Driving Safety Refresher Course

Mount Graham International Observatory

Original PPT by
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Purpose

• Help MGIO drivers understand aspects of driving safely in mountain habitat

• Promote understanding of UA and MGIO expectations
Company policies

- MGIO Driving Policy
  - Personnel Memorandum

- Obey traffic laws
  - For example: seatbelt use required, follow speed limits, pass only in passing zones

- Valid drivers license required
Driving Abstracts

- UA Risk Management
  - Reviews all UA drivers for driving violations

- UA Risk Management reporting system with accountable follow up for poor driving

- UA can deny driving privileges to employees based on:
  - Pattern of driving violations
  - One DUI conviction
Driving Issues

• Passengers noticing driving issues or violations should bring them to driver’s attention
  – and/or notify your supervisor

• Employees who commit safety violations are subject to disciplinary action

• Senior Managers and SO Safety Officer are authorized to remove driving privileges with reasonable cause
Avoid Accidents and Injury

• Drive at speeds safe for road conditions

• All occupants must wear safety belts

• All drivers of UA vehicles must comply with Arizona State traffic laws and ABOR Policies
CAUTION! Hazards:

• Rough roads and dirt roads
• Narrow rural roads without shoulders, poor engineering
• One-lane bridges, blind curves, steep grades
• Large recreation vehicles, hunters, horses, deer, black bears or other large wildlife may suddenly appear
• Oncoming drivers may cross center line
• Steep drops, ditches, bridges and culverts with **NO guard rails**
• Poor or no visibility due to severe winter or monsoon weather – blizzards, heavy fog / heavy rain
• Bad weather such as ice, snow and severe wind storms
• Bicyclists, boulders, and trees (blow down) may be on the roadway
Defensive Driving

- Prepare yourself and vehicle
  - Check tire pressure, leaks, fluid levels, fuel level, clean windows and mirrors, review vehicle controls
  - Wear seat belt, adjust mirrors and seat position
  - Know how to change flat tires safely

- Follow posted speed limits

- Never cross solid yellow lines

- Never tailgate

- Eliminate distractions
  - No cell phone use when driving
Defensive Driving

• Recognize hazards
  – Scan the road ahead
  – Check all mirrors every 3 – 5 sec.
  – Keep your attention focused on driving

• Understand the defense
  – Use “what-if” strategy to help keep your attention focused on driving
  – Avoid hazard in time to prevent collision
  – Take foot off gas and “Cover the brake”

• Keep a defensive attitude
  – Stay calm and courteous
  – Control emotions if cut off or tailgated
  – If upset, breath deeply and count to ten
Speeding…

Don’t Do It!

• Reduces ability to negotiate curves / maneuver around obstacles
• Extends distance to stop vehicle
• Increases distance traveled while driver reacts
• Compromises integrity of vehicle structure
• Decreases effectiveness of air bags and seatbelts
• Decreases effectiveness of guardrails / barriers
• Increases risk of crashes
  – Other vehicles and pedestrians may not be able to judge distance accurately
• Increases wear and tear on vehicles increasing maintenance cost
Mountain Driving

- **Engine braking - downhill**
  - Downshift on steep downhill grades
  - Don’t over-rev, keep below ~5000 rpm

- **“Snub braking” technique**
  - Brake firmly until 5 mph below desired speed
  - Release brake, don’t ride brakes!

- **Shifting – uphill**
  - Let the vehicle downshift if needed

- **Slow Down**
  - Gravel, ice and snow all have poor traction
  - Stopping distance much longer

- **Night driving**
  - Slow down
  - Low beams/fog lights in fog
  - No drowsy driving
Winter Driving

Ice & Snow

• Drive slowly
  – Everything takes longer… accelerating, stopping, turning
  – Give yourself time to maneuver – drive slowly!

• Increase following distance >10 seconds
  – Longer distance needed if you have to stop

• Don't stop if you can avoid it
  – Much more inertia is needed to start from a full stop than to get moving while still rolling

• When parking in freezing weather, avoid using the parking brake
  – The brake linings could freeze to the brake drum and disk. If necessary, block tires with rocks or other heavy objects.
Steward Observatory Safety Manual

– Policy #42 – Mountain Travel and Habitat

• Emergency Contact Listing
  – Telephone and radio contacts – radio required on Mount Graham

• Safety Equipment
  – Fire extinguisher, crank flashlight, small shovel, ice scraper, first aid kit, butane mini-torch, emergency blanket, bag of sand, and basic tool kit, fitted tire chains (for all four tires)

• Read MGIO Orientation Package
  – Available on MGIO website: http://mgio.arizona.edu
    –tab– Visitor Information –tab– MGIO Orientation
• Don't over power up hills
  – Extra power gets wheels spinning
  – Get inertia going before you reach hill and let it carry you to top
  – At crest of hill, reduce your speed and proceed down hill as slowly as possible

• Don't stop going up a hill
  – Get inertia going on a flat before hill

• Use snow chains when required
  – Learn how to put on chains – all 4!
  – Chains used only on ice and snow
  – Remove when not needed

LINK TO SNOW CHAIN VIDEO
Skidding on Ice & Snow

• Take foot off gas

• Slowly turn steering wheel in direction that rear end is moving

• Don’t overcompensate steering
  – If car's rear end begins to fishtail to other side, slowly steer in that direction.

• Multiple “fishtails” are common
  – Stay calm and continue to steer in direction of rear end until car's path straightens out

• If necessary, stop vehicle after it has straightened itself and collect your thoughts
Driving on Unpaved Roads

• Use 4WD on dirt road
  – Most 4WD vehicles have automatic hubs – if not you will need to set them manually
  – Speed limit of 25 mph maximum

• Windows kept closed and A/C on re-circulate
  – Keep dust out of vehicle

• On sharp “switch back” turns, your speed should be less than 15 mph
  – Extended stopping distance on dirt
  – Lack of guard rails
  – Narrow road
  – Vehicle can slide off the roadway
• **Slow Down**
  and take your time

• **More time to react to conditions**
  – Rocks, grader berms, vehicles in your lane, blind corners, and narrow sections by culverts and curves
  – Hitting a rock or other obstacle can knock a hole in oil pan, differential or damage brakes

• **Going slow helps**
  – If you hit a rock and it catches underneath, it may stop or damage the vehicle

• **When crossing grader berm -- slow down and cross at an angle**
  – Wait for grader to reach a safe place or stops to pass
SUV versus Sedan

• Handling
  – SUV is heavier and has higher center of gravity
  – SUV handles poorly in abrupt maneuvers

• Rollover
  – SUV is much easier to rollover
  – Rollovers are very dangerous for passengers
    • Seat belts and airbags less effective

• Braking
  – SUV stopping distance is longer
SUV and Trucks

- Avoid sharp turns and abrupt maneuvers
- Drive at safe speeds for conditions
- Ensure tires properly inflated
- Never overload vehicle
- Make sure every passenger is properly restrained – UA Policy!
- In a rollover crash, unbelted person is significantly more likely to suffer serious injury
Do you know when you’re drowsy?

- You can’t remember the last few miles
- You’re not sure where you are on the road
- You drift out of your lane
- You wander across road and over correct
- You tailgate, or miss traffic signs
- You can’t concentrate, your mind wanders
- You can’t stop yawning
- You have trouble focusing your eyes
- You can’t keep your eyes open
- You have trouble keeping your head up
How to avoid driving drowsy

• Get 7 - 9 hours sleep every 24 hour period
• Sleep for a few hours after working and before driving
• Know the symptoms of drowsiness
• Stop immediately when you feel drowsy
• Take a short nap before resuming driving
• Ask someone else to drive
• Avoid alcohol and medications that make you drowsy
• **Tips to combat drowsy driving**

  – Make your bedroom dark and sleep at same time every day
  – Block or mask outside sounds
  – Lower temperature before going to bed
  – Maintain or improve your overall health
  – Avoid caffeine several hours before bedtime
  – Avoid alcohol several hours before bedtime
  – Know side effects of your medications
  – Close bedroom door, hang **Do Not Disturb** sign
  – Unplug the telephone in your bedroom
  – Develop a relaxing sleep ritual
Cellular Phones

- List of vehicle phone numbers is located in glove box
- Do not use when driving
- Pull over to a safe place

Don’t phone and drive!
Vehicle Maintenance

• Before driving – complete “walk-around” inspection (see checklist)

• For urgent and serious “Do Not Drive” issues
  – “Red Tag” vehicle (take it out of service)
  – Notify your Supervisor
  – Ensure vehicle is not driven by putting note on keys

• Report other minor malfunctions
What about Flat Tires?

• Don’t drive far on flat tire
  – Drive slow speed, pull off road to a safe place

• Change flat tire with spare
  – Instructions in glove box

• Deposit damaged tire with MGIO staff
  – Staff will have tire repaired and returned

• Fixed tire will be returned to summit

• Original driver to replace original tire
  – or arrange for someone else to swap tires

• Original driver is responsible
  – follow through with process or delegate it
Vehicle accidents

- See reference card in glove box
- Check the scene, Call 911 and Care for injured
- On Mount Graham, notify DPS, County Sheriff or UAPD immediately
- Obtain other driver’s information and police report number
- Take photos if camera is available
- Call Base Camp or Facility Supervisor if towing is required
- Complete an incident report
Housekeeping

• Smoking is not permitted in vehicles

• Remove personal effects, trash, etc.

• Transporting gas cylinders, dewars, large packages?
  – keep them well secured

• At Base Camp, vehicle doors must be locked after working hours
Please remember…

• Wear seatbelts
• Don’t speed
• Don’t cross solid yellow lines
• Don’t tailgate
• Stay focused on driving
• Don’t use cell phone
• Don’t drive drowsy
• Don’t drink and drive
• Drive defensively

The life you save may be your own…
Thank YOU!

• Questions?