

Water Resources and Decision-Support Modeling

Knowledge Exchange for Resource Management and International Trust (KERMIT)

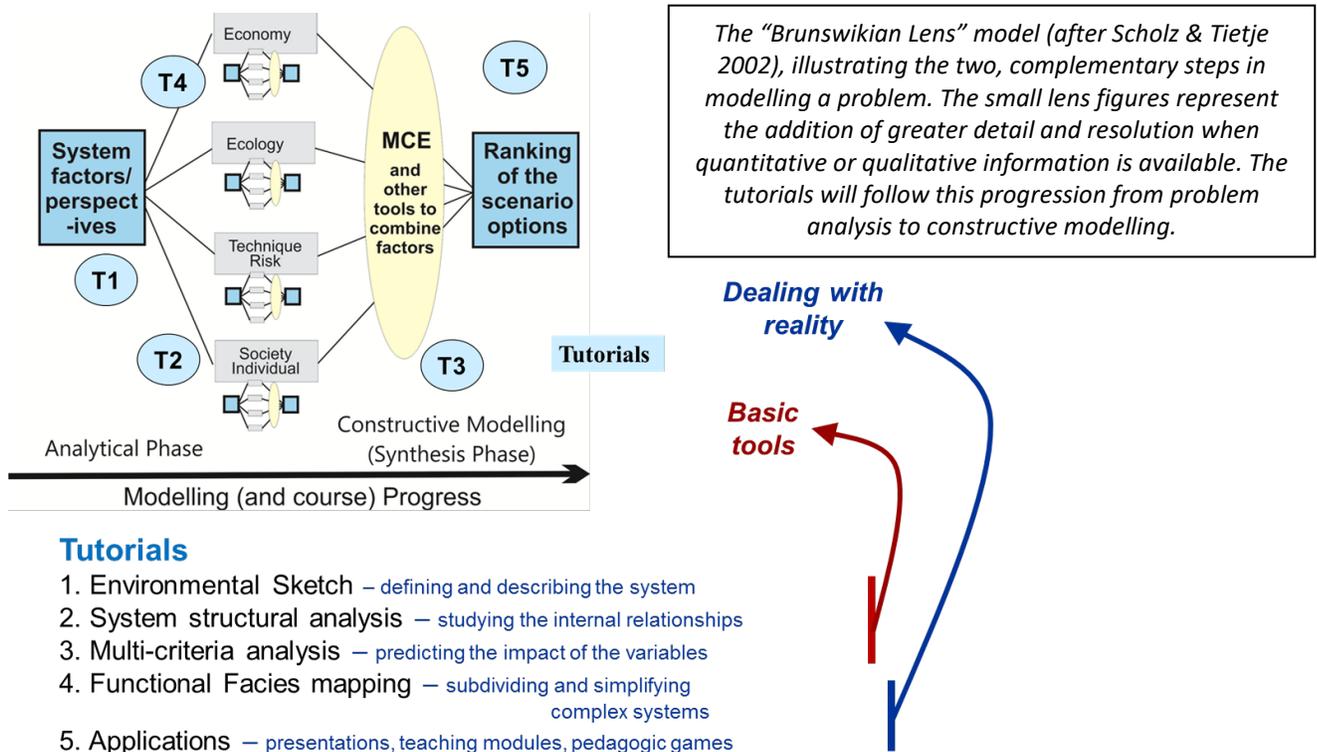
Univ. Gothenburg, Department of Earth Sciences, in collaboration with partner institutes

June 2020 (approximately 3 internet seminars each week), 3 – 7.5 credit options

This web-based course utilizes conceptual modelling tools to progress from system understanding to decision support. The main examples will deal with water resources and the challenges related to unsustainable withdrawal and pollution, especially in areas with stressed conditions due to armed conflict, climate deterioration, or mismanagement issues, especially where people living in or displaced from these areas can be involved in the case-study activities. However, the approach is applicable to most any type of problem and within a range of disciplines.

The course is aimed toward Masters and PhD students. Hopefully, many participants will be familiar with a problem that they already know and want to use for the modeling exercises. Interdisciplinary participation is encouraged and favorable for the tutorial exercises, which can be individually or cooperatively carried out. Following the webinars and completing the tutorials is equivalent to 3 ECTS credits. Case-study presentation and literature options can increase this to 5 or 7.5 credits, respectively. Certificates will be given, but credits should be coordinated by your home institute.

The course results will be included in a separate but related workshop at the SGEM conference in Bulgaria, 29/6-1/7), virtually or on-site. Additionally, the participants will be encouraged to develop “Youth for Water and Climate” applications that would, individually or in groups, deal with applied aspects of course results. The course results will in some cases also be adapted for educational materials and exchange activities to interface with teaching programs and with local populations (in cooperation with Univ. Massachusetts, USA).



For more information, contact Rod Stevens, stevens@gvc.gu.se, tel: 46-709892750

Course website:

Webinar site: <https://gu-se.zoom.us/j/2983061154>

Course Schedule

	<i>Topics</i>	<i>Tutorials</i>
1/6 Mon	Course Kickoff and Introduction	
2/6 Tues	System Sketch and System Structural Analysis	T1 & T2
3/6 Wed	Questions and Support	
8/6 Mon	Multi-Criteria Evaluation	T3
9/6 Tues	Functional Facies	T4
10/6 Wed	Questions and support	
15/8 Mon	Applications	T5
16/6 Tues	Applications (continued)	
17/6 Wed	Questions and support	
	<i>On-line and live at the SGEM conference in Bulgaria</i>	
29/6 Mon	Workshop presentations - Students	
30/6 Tues	Workshop presentations (continued) - Students	
1/7 Wed	Workshop Panel Discussion - Invited Specialists	

The on-line lectures and discussion will be 11.00 – 12.00, including a short pause, in Sweden (14.30 in Afghanistan). Some other times may be necessary to allow lectures and participation from quite different time zones. Recordings will hopefully help to include everyone despite timing conflicts.

The tutorials intend to lead the participants stepwise through the basics of decision-support modeling. This is very much a “hands-on” course and the participants are expected to apply each of the modeling steps to problems that they have identified in their interest areas. Groups of 2-4 students can work together. The tutorial exercises are to be turned in on Monday of following week so that they can be posted and discussed on the web-site. The main areas of focus should connect to water-resource management, in a wide perspective. The results from the 2019 summer school dealing with karez (qanats) can provide the background for the study of water resources, and the maps of karez groundwater resources can be expanded on by some participant groups. The sessions on Wednesdays are reserved for assistance with the participants’ work with the tutorials and their model applications.

Poster summaries of the results will be presented at the Water-Resource Workshop in Bulgaria, where a web-seminar (29-30 June) will connect SGEM conference participants and course participants. Also, the panel discussion at the workshop will lift the results into a larger context of international water issues.

The results can, in part, be adapted as teaching materials for the schools in water-stressed areas. The on-going programs for teachers and health workers within the Workforce Development program (USAID) will be utilized to test and spread teaching modules and pedagogic games dealing with water-resource results of the course activities.

It is envisioned that the summer school activities will aid the participants in the development of their thesis projects and projects that have good connection to the community issues regarding water resources. The overall course aim is problem analysis, and the progress of each individual or group can be valuable for both their own understanding and for practical applications.