

# **SYSTEMS DESIGN ENGINEERING**

## **Human Performance in Virtual Environments & 3D Simulations**

**SYDE 740 - *Topic 6***

**Spring**

This course looks at the relationship between humans and virtual environments or 3D simulations for the purposes of human performance, training, rehabilitation, and entertainment.

Main topics to be covered include:

- Current application areas of virtual environments and 3D simulations in industry, medicine, and research
- Overview of current technologies (displays, input devices, software platforms)
- Overview of general research areas
  - o Navigation and Trailblazing
  - o Collaboration
  - o Physiological Effects (simulator sickness, visual fatigue, muscle fatigue)
  - o Enhanced Presence (e.g. haptics, 3D audio cues)
- More specific topics will be determined based on the research interests of the students enrolled.

Course will follow an advanced seminar-style. Students are expected to contribute to the selection of relevant readings, to participate in discussions relating to critical analysis of existing research, and to give a 30-minute seminar presentation on a selected topic. Written assignments will consist of a series of short papers relating to assigned readings.

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**INSTRUCTOR:** C. Macgregor  
**Email:** cgmacre@uwaterloo.ca