Summary
The students will understand the factors which affect learning - particularly in science and engineering. They will understand how cognitive and social factors influence what and how people learn and how they use what they learn.

Content
Social and Cognitive Factors in Professional Learning
General Aim: To enable participants to understand the ways in which professionals learn their profession - with a particular focus on learning in scientific and engineering domains.
General Description of Material: The ability for individuals and organisations to learn is often regarded as central to their survival and success in the contemporary world. But how do professionals (like teachers, or engineers) learn their profession? How do we learn in initial training, how do we transfer that to life outside the university and how do we continue to learn as a professional?
Learning is partially a psychological concept, but professionals operate in social contexts and so an understanding of professional learning also draws on sociological research. Therefore understanding professional learning will involve a multi-disciplinary approach.
Plan of the course: Through exploring a number of types of studies on different aspects of learning, participants will build an understanding of some different research approaches which are used in studying learning. Students will also participate in studies and experiments to give them concrete experiences both of research approaches and of adult learning in practice.

Keywords
Learning Sciences, Education, Social and Behavioural Science Research, Interdisciplinary Studies
POLY-perspective:
• global perspective
• citizen perspective

https://www.epfl.ch/schools/cdh/cdhs-vision/

Learning Outcomes
By the end of the course, the student must be able to:
• Define the concept of learning, highlighting a range of definitions and their implications for the study of learning
• Describe the way in which information is processed and memories formed in humans, referring to Attention, Working Memory, Long Term Memory and related concepts
• Describe the role of individual differences (Intelligences, Personality, Approaches to Learning) in accounting for learning
• Describe the role of motivation, emotion and emotional self-regulation in relation to learning
• Describe the role of micro-social factors (interaction with teachers, peers and others) in accounting for learning
• Identify examples of how macro social factors (social class, policy and institutional factors etc.) impact upon the learning of different social groups
• Apply this knowledge to understand real-life learning situations
• Apply research design principles to design a piece of survey or experimental research
• Integrate psychological and social perspectives in studying learning
• Design a survey or an experiment to study learning

Transversal skills

• Communicate effectively with professionals from other disciplines.
• Assess one’s own level of skill acquisition, and plan their on-going learning goals.
• Take account of the social and human dimensions of the engineering profession.

Teaching methods

First semester: lectures; labs; discussion of readings

Expected student activities

Attendance in lectures and participation in in-lecture discussions; Participation in research labs; Reading of assigned materials and discussion of readings; Communicating in oral or electronic form

Assessment methods

20% Group research project proposal
80% Exam

Supervision

| Office hours | Yes |
| Assitants    | Yes |
| Forum        | Yes |
| Others       | Forum for discussion in Moodle |

Resources

Bibliography

Ressources en bibliothèque

• How People Learn / Bransford
• Contemporary Theories of Learning / Illeris
• The Theory and Practice of Learning / Jarvis

Moodle Link

• http://moodle.epfl.ch/course/view.php?id=13735

Prerequisite for

How People Learn II (HUM-433)