Syllabus MIE1414HS 2016
Prof. A. Smiley

• **Introduction Jan 14**
  history and scope of human factors in transportation, application to traffic safety
  Discuss education, enforcement, engineering, emergency medicine and road safety
culture approaches to specific problems
  • **Vision in the Context of Driving Jan 21**
    Function of the eye, visual acuity, contrast sensitivity, colour vision, adaptation,
  perception of closing velocity
    Vision exercises
  • **Information processing in the Context of Driving Jan 28**
    Attention, information processing capacity, expectancy, mental workload, driver
  visual search
    Info proc exercises
  • **Driver adaptation Feb 4**
    Perceptual cues for speed, adaptation of speed, visual search, attention, adaptation
to road safety interventions
    Adaptation exercises
  • **Assignment 1 Task Analysis due (30%)**
  • **Driver education, licensing and regulation Feb 11**
    Education, Demerit point systems, Senior driver assessment, Medical conditions and
driving
    Policy exercises
  • **Run off road crashes Feb 25**
    Driver behaviour in curves, inattention and fatigue, expectancy, overtaking issues,
countermeasures: curve design, shoulders and clear zone, rumble strips
    Crash pattern analysis exercise
Intersection crashes Mar 3
Driver tasks in intersections, countermeasures to improve detection, visual search, dilemma zone decisions
• Pedestrian/bicycle crashes
  Visibility, search behaviour, alcohol, children, countermeasures to improve detection
• Forensic Human Factors Mar 10
  Hf cases involving visibility, perception of closing speed, driver expectancy, perception-reaction time
  Court process
  • Mock Trial Forensic Human Factors Mar 17
  • Assignment 2 Expert Report due (30%)
  • Alcohol and Drug Effects Mar 24
    Measuring alcohol/marihuana levels
    Crash and injury impacts
    SCRI, Transport Canada studies
• Fatigue Effects Mar 31
  Long hours, time of day, short sleep
  Fatigue management programs
• Distraction Effects April 7
  Sources of distraction, effects on performance, crash rate
• Autonomous Driving April 7
  Human factors challenges
Exam April 14 (40%)