Course information: Physics of Glaciers, HS 2020

Course:  HS 2020, course 651-4101-00L

Time:  Monday, 13:15-16:00 h, NO C6

Lecturers:
- fw  Prof. Dr. Fabian Walter  044 632 4162  walter@vaw.baug.ethz.ch
- ml  Dr. Martin Lüthi  044 635 5146  martin.luethi@geo.uzh.ch
- mw  Dr. Mauro Werder  044 632 4162  werder@vaw.baug.ethz.ch

Offices: ETH Hönggerberg (HIA D56.1 and D54.1) and University Irchel (ml: Y25K50)

Script:  A script that covers all topics of the class, lecture slides, homework problems and links to class recordings are published at http://people.ee.ethz.ch/~luethim/teaching.html

Course Format:  Lectures and slides. Class discussion is encouraged. Students are expected to read textbooks and selected papers.

COVID-19:  Lectures will be held in the lecture room NO-C6. All lectures are streamed online and are available at https://video.ethz.ch.

ECTS Credits:  3 credits

Performance assessment:  One problem set (home work) will be assigned every week, and will be due a week later. Submission as PDF possible. There is no final exam.

Class schedule:  (tentative)
C.P. refers to the chapter in Cuffey and Paterson (2010), P. to Paterson (1999), H. to Hooke (2005)

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<td>30.11</td>
<td>Glacier hydraulics</td>
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Recommended text books:
R. Greve and H. Blatter, Dynamics of Ice Sheets and Glaciers, (2009)

The text books for this class are Cuffey and Paterson (2010) and Greve and Blatter (2009). The two books are quite complementary: Cuffey and Paterson contains more overview material, while Greve and Blatter concentrates on the very clear mathematical formulation of the physical principles.

A wonderful book with black and white glacier photographs – which also makes a very nice Christmas present – is Post and LaChapelle (2000), or even better the (out-of-print) hardcover edition with same content that might be found in antiquariats.

Good introductory texts are Benn and Evans (1998) and Knight (1999) which are, however, much more descriptive than useful for this class.

An in-depth physical treatment is given in the classical book by Hutter (1983). For another thorough treatment including modeling techniques refer to Van der Veen (1999). All aspects of ice physics are treated in the comprehensive book by Petenko and Withworth (1999), while creep and fracture of ice is the topic of Schulson and Duval (2009).

For geomorphological aspects of glaciers refer to Drewry (1986) and Benn and Evans (1998).