HMI 501, Human Performance
5 points vt03

Course Syllabus

Important dates, times, and places

8-12 March 2004	09:00-17:00	Lectures, C3, Hus C, Campus Valla (see www.liu.se for map and directions)
22 March 2004	09:00	Homework/assignment 1 due
19 April 2004	09:00	Homework/assignment 2 due
17 May 2004	09:00	Homework/assignment 3 due

Homework/assignments need to be submitted to the course administrator on or before the due date/time, either in electronic format or hardcopy. Late material cannot be considered for course credit.

Course administrator: Elisabeth Peterson, IKP/IAV/HMI, LiTH 581 83 Linköping, Sweden.
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Aims of the course

This course focuses on human performance in complex systems and organizations. The aim of the course is to study human performance from the angles of ecological psychology and organizational sociology, both emphasizing that human performance can be understood only in context. Through a combination of lectures, discussions, readings and group work, students will be invited to wrestle with questions related to decision making, risk and situation assessment, team and organizational performance, as well as the distinction between ecological and more mentalistic interpretations of human performance. The course aims to give students a deeper understanding of the various positions and ideas in the literature about these topics.

Learning objectives

By the end of the course, students should have formed a coherent picture of human performance in complex contexts, including the role of operational environment and organizational culture on people's assessments and decisions, and how ecological psychology and organizational sociology attempt to model the respective interactions. Students should become sufficiently familiar with the literature to be able to recognize and debate positions ranging from information processing to ecological views on human performance, and have formed better ideas about the cultural issues surrounding human performance in complex contexts.

Contents

The course will cover human performance topics including decision making, situation assessment, team performance, procedural drift and deviance, signal detection theory, and risk assessment, predominantly as studied and/or applied from the perspectives of ecological psychology and organizational sociology, emphasizing the study of human performance issues in actual, complex contexts.

Requirements

Graduate student (or well qualified undergraduate at the discretion of course instructor) status required for course entry.

Modes of studying

This course begins with a week of classroom-based lectures, discussions and presentations, followed by a 10-week period of home-study, distance supervision and on-line discussions. The course will have a dedicated website with password entry. The classroom week takes place at Linköping University during week 11, while the distance-learning period will be spread out over weeks 13 through 21.

The days at Linköping University last from 09:00-17:00 and will be divided into lectures, discussions, readings and group work. During the evenings, students may be required to conduct groupwork and/or prepare for the next lecture day. Attendance to the week in Linköping is mandatory for receiving course credit.

During the distance-learning period, electronic office hours will be posted in order to assist students with clarification and, if necessary, supervision of homework and groupwork assigments.

Examination

Students are examined through the following means:

- Presentations and participation in classroom discussions (25% of entire course grade)
- There will be 3 clusters of Homework/Groupwork Assignments, each cluster worth 25% of the entire course grade.

Criteria for judging student performance include comprehension of the literature, coherence of students' understanding of the positions in the literature, as well as students' own ability to apply and extend the ideas in the literature, and argue such applications or extensions in written as well as oral form.

Grades for groupwork will be averaged into individual students' overall course grade.

Students who fail the course must retake the entire course.

Grading

Grades used for the course are Pass or Fail. A passing grade represents more than 55% satisfactory performance on the criteria stated under "examination". A numeric grade may be given to students (Passing Grades 5, 4, 3, with 5 being the highest grade) to reflect individual student differences.

Course literature

Vaughan, D. (1996). *The Challenger launch decision: Risky technology, culture, and deviance at NASA*. Chicago, IL: Chicago University Press.

Vicente, K (1999). *Cognitive work analysis: Toward safe, productive and healthy computer-based work.* Mahwah, NJ: Lawrence Erlbaum Publishers.

Additional literature may be handed out during the classroom week.

Students are strongly advised to study the course books before starting the course, in order to be prepared for discussions, classroom presentations and subsequent homework assignments

Course Instructors

Sidney Dekker (course responsible), IKP/IAV Linköping Institute of Technology, +46 - 13 - 281646, sidde@ikp.liu.se
Erik Hollnagel, IDA, Linköping Institute of Technology, eriho@ida.liu.se
Special Guest Lecturer: Kip Smith, Kansas State University and FAA advisor on human factors. kip@ksu.edu