CM | 4.0 for Certified Planners (Course No. 9212632).

### Webinar Instructions

Each webinar session earns continuing education credit and can be registered for individually. All attendees must log-on through their own email – attendees may not watch together if they wish to earn continuing education credit. HalfMoon Education Inc. must be able to prove attendance if either the attendee or HalfMoon Education Inc. is audited.

Certificates of completion will be available for download and printing upon completion of a follow-up quiz with at least 80% accuracy.

Webinars are presented via **GoToWebinar**, an easy-to-use application that can be run on most systems and tablets. Instructions and login information will be provided in an email sent close to the date of the webinar. ***It is highly recommended that you download, install and test the application before the webinar begins by clicking on the link in the email.***

### GoToWebinar system requirements:

**Operating System:** Windows 7 - 10, Mac OSX Mavericks - macOS Catalina, Linux, Google Chrome OS, Android OS 5 (Lollipop) - Android 9 (Pie), iOS 10 - iOS 12, Windows Phone 8+, Windows 8RT+

**Web browser:** The two most recent versions of Google Chrome or Mozilla Firefox

**Internet connection:** Minimum of 1Mbps, Mobile: 3G or better (WiFi Recommended)

**Hardware:** 2GB of RAM (minimum), 4GB or more of RAM (recommended)

**For more information visit the “Support” section at [www.gotowebinar.com](http://www.gotowebinar.com).**

### **Can't Attend? Order these Webinars as a Self-Study Packages!**

Recordings of these webinars are available for purchase. See online listings for more information and please refer to specific state licensing rules or certification requirements to determine if this learning method is eligible for continuing education credit.

## May Surveying Webinars for Surveyors, Engineers and Other Professionals

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HalfMoon Education Inc.  
PO Box 278  
Altoona, WI 54720-0278



## May Surveying Webinars

### **GNSS Positioning**

- Monday, May 10, 2021 | 8:30 am - 4:00 pm CDT

### **How to Keep Good Records for Engineers and Land Surveyors (and Why it Matters)**

- Thursday, May 13, 2021 | 11:00 am - 2:20 pm CDT

### **Metes and Bounds Land Description Workshop**

- Friday, May 14, 2021 | 10:00 am - 4:00 pm CDT

### **Tracking the Railroads**

- Wednesday, May 19, 2021 | 11:00 am - 4:00 pm CDT

### **Have questions or wish to register by phone?**

Give us a call at 715-835-5900 and press 1 for Customer Service.



## HalfMoon Education Online Learning May Surveying Webinars for Surveyors, Engineers and Other Professionals



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To register visit us online at  
**[www.halfmoonseminars.org](http://www.halfmoonseminars.org)**

or call our Customer Service Department at (715) 835-5900



# GNSS Positioning

Monday, May 10, 2021 | 8:30 am - 4:00 pm CDT (including a 60-min. break)

Tuition: \$289 per registrant, \$199 per registrant for three or more

Credits: Land Surveyors: 6.0 PDHs  
(FL, MO, and TN Pending Approval, NJ, RI – No Credit Offered)  
Professional/Civil Engineers: 6.0 PDHs

## Agenda:

### Observation Modes

- Absolute positioning
  - Autonomous
  - Differenti al GPS (DGPS)
- Relative positioning
  - Phase differencing
- Kinematic
- Static
  - CORS
  - Atop a tripod
  - Static post-processing and OPUS
- Real-time
  - Real-time kinematic
  - Real-time network

### Independence of Observations: How Long Should We Wait?

- What is independence? What is correlation? Bias?
- Occupation duration
- Examples of occupation duration with various epoch rates
- Discussion of the constellation
  - Orbital planes, slots, overview of SVs, 12-hr orbital period
- Heighting example

### Error Budget

- Range-pole centering error
- Multipath
- Geometry
  - Dilutions of precision
- Environment
  - Ionosphere → multi-frequency receivers
  - Troposphere
  - Signal-to-noise ratio
- Ephemeris
  - Positioning discussion: trilateration
  - Control → orbits
  - Predicted (broadcast) vs. modeled (precise)
  - Comparison of ephemeris accuracies
- Ranging
  - Overview of how ranging works
  - C/A code, P code
  - Phase observable

### To the Future

- Reference frames, geodesy
  - NAD 83 non-geocentricity, WGS 84, ITRF
  - NATRF 2022
  - Time-dependent positioning, Stable North American Ref. Frame (SNARF)
- GPS modernization
  - L1C, L2C, L5
  - New navigation message

Presented by Dr. Thomas H. Meyer University of Connecticut

21 USGNSSPS 5 10 WEBR JB

# How to Keep Good Records for Engineers and Land Surveyors (and Why it Matters)

Thursday, May 13, 2021 | 11:00 am - 2:20 pm CDT (including two 10-min breaks)

Tuition: \$150

Credits: Land Surveyors: 3.0 PDHs  
(FL, MO, and TN Pending Approval, NJ, NY, RI – No Credit Offered)  
Professional/Civil Engineers: 3.0 PDHs

## Agenda:

- Creating certainty and reducing conflict with contracts and agreements
- Record keeping as evidence of contractual compliance
- How legal principles can guide our business practices
- The importance of communicating with clients
- Tools to help collect fees

## Presented by

Wendy Lathrop, PLS, CFM President and Owner of Cadastral Consulting, LLC

21 USH2RCRD 5 13 WEBR LH

# Metes and Bounds Land Description Workshop

Friday, May 14, 2021 | 10:00 am - 4:00 pm CDT (including two 30-min breaks)

Tuition: \$249 per registrant, \$179 per registrant for three or more

Credits: Land Surveyors: 5.0 PDHs  
(FL, MO, and TN Pending Approval, NJ, RI – No Credit Offered)  
Professional/Civil Engineers: 5.0 PDHs

## Agenda:

### Working with Metes and Bounds Descriptions

- History of land descriptions in the U.S.
- Basic land description concepts:
  - Terminology
  - Bearings
  - Distances
  - Circular curves
  - Mathematical closure
  - State plane coordinates
- Monuments, natural and artificial boundaries
- Reading and interpreting a metes and bounds description

### Metes and Bounds Workshop: Writing, Drawing and Locating Descriptions

- Writing a description
- Drawing a description
- Software for mapping, drawing and locating described lands

### Handling Special Issues in Metes and Bounds Descriptions

- “Part of” descriptions
- Exceptions and reservations
- Water boundaries
- Easements and other access rights

## Presented by

J. Cole Helfrich Principal Land Surveyor with Craig R. Knoche & Associates, P.C.

21 USMABLDW 5 14 WEBR TC

# Tracking the Railroads

Wednesday, May 19, 2021 | 11:00 am - 4:00 pm CDT (including a 30-min break)

Tuition: \$199 per registrant, \$149 per registrant for three or more

Credits: Land Surveyors: 4.0 PDHs  
(FL, MO, and TN Pending Approval, NJ, RI – No Credit Offered)  
Professional/Civil Engineers: 4.0 PDHs Certified Planners/APA: CM | 4

## Agenda:

### What is a “Railroad” by Law? (and why does it matter?)

- Highway or utility – public rights and railroad responsibilities
- The effects of railroads on development of the US
- The evolution of the regulatory framework affecting railroads in the US

### Railroad Records and Regulation

- Finding information about physical, legal, and historical railroad aspects
- The birth of Rails to Trails
- Railroad abandonment
- What “abandonment” means, physically and legally
- The process for abandonment

### Examining the Extent, Type, Location and Time/Duration of Railroad Rights

- Deciphering if railroads acquired ownership or easement or other rights
- The extent of railroad rights, and significance to landowners and railroads
- Shared uses of the railroad corridor
- Decisions relating to Rails to Trails conversions

## Presented by

Wendy Lathrop, PLS, CFM President and Owner of Cadastral Consulting, LLC

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To register, view detailed presenter biographies, and see other learning opportunities, please visit:

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