

<b>Georg-August-Universität Göttingen</b> <b>Universität Kassel/Witzenhausen</b> <b>Module M.SIA.P17M: Nutrient dynamics: long-term experiments and modelling</b>	6 C 4 WLH
<b>Learning outcome, core skills:</b> Students are able to use established models and the statistical software R for a study and description of ecological processes in arable soils. Based on their understanding of soil nutrient dynamics they are able to evaluate and critically assess the significance of long-term and laboratory experiments for studying C, N and P dynamics and to consider all influencing variables.	<b>Workload:</b> Attendance time: 56 h Self-study time: 124 h
<b>Course: Nutrient dynamics: long-term experiments and modelling</b> (Lecture, Exercise) <b>Contents:</b> <ul style="list-style-type: none"> <li>• Description of the dynamics of C, N and P (forms, transformations and availability) in arable soils</li> <li>• Presentation of the results of existing long-term experiments with emphasis on the variables and variants influencing these results</li> <li>• Modelling of the turnover of soil organic matter using the Rothamsted Carbon Model</li> <li>• Statistical modelling: combined regression and analysis of variance and linear mixed effects models</li> <li>• Application of the statistical software R for a description of C and N dynamics</li> </ul>	4 WLH
<b>Examination: Oral examination (approx. 30 minutes)</b> M.SIA.P17M.Mp: Nutrient dynamics: long-term experiments and modelling <b>Examination requirements:</b> Knowledge of biological and chemical processes in soils and of the C and N dynamics. Basic knowledge of modelling, including statistical modelling, and the structure of the Rothamsted Carbon Model and the DNDC model. Verständnis bodenkundlicher Prozesse, insbesondere der C- und N-Formen und Kreisläufe, Grundverständnis der Modellierung (einschließlich statistischer Modellierung), Kenntnisse der Modelle Rothamsted Carbon Model und DNDC.	6 C
<b>Admission requirements:</b> none	<b>Recommended previous knowledge:</b> Basic knowledge (B.Sc. level) of soil and plant sciences
<b>Language:</b> English	<b>Person responsible for module:</b> Prof. Dr. Bernard Ludwig
<b>Course frequency:</b> each summer semester; Witzenhausen	<b>Duration:</b> 1 semester[s]
<b>Number of repeat examinations permitted:</b>	<b>Recommended semester:</b>

twice	
<b>Maximum number of students:</b> 20	
<b>Additional notes and regulations:</b> <b>Literature:</b> Coleman, K., Jenkinson, D.S. 2014: RothC - A model for the turnover of carbon in soil. <a href="http://www.rothamsted.ac.uk">http://www.rothamsted.ac.uk</a> Crawley, M.J. 2012: The R book. 2nd edition, Wiley; Field, A., Miles, J., Field, Z. 2012: Discovering Statistics using R. Sage Everitt, B., Hothorn, T. P. 2011. An Introduction to Applied Multivariate Analysis with R. Springer, New York Field, A., Miles, J., Field, Z. 2012. Discovering Statistics using R, SAGE	