Short Course on Principles of Hydrology

2010 Course Summary

From March 2 to 11, 2010, at the University of Calgary's Biogeoscience Institute's Barrier Lake Station in the Kananaskis Valley, the Canadian Society for Hydrological Sciences in partnership with the University of Saskatchewan offered an intensive short course version of Geography 827, "Principles of Hydrology." Subjects such as precipitation, interception, snow accumulation, snowmelt, evapotranspiration, infiltration, groundwater, streamflow, and river hydraulics were taught by a selection of the best hydrologists in Canada. These processes were framed within the context of distinctly Canadian landscape features such as glaciers, peatlands and seasonally frozen ground. State-of-the-art statistical methodologies were presented. Students were exposed to an overview of each subject, and introduced to recent scientific findings and new cutting-edge theories, tools and techniques.

The course focused on classroom instruction, but took advantage of the proximity of mountain environments in the Kananaskis Valley and the Marmot Creek Research Basin to expose students to state-of-the-art field instrumentation and measurement techniques. Participants completed numerical and essay assignments to develop skills in problem solving and in synthesizing complex hydrological concepts. Students emerged from the course with a deeper understanding of physical hydrological processes and how they interact to produce catchment water budgets and streamflow response.

Instructors

Dr. John Pomeroy, University of Saskatchewan – Fundamentals and precipitation

Dr. Gwenn Flowers, Simon Fraser University – Glacier hydrology

Dr. Richard Petrone, Wilfred Laurier University – Evapotranspiration and interception

Dr. Charles Maule, University of Saskatchewan – Infiltration and soil water

Dr. Masaki Hayashi, University of Calgary - Groundwater

Dr. Sean Carey, Carleton University – Hillslope hydrology

Dr. Kevin Shook, University of Saskatchewan – River networks

Dr. Peter Steffler, University of Alberta - Hydraulics

Dr. Don Burn, University of Waterloo - Statistics

Participants

Early to mid-level career hydrometric technicians, hydrogeologists, civil engineers, water resource managers with employers such as Syncrude, Ducks Unlimited, Brookfield Power, AMEC, KnightPiésold, Alberta Environment and Environment Canada attended the course. Participation exceeded the course capacity of 40 and generated an eight person waiting list. Participants represented the geographic spectrum of Canada, with representation from places such as Newfoundland and Labrador, Nova Scotia, Québec, Ontario, Saskatchewan, Alberta and British Columbia, and there was one participant from the United States.

Specific participant comments:

"Overall a very useful course and I have recommended that others take it in the future when the opportunity arises."

"Course was great, a little overwhelming at times but included all requirements of hydrological processes."

"The diversity of the group built value."

2011 Course

Location: University of Calgary's Biogeoscience Institute's Barrier Lake Station in the Kananaskis Valley

Date and duration: March 2011; 9 days with 1 day for rest and/or recreation

Instructors: Dr. John Pomeroy
Others to be determined

Class size and level: 30 (maximum); University graduate-level course

Prerequisites: 3rd/4th year hydrology or hydraulics, or equivalent experience. This physical science course is quantitative in nature and so a firm foundation in calculus and physics at the first year university level and some undergraduate hydrology or hydraulics training is required.

Program: AM – classroom / lectures; PM – fieldwork / labs

Course Texts: *Physical Hydrology,* 2nd Edition, S.L. Dingman, Waveland Press, Long Grove, IL, 2008 (including CD) ISBN 978-1-57766-561-8

The Surface Climates of Canada, W.G. Bailey, T.R. Oke and W.R. Rouse, 1997, Montreal: McGill-Queen's Univ Press.

Readings: Readings will be assigned for each topic and distributed in advance electronically.

Course Fees:

Registered graduate students $800

Professionals $2,000

** Participants not currently registered as graduate students are required to pay the appropriate additional fees to the University of Saskatchewan. Please contact the Geography Department at the University of Saskatchewan early in your registration process in order to get all paperwork submitted properly.*

U of S audit $250

for U of S credit $500

Note: The course fee covers the costs of running the course, room and board at the Biological Station for 11 nights and CWRA and CSHS memberships.

Registration opens: November 2010

For more information contact:

Dr. John Pomeroy, Professor
University of Saskatchewan
Email: john.pomeroy@usask.ca

Dr. Christopher Spence, Research Scientist
Environment Canada
Email: chris.spence@ec.gc.ca