



# 2017 Autocross School

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*2017 "Flat Out" Classic – Student Manual*

Information and guidelines for the autocross school. Required reading by all participants.

## **Introduction and Contents**

Please download, print, and read this entire Student Packet. It contains important information about our Autocross School as well as program materials that need to be brought to the school. There are also waivers that need to be completed and signed, and brought to check-in the day of the clinic.

## **Packet Contents**

### **Registration Requirements**

Please read the registration requirements prior to registering. Please note that there are special requirements for minors.

### **Program Synopsis and Schedule**

This section describes the program of events on the day of the school. Please print the schedule and bring it to the clinic.

### **Vehicle Limitations and Tech Inspections**

This section describes vehicle requirements for the school as well as pre-event vehicle preparation. SUVs are not allowed at our schools. Please print the Tech Inspection Form and bring it to the school.

### **Student Handout and Glossary**

Please print and read the Student Handout and bring it to the school. Your instructor will likely refer to it during the clinic as you discuss the exercises. There is also a glossary of driving terminology which may be utilized during the clinic.

### **FAQs**

Frequently asked questions are addressed here. Please read these prior to registering for a school.



## **Registration Requirements and Procedures**

### **Registration**

Registration and payment must be done in advance via our online registration system at [register.flatoutclassic.com](http://register.flatoutclassic.com). Each driver must register separately. You may not register for another person. You must be a BMW Club member to attend the Clinic – membership is available as part of registration. Further information regarding club membership is at [www.bmwcca.org/join](http://www.bmwcca.org/join).

“Two driver” cars are allowed – two individuals, with separate paid registrations, may share one car instead of each person needing to drive their own car. Both drivers will still enjoy the same amount of time on the exercises as individual registrants by participating in separate groups. Each person must register separately with their own login account. If registering as a two driver car, there is a field on the registration form to list the name of the other person with whom the car will be shared. This information is important so that we can make sure to assign both people to the appropriate group.

All participants must have a valid driver's license. Learner's permits are not allowed.

The registration list for the schools will be filled on a first-come, first-served basis. Registration status can be verified by logging back in to [motorsportreg.com](http://motorsportreg.com).

Our Autocross Schools are very popular and sell out quickly, please enroll early as the clinics often fill.

NOTE: Non-registered spectators or passengers are not allowed to ride along with students at the autocross school (AXS). Only students and instructors are allowed in cars at the exercises. Spectators are welcome to attend the pre-exercise talks and watch from the staging areas.

### **Minors and Waiver Requirements**

If you are under 18, you must print and complete the Minor Waiver. Because this waiver is a mandatory insurance requirement, minors will not be allowed to participate without a properly completed Minor Waiver, and the registration fee will not be refunded.

Please see the Waivers section of the registration packet for additional details and instructions. Note that various waivers may need to be signed and notarized by all parents and/or guardians, so be sure to take care of the waivers in advance of the AXS.

## **Program Synopsis**

The Autocross School covers virtually the same skills taught in a car control clinic (CCC), but the emphasis is shifted towards driver performance. This will be accomplished in a safe and measured performance environment - a timed autocross course. The course will be broken into segments containing common autocross course features providing the opportunity to really hone your skills. Speeds will generally be higher than those seen in the CCC so helmets will be required for this event. No prior experience is necessary to attend the AXS. Convertibles are welcome.

## **Clinic Schedule and Logistics**

For the scheduled event day, please plan to arrive at the site no later than 7:00 a.m. in order to allow time for registration and vehicle tech inspections. Upon your arrival, if you haven't already done so, please check in at the registration desk, located in the timing and scoring building.

We strongly recommend that you check in with registration on Friday evening at the host hotel – the Super 8 Forbes Landing. Registration check in is also available during the day on Friday at the track.

The AX Tech and safety meeting starts promptly at 7:50 and ends at 8:30, and the school will start at 8:30 and will end at 11:00AM.

Lunch is available on site if you wish to mix it up with all the DE participants before the autocross event. Parade laps will also be available between 12:10-12:25 pm if you wish to participate in these before the event.

The AXS will be conducted rain or shine. Please be prepared for rain and/or windy weather just in case. We suggest bringing a tarp or large plastic bags to protect your belongings from the elements - especially wind!

You can also be prepared by equipping yourself with a good learning attitude. If you come with an open mind, and willingness to listen and learn, you will improve your driving skills and have a lot of fun too.

The detailed schedule of the day's program follows on the next page. Please print the schedule and bring it with you to the clinic.

All drivers are required to attend the mandatory safety meeting located in the south paddock. The meeting begins at 7:50am.

## Autocross School - Schedule

6:30 – 7:45 AM

### **Student Registration & Tech Inspection**

Registration for all events opens at 6:30am but we recommend avoiding the DE rush and registering FRIDAY evening.

Registration will be open until 7:45am Saturday for the AXS.

Event Registration located in the timing and scoring building.

**Tech Inspection and safety meeting from 7:50 am – 8:30 @ South Paddock (AXS Site)**

8:30 – 11:00 AM

### **Autocross Clinic**

Meeting @ South Paddock

11:00 – 12:30

### **Lunch**

12:10 – 12:25

### **Parade Laps**

12:45 – 4:00

### **Autocross Event (6 Runs) 8 Runs if time allows**



## Vehicle Limitations and Technical Inspections

We do not allow SUVs at the AXS due to their high center of gravity (with the exceptions that BMW X models and Porsche Cayenne SAVs only are allowed). Convertibles are allowed at the AXS. If there is a question about the appropriateness of your vehicle, please contact us at [registrar@flatoutclassic.com](mailto:registrar@flatoutclassic.com)

Technical inspections will be performed on all cars on the morning of the school. Please print out the Tech Inspection form below and bring it with you to the clinic. These are the items we will inspect so be sure your car will pass. After arrival and check-in, you will need to remove all loose items from inside your car and its trunk prior to the tech inspection.

Common problems that can keep you from participating may include: loose batteries, loose wheel bearings, and a spongy brake pedal. If you have an older car or a car with high mileage, please check these before the school.

Prior to the school, inflate your tires to about 38 psi. Inflating your tires to this higher than normal pressure will significantly improve performance and reduce tire wear during the exercises. Air is available onsite.

Helmets are required for the AXS. Helmets must meet current BMWCCA helmet guidelines as outlined in the operations manual (Snell SA or M, 2010 or newer).

### **Autocross School Tech Inspection Form**

#### **Engine Compartment:**

- Motor Mounts secure.
- Hoses not cracked or leaking.
- Belts not cracked/frayed.
- Cooling fan intact/not cracked.
- Check fluid levels (Check your OIL!)
- Battery Secure (no bungee cords)

#### **Under Car:**

- No loose dangling/hanging parts.
- No fluid leaks.
- Exhaust is secure.

#### **Suspension/Chassis:**

- Shocks (rebound test).
- Wheel bearings (no play).
- Tires: tread depth; no excessive cracks/bulges.
- Tire pressures (set to ~38psi).
- Check/feel wheels for cracks.
- Wheel lug nuts all tightened. None missing.

#### **Interior and Trunk:**

- 2 front seats or bench seat.
- Seat belts each front seat.
- Steering play not excessive.
- Brake pedal is firm.
- Remove all loose items (check glove box/trunk).
- Keep student handout in the car.

**Be sure your car passes ALL of these checks!**

**Please leave your student handout and schedule in your car.**

## Student Handout – Glossary of Driving Terms

Please print and bring the Student Handout pages to the AXS.

You and your instructor need a common vocabulary to communicate effectively and timely. This glossary is intended to be a tool and a study guide to learn the 'language' used in car control and high performance driving. The more you understand the terminology and jargon, the faster you will learn the concepts, and the more fun you will have at all of your future driving events.

**ABS** (Anti-lock Braking System) – Using wheel rotation sensors and a computer, the ABS system prevents individual wheels from locking up, or skidding, when the brakes are applied. Rolling tires have more traction (and thus better stopping or steering ability) than sliding tires.

**APEX** – The point in a turn where the car comes closest to the inside edge of the road/track/course.

**EARLY APEX** – An apex in which the car reaches the inside edge of the track too soon in the corner (typically apexing BEFORE the geometric center of the turn). Usually caused by early turn-in, the car may run out of track at the track-out point. This is generally unsafe.

**LATE APEX** – An apex in which the car reaches the inside edge of the track late in the corner (typically AFTER the geometric center of the turn). Usually caused by late turn-in, the car will not need all the track width at exit. Generally speaking, a late apex is considered the safest and fastest line through a given turn.

**BOTH FEET IN** – Fully depressing both the brake and clutch pedals in order to lock the wheels and disengage the clutch/engine. When the car has gone into an uncontrolled spin, "both feet in" should be done immediately to stop the car as fast as possible and to avoid damage to the engine/transmission. "If you spin, both feet in."

**BRAKING POINT** – The reference point on a track/course where braking begins in order to slow the car for an upcoming turn.

**BREATHE OFF THE THROTTLE** - A very slight, controlled, smooth modulation or feathering of the throttle. This slight reduction of throttle input can help transfer weight to the front tires to help with turning.

**CONTACT PATCH** – The portion of the tire that is in direct contact with the ground at a given point in time. The size of the contact patch is proportional to the amount of weight or downward force on the tire. The size of the contact patch also determines how much grip the tire will have.

**DEAD PEDAL** – The footrest to the left of the clutch pedal.

**EASE ON/EASE OFF** – To smoothly add or remove throttle input.

**GATE** – Two or more standing cones that you must drive between to stay on course. A series of gates makes up the layout of the course. Pointer cones, cones lying down, often point towards the gates to help you out.



## **Student Handout – Glossary of Driving Terms Continued**

**LIFT** – To remove throttle input partially or completely in an abrupt or sudden manner (somewhat literally by “lifting” your foot’s pressure off the throttle pedal).

**THE “LINE”** – The optimal path around a track or through a course.

**NEUTRAL THROTTLE** – Applying enough throttle to maintain a constant speed, neither accelerating nor decelerating.

**OVERSTEER** (aka NASCAR “loose”) – A condition where the rear tires are sliding more than the front tires in a turn, resulting in the car rotating more than the desired direction of travel. The front tires have more grip than the rear tires. If not corrected, a spin may result.

**POWER OVERSTEER** – Oversteer caused by applying too much throttle too soon. Applies only to rear wheel drive cars.

**TRAILING-THROTTLE OVERSTEER** – Oversteer caused by abruptly lifting off the throttle as the car is turning. Also called ‘lift throttle oversteer’.

**POINTER CONE** – A cone or series of cones lying down. The side they are pointing towards is the side of the standing cone that you must go around. Two upright cones, flanked by pointer cones pointing toward each other, define a “gate”.

**RADIUS, CONSTANT** – When the arc of a turn remains constant, as in the arc of a perfect circle.

**RADIUS, DECREASING** – When the arc of a turn gets sharper and tighter, requiring increased steering input.

**RADIUS, INCREASING** – When the arc of a turn becomes wider and more open.

**ROTATION** – The turning of a car by using brakes and/or throttle. (Trailing Throttle Oversteer and Weight Transfer)

**SKID** – When the car is moving or sliding, but the tires are not rolling in the direction of travel.

**SKID PAD** – A circular training course that provides a driver with a perpetual corner of varying radii. This exercise allows the driver to practice varying the arc of the turn using the throttle instead of the steering wheel. Weight transfer is used to change grip level and rotate the vehicle. Also teaches the benefits of looking ahead.

**SLALOM** – An exercise where one weaves through a series of cones or obstacles. It is designed to teach smoothness, accuracy, and the benefits of looking ahead.

**SMOOTHNESS** – Avoiding suspension rebound caused by abrupt weight transfer from sudden throttle, brake, and/or steering changes. Smoothness does not necessarily equate to slowness, and can be done in a quick/decisive manner with practice. Being smooth keeps the vehicle more stable and more predictable.

## **Student Handout – Glossary of Driving Terms Continued**

**SPIN** – A condition where the tires have lost traction and the vehicle is spinning around its vertical axis.

**SQUEEZE** – To smoothly add more throttle or brake. Imagine an egg on top of the pedal, so that the egg and pedal must be pressed smoothly since an abrupt push will crack the egg.

**STAB** – An abrupt application of throttle or brakes. Opposite of smooth. Can upset the balance of the car and make it unpredictable.

**TARGET FIXATION** – “The car goes where you look,” usually in a negative way, i.e. staring at an obstacle will cause you to drive toward it.

**THRESHOLD BRAKE** – To use 100% of the car’s braking ability in a straight line, just shy of a skid or ABS activation. This is the maximum braking force that can be applied without locking up the wheels, especially in cars without ABS.

**THROTTLE STEERING** – Adjusting throttle input to transfer weight between the front and back tires (changing grip levels at the contact patches) and thereby change the rotation of the car, while not making any changes with the steering wheel. With throttle steering, an oval route can be driven on a circular skid pad.

**TRACK OUT** – the “exit” reference point at the outside edge of a turn, after steering has been completely unwound (see “unwind”) and the car is traveling in a straight line again.

**TURN IN** – the beginning “entry” reference point of a turn, when transitioning from straight line travel to turning, and the driver starts turning the steering wheel. The turn in point is usually at the outside edge of the beginning of the turn.

**UNDERSTEER** (aka in NASCAR “tight”, “push”, “plow”) – A condition where the front tires are sliding/skidding more than the rear tires in a turn, resulting in the car rotating or turning less than desired.

**UNWIND** – To return the steering wheel to the center position, in a smooth and controlled motion.

**WEIGHT TRANSFER** – Change in the car’s distribution of weight across each of the four tires. Weight transfers to the front tires under braking OR lifting off throttle, to the rear tires under acceleration, and from side to side while turning.

## **FAQs – Frequently Asked Questions**

### **Q: Do I have to be a BMW Club member to attend a Autocross School?**

A: Yes. All students must be members or associate members of the BMW Car Club of America. If you are not a BMW Club member you may purchase a membership as part of registration or you may join by going to [www.bmwcca.org/join](http://www.bmwcca.org/join).

### **Q: How do I join the BMW Car Club?**

A: You may contact the BMW Car Club Of America and discuss options on how to join the club. You will get your new membership number immediately and allow you to register for the event. You may also purchase a club membership directly on the BMW CCA website at [www.bmwcca.org/join](http://www.bmwcca.org/join). It will take 2-4 weeks to receive your membership number using this method.

### **Q: Do I have to own a BMW to join the BMW Club?**

A: No. You do not have to own a BMW to join the BMW Club.

### **Q: How do I register for the Autocross School?**

A: Please visit <http://register.flatoutclassic.com>

### **Q: What if I forget to enter my BMW Club membership number when I create my account?**

A: We may assume that you are not a BMW Club member and your registration may be cancelled. Please contact us with your membership number.

### **Q: Can I register at the event?**

A: No. Registration must be done in advance at <http://register.flatoutclassic.com>. No on-site registrations will be accepted.

### **Q: What forms of payment do you accept?**

A: The registration website only accepts credit card or electronic check payments.

### **Q: Do you require advanced payment or can I pay on the day of the AXS?**

A: Advance payment is required when you register.

**Q: Can I register for my wife or friend?**

A: No. Each participant must register separately with their BMW Club membership number (regular or associate member). If you do not enter your membership number we may assume you are not a member and your registration may be cancelled.

**Q: Are two driver cars allowed? (Two drivers sharing one car?)**

A: Yes, two driver cars are allowed. Both participants must submit separate registrations and payments at <http://register.flatoutclassic.com>. Each should enter the other person's name in the "Sharing a car with another attendee" field when completing the online registration form.

**Q: How are AXS registrations prioritized?**

A: The roster will be filled on a first come, first served basis.

**Q: What is your cancellation policy?**

A: The event occurs rain or shine.

Thank you.

**Q: How do I prepare for this school?**

A: You will get the most from this class by equipping yourself with a good learning attitude. If you come with an open mind, and a willingness to listen and learn, you will improve your driving skills and have a lot of fun in the process.

Please see the Vehicle Limitations/Tech Inspection section of this Student Packet for technical preparation details. Please also review the entire Student Packet before the event. This will help familiarize you with the event exercises, concepts, and terms we will be teaching.

**Q: Can my teenage son or daughter participate with a learner's permit?**

A: No. All participants must have a valid driver's license.

**Q: Can minors under age 18 participate?**

A: Yes, but minors must have a valid driver's license and provide a completed Minor Waiver. Please see the Waivers section of the information Packet for the waiver requirements. We strongly encourage teenagers to participate in our clinics. We very much want to instill good driving habits and car control skills in young drivers before they develop bad habits. Note: Waiver policies are subject to change and may vary by event site requirements. Please contact us if you have any questions – registrar@flatoutclassic.com

**Q: Can I participate in a convertible without modifications?**

A: Yes. Convertibles are allowed to participate in the Autocross School only.

**Q: Should I buy new tires for this school?**

A: If your tires are "street legal" (not down to the wear bars) you should be fine. We want you to be safe coming to the event, at the event, and going home from the event.

**Q: Does my friend/wife/girlfriend/son/daughter have to be a BMW Club member to participate in this event if we sign up as a two-driver car?**

A: Yes. All students must be members or associate members of the BMW Car Club. Both students in two-driver cars (one car shared by two students) must submit separate registrations at <http://register.flatoutclassic.com> — be sure to enter the other person's name in the field "sharing a car with another attendee". All students must have a valid driver's license. Minors (under age 18) must provide a completed Minor Waiver. Please refer to the Waivers section of the Information Packet. Contact us at registrar@flatoutclassic.com if you have questions.

**Q: I signed up for the clinic as a BMW Club member, and my wife is signed up as an associate on my membership. Can we bring separate cars? Or does that require two separate (non-associate) memberships?**

A: Each driver must register and pay separately. You are welcome to either bring your own separate cars, or share one car. Associate members may register for Car Control Clinics as well as all other BMW Car Club events.

**Q: Should I bring a chair?**

A: We have a very busy schedule. The only time you are not in your car is during the lunch break and at the exercise "chalk talks", so you won't be sitting around very much.

**Q: Can I bring my dog?**

A: For your pet's safety and the safety of other participants we recommend leaving your pet at home. HPT does allow pets so if you must bring them, please make certain they don't stray.

**Q: Can I have a passenger ride in the backseat all day with me?**

A: No. Only instructors may be in the vehicles. Your guest may come with you to the exercise, listen to the "chalk talks" and watch from the staging areas.

**Our ultimate goal is to make you a better skilled, safer, and more aware driver while, at the same time, increasing your driving enjoyment. We look forward to seeing you at the clinic!**