

Case	Challenge	Course	Metric	Target Score Criteria	Max Points	Min Points	Max Occurrences	Points Per Occurrence	Metric Notes
AutoDrive Challenge Scoring Rubric - v2021.1									
Static Events									
SRR	Social Responsibility Report		Report Score		50	0			
SRE	Social Responsibility Event		Evaluation Score		50	0			
CDR	Concept Design Report		Report Score		100	0			
CDE	Concept Design Event		Evaluation Score		100	0			
	Static Events			Total Score:	300				
Technical & Safety Reports									
	Roof Rack Antenna Mounting Form		None		0	0			
	Functional Safety Video		Evaluation Score		50	0			Extra Credit: YouTube Likes
	Technical & Safety Reports			Total Score:	50				
MathWorks Simulation Challenge									
	MathWorks Simulation Challenge		Total Score		50	0			
	MathWorks Simulation Challenge			Total Score:	50				
99% Buy-Off Ride Challenge (BOR Challenge)									
BOR.x	99% Buy Off Ride Challenge	*	Per-Segment Metrics	Accumulate per-segment points from 16 segments across 2 scored routes (8 segments / 200 points per route)	400	0	16	25	
BOR.DNF1	99% Buy Off Ride Challenge	*	Time Limit	Teams have one 20 minute window to complete the route. A route will contain 8 segments.	-400	0	2	-200	DNF - All points in a day's route obtained after the DNF occurs will be forfeited.
	99% Buy Off Ride Challenge			Total Score:	400				
Per-Segment Metrics:									
			Object Perception & Interaction	Point distribution in this category will vary, depending on the objects encountered on each segment. Each occurrence in a given segment will be equally weighted, summing to 15 points.	15				
BOR.x.1.1	99% Buy Off Ride Challenge	(Each Segment of 16 total)	React Properly to Signal	Green: Decelerate if necessary for acceleration metrics, but do not stop. Solid Red: Come to a complete stop within 3 meters of the limit line preceding the intersection, with no part of the vehicle past the limit line. Remain stopped until legally allowed to proceed. The vehicle must begin movement within 5 seconds of the light turning green. Flashing Red: Come to a complete stop within 3 meters of the limit line preceding the intersection, with no part of the vehicle past the limit line. Remain stopped until legally allowed to proceed. Yellow: Vehicle can either follow the rules for Green or Solid Red light. Vehicle must enter the intersection before the light turns red to gain points.					
BOR.x.1.2	99% Buy Off Ride Challenge	(Each Segment of 16 total)	React Properly to Traffic Control Signage	Stop Sign: Come to a complete stop no more than 3 meters before any applicable limit line[1], and proceed into the intersection when safe and legal to do so. Yield Sign: Slow down to a speed reasonable for the existing conditions but do not stop unless a stop is required to navigate the intersection safely. Turn Only: Complete a required turn as mandated by a Left Turn Only or Right Turn Only sign. Speed Limit Sign: Do not exceed the posted speed limit[2]. Roads with no posted speed limit signs or 25 mph signs are not scored for this metric. Do Not Turn: Do not turn the direction specified by the sign. Do Not Enter: Do not enter the roadway specified by the sign. 1. If no explicit limit line is painted, vehicles shall interpret the plane of the sign as the limit line. 2. Exceeding the competition speed limit (i.e. 25 mph) will result in an automatic DNF. Teams may encounter 5, 10, 15, 20, and 25 mph.					Competitors will also see other types of traffic control signage which will not be scored by this metric.
BOR.x.1.3	99% Buy Off Ride Challenge	(Each Segment of 16 total)	React Properly to Uncontrolled Intersection	Vehicle must enter and exit uncontrolled intersections without coming to a complete stop.					

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BOR.x.1.4	99% Buy Off Ride Challenge	(Each Segment of 16 total)	Avoid Static Objects	Bicycles: Vehicle must remain a minimum of 3 feet from all bicyclists. Other: Avoid colliding with any static object obstructing the vehicle's path of travel.					
BOR.x.1.5	99% Buy Off Ride Challenge	(Each Segment of 16 total)	Avoid Dynamic Objects	Pedestrians: When required to stop[1], vehicles must stop before the limit line preceding the crosswalk, with no part of the vehicle past the limit line[2], and allow the pedestrian to completely cross the roadway before proceeding. Other Dynamic Objects: Avoid colliding with any dynamic objects obstructing the vehicle's path of travel. 1. Vehicles shall only stop when a pedestrian is in the roadway or at the edge of the roadway. 2. If no explicit limit line is painted, vehicles shall interpret the leading crossing boundary or leading edge of hash marks as a limit line.					Competitors will not be penalized for exceeding deceleration limits to avoid dynamic objects.
BOR.x.1.6	99% Buy Off Ride Challenge	(Each Segment of 16 total)	Intersection Lane Selection	Vehicle crosses into the intersection while inside the proper lane to execute the desired turn, and exits the intersection into the appropriate lane.					Left turns must exit in the leftmost lane; Right turns must exit into the rightmost lane.
BOR.x.1.7	99% Buy Off Ride Challenge	(Each Segment of 16 total)	Rail Road Crossing	When crossing is closed: Vehicle must stop within 3 meters of the limit line preceding the crossing, with no part of the vehicle over the limit line. Vehicle must begin moving within 5 seconds of all controls being inactive (gates, lights) and gates being stowed in the upright position. When crossing is open: Vehicle must not stop.					
BOR.x.1.8	99% Buy Off Ride Challenge	(Each Segment of 16 total)	Tunnel Crossing	Vehicle must not stop in the tunnel					Points will be awarded when rear bumper of the vehicle crosses the tunnel exit.
BOR.x.1.9	99% Buy Off Ride Challenge	(Each Segment of 16 total)	Correctly Signaling for Turns	Engage the appropriate turn signal before entering an intersection when making a right or left turn at the intersection. Do not engage either turn signal when driving straight through an intersection.					Turn signal usage is not scored in intersections that have construction blocking one or more of the exits of the intersection. Turn signal usage is not scored while entering or exiting roundabouts.

			Destination Objectives		3				
BOR.x.2.1	99% Buy Off Ride Challenge	(Each Segment of 16 total)	Arrive at Address	Vehicle must arrive within 10 meters of the destination address and must be on the road that the destination address is on.	1	0	1	1	
BOR.x.2.2	99% Buy Off Ride Challenge	(Each Segment of 16 total)	Stop at Address	Vehicle must come to a complete stop within 10 meters of the destination address and must be on the road that the destination address is on.	1	0	1	1	
BOR.x.2.3	99% Buy Off Ride Challenge	(Each Segment of 16 total)	Shift Into Park	Vehicle must autonomously shift to park and remain in park for a minimum of 5 seconds.	1	0	1	1	Segment is "finished" after the end of the 5 seconds.

			Autonomous Mode Route Completion		2				Teams must autonomously arrive at the destination address [BOR.x.2.3] in order to be eligible for Route Completion points.
BOR.x.3.1	99% Buy Off Ride Challenge	(Each Segment of 16 total)	Route Optimization	The vehicle must take the most direct path between the start and destination addresses.	2	0	1	2	

			Drive Quality Metrics		5				Teams must autonomously arrive at the destination address [BOR.x.2.3] in order to be eligible for Drive Quality Metric points.
BOR.x.4.1	99% Buy Off Ride Challenge	(Each Segment of 16 total)	Peak Longitudinal Acceleration	+0.5 pts for staying below 3.5 m/s ² ;	0.5	0	1	0.5	
BOR.x.4.2	99% Buy Off Ride Challenge	(Each Segment of 16 total)	Peak Longitudinal Deceleration	+0.5 pts for staying above -3.5 m/s ²	0.5	0	1	0.5	Competitors will not be penalized for exceeding acceleration gradient limits to avoid dynamic objects.
BOR.x.4.3	99% Buy Off Ride Challenge	(Each Segment of 16 total)	Peak Longitudinal Acceleration Gradient	+0.5 pts for staying below 15 m/s ³	0.5	0	1	0.5	Competitors will not be penalized for exceeding acceleration gradient limits to avoid dynamic objects.
BOR.x.4.4	99% Buy Off Ride Challenge	(Each Segment of 16 total)	Peak Longitudinal Deceleration Gradient	+0.5 pts for staying above -10 m/s ³	0.5	0	1	0.5	Competitors will not be penalized for exceeding acceleration gradient limits to avoid dynamic objects.
BOR.x.4.5	99% Buy Off Ride Challenge	(Each Segment of 16 total)	Peak Lateral Acceleration	+0.5 pts for staying within ±3.5 m/s ²	1	0	1	1	Competitors will not be penalized for exceeding acceleration gradient limits to avoid dynamic objects.
BOR.x.4.6	99% Buy Off Ride Challenge	(Each Segment of 16 total)	Avoiding Unnecessary Stops	Vehicle must not stop at any time between the start address and destination address unless required by a traffic control device or dynamic object.	2	0	2	1	

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BOR.x.DNF2	99% Buy Off Ride Challenge	(Each Route of 2 total)	Off Course	Occurs when the vehicle has all four (4) tires outside the course boundary, as indicated by a solid white line, yellow line, or pavement edge.	0	-200	2		DNF - All points in a day's route obtained before the DNF occurs will be kept.
BOR.x.DNF3	99% Buy Off Ride Challenge	(Each Route of 2 total)	Manual Takeover	Occurs as a result of any manual takeover or E-stop activation while on-course.	0	-200	2		DNF - All points in a day's route obtained before the DNF occurs will be kept.
BOR.x.DNF4	99% Buy Off Ride Challenge	(Each Route of 2 total)	Collision	Occurs when the vehicle collides with any object or drives on top of a curb.	0	-200	2		DNF - All points in a day's route obtained before the DNF occurs will be kept.
BOR.x.DNF5	99% Buy Off Ride Challenge	(Each Route of 2 total)	Exceeding Autonomous Vehicle Speed Limit	Occurs when the vehicle under autonomous control exceeds the autonomous vehicle speed limit (25mph)	0	-200	2		DNF - All points in a day's route obtained before the DNF occurs will be kept.
	99% Buy Off Ride Challenge	Total (Per Segment):			25				
	99% Buy Off Ride Challenge	*	Tie Breaking	1. Highest number of segments completed 2. Fastest cumulative route time					

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