Northwestern

CENTER FOR PUBLIC SAFETY

2026 CORE CRASH COURSES

Sponsored by

MIDWEST CENTER FOR TRAFFIC SAFETY

The Midwest Center for Traffic Safety is excited to bring the Northwestern University Center for Public Safety Core Sequence to crash investigation and reconstruction professionals in 2026 at the Carol Stream and Glen Ellyn, Illinois, police departments.

The NUCPS five-course sequence is the highest caliber program available for developing and mastering the essential skills of crash investigation and reconstruction. Each course builds on concepts and techniques acquired in the previous course and is a prerequisite for the next class in the sequence. The series begins with an immersive intro to crash investigation skills, advances through key math and physics, and concludes with case study–driven reconstruction concepts and hands-on practice.

REGISTER & SAVE!

Register for $2700 or more in classes and receive a 10% discount! Take advantage of this special offer by visiting **midwesttrafficsafety.org/northwestern** or use the QR code.

Individual course registration also is available. All registration is through the Midwest Center for Traffic Safety.

COURSE DATES & LOCATIONS

Crash Investigation 1 & 2 will take place at:
Carol Stream Police Department
500 N. Gary Ave.
Carol Stream, IL 60188

Vehicle Dynamics and Traffic Crash Reconstruction 1 & 2 will be held at:
Glen Ellyn Police Department
65 S. Park Blvd.
Glen Ellyn, IL 60137

Math & Physics Review for Crash Reconstruction is a remote learning course.

CONTACT

Questions? Please contact:
Marc Fisher
Midwest Traffic Safety Center
mfisher@midwesttrafficsafety.org
847-440-4832

1 CRASH INVESTIGATION 1

At-Scene Investigation

REGISTRATION DETAILS

- Mar. 2 - 13, 2026
- $1350 per person

PREREQUISITES

None

CONTENT

- Comprehensive intro to crash investigation
- Collecting information from drivers & witnesses
- Vehicle inspection protocols and procedures
- Measuring & mapping the crash scene
- Creating sketches and post-crash diagrams
- Intro to Event Data Recorders

The moments immediately following a traffic collision are crucial, and only a well-trained crash investigator knows how to identify and collect the necessary information at the crash scene. That critical training begins with Crash Investigation 1.

Crash 1 is the authoritative NUCPS introductory course that sets students on the path to becoming proficient in the skills required to quickly, successfully, and confidently obtain critical physical evidence and driver and witness information. Expert instructors teach students how to: properly obtain and document at-scene information and evidence; gather information from drivers, passengers, and witnesses; measure and map the crash scene; and, create sketches and after-crash diagrams. Crash 1 also introduces students to EDR technologies and how the data investigators collect are used in crash reconstructions.

Crash Investigation 1 is based on the most recent edition of the Northwestern seminal text, *Traffic Crash Investigation*, which is included in the course tuition.

2 CRASH INVESTIGATION 2

Technical Investigation

REGISTRATION DETAILS:

- Mar. 16 - 27, 2026
- $1350 per person

PREREQUISITES

Crash Investigation 1

CONTENT

- Vehicle damage analysis (describing, reporting & determining direction of forces)
- Vehicle behavior in crashes
- Identifying and interpreting tire marks, road scars & other results of a crash on the road
- CDR Systems Operator course, including data downloading & preservation
- Technical report writing
- Lamp filament analysis
- Tire damage analysis & tire failure
- Measurement methods, including perspective grid, photogrammetry, diagram drawing, aerial imagery & application to crash investigation
- Interpretation of data
- Specialized data gathering, measuring devices & other testing

Traffic crash data is useful only if it is properly collected, interpreted, and analyzed. Participation in Crash Investigation 2 increases the at-scene investigator's professional skill set and enhances their credibility.

> Students who successfully complete Crash Investigation 2 develop skills in technically preparing crash investigation data and collecting follow-up data required by reconstructionists, prosecutors, defense attorneys, claims adjusters, fleet supervisors, and highway safety engineers.

Crash Investigation 2 builds upon topics examined in Crash 1 and provides students with greater knowledge of the information available at the crash scene, how to properly collect that data, and how to initiate its interpretation. Like Crash 1, the course is rooted in the latest edition of the authoritative *Traffic Crash Investigation* and emphasizes vehicle behavior in crashes, vehicle damage analysis, advanced mapping and evidence location skills, technical report writing, and proper preservation of digital evidence collected from collision investigations.

Instructors demonstrate use of such emerging technologies as mapping scenes and recording videos with drones and/or total stations. The NUCPS CDR Systems Operator course is included as a unit within Crash 2, and students who complete Crash 2 are certified to download and preserve data from EDRs.

REGISTRATION DETAILS:
- Mar. 30 - Apr. 2, 2026
- $750 per person

PREREQUISITES
Crash Investigation 1 & 2

CONTENT
- Unit conversions
- Polynomial operations
- Solving algebraic equations
- Cartesian planes
- Slope & intercepts
- Linear & quadratic functions
- Euclidean geometry
- Trigonometric definitions
- Vectors & basic operations
- More!

3 MATH & PHYSICS REVIEW FOR CRASH RECONSTRUCTION ONLINE

In only four days, students learn or review the basic and intermediate math and physics needed to advance to Vehicle Dynamics, Reconstruction 1 and 2, and beyond. In this remote learning course, instructors begin with a review of basic math and physics and progress through such intermediate concepts as linear and quadratic equations, vectors, and Newton's Laws of Motion. Students learn to solve for velocity, acceleration, and distances of travel and revisit their Euclidean geometry and trignometry. Confidence and abilities are solidified with practice problems.

REGISTRATION DETAILS:
- Apr. 6 - 10, 2026
- $1050 per person

PREREQUISITES
Crash Investigation 1 & 2; Math & Physics Review for Crash Reconstruction

CONTENT
- Newton's Laws of Motion
- Friction and drag factor
- Basic equations of motion
- Solving for velocity, time, acceleration, and distance
- Momentum - collinear (in-line)
- Time-Distance Analysis
- More!

4 VEHICLE DYNAMICS

Vehicle Dynamics teaches the advanced math and applied physics necessary for Traffic Crash Reconstruction 1, Reconstruction 2, and other advanced reconstruction courses. The skills in this course expand on those taught in Math & Physics Review for Crash Reconstruction and quickly progress to advanced physics and math concepts as applied to crash reconstruction. The course focuses on mechanics, the study of motion and forces, and the effects of such forces during a crash.

Curriculum covers Newton's Laws of Motion and the proper use of physics principles for equations of motion to solve for velocity, time, acceleration, and distances of travel. Once these concepts are understood, instruction continues to vehicle braking, drag factors, and coefficients of friction and time-distance analysis.

Please note: Instructors assume that students possess working knowledge of the math and physics taught in Math & Physics Review for Crash Reconstruction.

REGISTRATION DETAILS:

- Apr. 13 - 24, 2026
- $1350 per person

PREREQUISITES

Crash Investigation 1 & 2; Math & Physics Review for Crash Reconstruction (recommended); Vehicle Dynamics

CONTENT

- Engineering mechanics
- Equations of motion
- Vehicle behavior in collisions
- Principal direction of force
- Intro to human factors
- Time-distance analysis
- Conservation of momentum
- Oblique & collinear analysis
- Post-collision drag factors
- Newton's Laws of Motion
- Identifying & analyzing road marks
- Driver strategy & tactics
- Eight real-world case studies

5 TRAFFIC CRASH RECONSTRUCTION 1

Engineering Mechanics & Momentum

In Traffic Crash Reconstruction 1, students synthesize lessons from the previous four courses in order to learn to determine how a crash occurred.

Incorporating the latest edition of the seminal Northwestern textbook ***Traffic Crash Reconstruction***, curriculum focuses on analyzing and interpreting information collected during previous stages of an investigation in order to describe — in as much detail as possible — the crash and the events leading to actual impact. Students apply the lessons from daily lecture material to real-world case study situations — an instruction format that provides students with the training necessary to reconstruct traffic collisions. After successfully completing this course, students will have the ability to reconstruct crash situations using momentum and mechanics.

A copy the latest edition of *Traffic Crash Reconstruction* is included in the course tuition.

REGISTRATION DETAILS:

- Apr. 27 - May 8, 2026
- $1350 per person

PREREQUISITES

Crash Investigation 1 & 2; Math & Physics Review for Crash Reconstruction (recommended); Vehicle Dynamics; Recon 1

CONTENT

- Work & energy
- Damage energy
- Energy & momentum
- Force balance
- After-impact drag factors
- Occupant kinematics
- Heavy & light vehicle EDR usage in crash reconstruction
- Special velocity calculations, including sideslips, falls, vaults & flips
- Monte Carlo Statistical Analysis

6 TRAFFIC CRASH RECONSTRUCTION 2

Energy, Statistics & Data Event Recorders

The NUCPS series capstone course, Traffic Crash Reconstruction 2 (TCR2), is a continuation of the skills learned in Reconstruction 1. Drawing from the latest edition of *Traffic Crash Reconstruction*, this advanced course ties lecture material to hands-on analysis through daily, real-world case studies.

Students initially expand their understanding of crash reconstruction concepts and analyze collisions using conservation of energy. Instructors then move on to cover special velocity calculations for such situations as vehicle falls, flips, and rollovers. Students also learn basic skills for analyzing Event Data Recorder (EDR) information and how to apply such data to traditional reconstructions. Finally, students are introduced to the Monte Carlo Statistical Analysis and learn to solve momentum-based collision sequences using spreadsheet analysis.

Upon successful completion of this course, students will possess the ability to reconstruct crash situations using energy and statistical analysis of momentum-based collision reconstructions.