

Georg-August-Universität Göttingen Module M.Agr.0182: Blended E-course: Crop Modelling for Risk Management	6 C 4 WLH
Learning outcome, core skills: <ul style="list-style-type: none"> To gain understanding of the theory underlying the simulation of major crop growth and development processes To get familiarized with the technical features of a concrete model, APSIM, and learn setting up model runs through distinct deepening exercises To apply gained theoretical and technical knowledge to independently perform crop simulation experiments on distinct risk management strategies <p>Overall goal of this blended E-learning course will be for students to get familiarized with the basic theory underlying major process descriptions in crop simulation modelling, the features & options to run a specific model, APSIM; learn apply & evaluate APSIM to a self-chosen case of risk management in crop cultivation</p>	Workload: Attendance time: 56 h Self-study time: 124 h
Course: Blended E-course: Crop Modelling for Risk Management <i>Contents:</i> Crop Modelling for Risk Management (<i>blended E-Course</i>) <p>In the first part of the lectures, students will learn about theory and concepts of modelling different major ecophysiological processes such as photosynthesis of a crop canopy, water dynamics and nitrogen uptake. Exercises will be demonstrated and performed in self-studies on how to simulate process outcomes for given biophysical conditions. In part two, guided online exercises will be provided to set up different simulations (e.g. intercropping, climate change effects etc.) using the APSIM model. Finally, students will work on selected case studies addressing typical systems agronomic questions (how to optimize nutrient management, closing yield gaps, identifying suitable rotations for given environments).</p> <p>The module consists of self-learning lectures and exercises, interjected with (at least) three physical meetings to check on and discuss progress.</p>	
Examination: Oral report (approx. 20 minutes, 50%) with written elaboration (max 10 pages, 50%) Examination requirements: Good understanding of the model APSIM and its underlying theory (process) descriptions and of input- and output variables and technical model features for simulating genotype x environment x management interactions in potential, water-limited and nitrogen-limited production situations; Understanding of model evaluation methods.	6 C
Admission requirements: Working through distinct video lectures and associated exercises via ILIAS platform ; and participation in the physical meetings of this blended e-learning course.	Recommended previous knowledge: Basics in agronomy, soil science & plant nutrition, plant physiology, agrometeorology
Language:	Person responsible for module:

English	Prof. Dr. Reimund Paul Rötter
Course frequency: each winter semester	Duration:
Number of repeat examinations permitted: twice	Recommended semester:
Maximum number of students: 16	

Additional notes and regulations:

This course is made available as a blended e-learning module through the University of Goettingen's e-learning platform ILIAS, using a combination of innovative teaching methods, such as interactive online Joint Classrooms, online exercises and physical meetings for presenting and discussing specific case study modelling setups and modelling results.

Exams: Both together*, (i) oral presentation of the chosen simulation experiment with discussion, and (ii) written documentation of the crop model simulations, will show whether learning goals on theory and its application to practical problems have been achieved.