



**BIGS Land and Food**



	Concepts in Genetics and Genomics	
Coordinator(s)	<b>Dr. Caroline Marcon, Dr. Michaela Matthes</b>	
Instructor(s)	Dr. Caroline Marcon, Dr. Michaela Matthes Inst. f. Nutzpflanzenwissenschaften und Ressourcenschutz, <a href="mailto:marcon@uni-bonn.de">marcon@uni-bonn.de</a> ; <a href="mailto:mmatthes@uni-bonn.de">mmatthes@uni-bonn.de</a>	
Course Description	<p><b>Part 1:</b> Advanced textbook knowledge on the most important concepts of molecular genetics for PhD or Master students who intend to improve or refresh their background in this field. During the block course, each student will present one-two book chapters of an English textbook on molecular genetics as a power point presentation followed by a subsequent discussion.</p> <p><b>Part 2:</b> Exercises in advanced genetics: students have to answer specific questions as homework.</p> <p><b>Part 3:</b> During the second block course, students will present scientific posters on advanced topics of genetics.</p>	
Course Outline	<p>Topics:</p> <ol style="list-style-type: none"> <li>1. Mendelian genetics and its application (Kap 3 + 4)</li> <li>2. DNA structure and analysis (Kap 10)</li> <li>3. DNA replication and recombination (Kap11)</li> <li>4. Chromosome structure and sequence organization (Kap 12)</li> <li>5. The genetic code and transcription (Kap 13)</li> <li>6. Translation and proteins (Kap 14)</li> <li>7. Chromosome mutations, gene Mutations, DNA repair and transposition (Kap 8 + 15)</li> <li>8. Regulation of gene expression in prokaryotes (Kap 16)</li> <li>9. Regulation of gene expression in eukaryotes (Kap 17)</li> </ol> <p><b>Topics may change ! 20 topics are available.</b></p>	
Requirements	master level, interest in molecular genetics	
Credit Points 3	Teaching Methods	Percentage
	Seminar	100%
Grading	Oral presentation (50%), Participation in discussion (50%)	
References	Klug et al., Concepts of Genetics 10 <sup>th</sup> ed. (Pearson) <a href="https://epdf.pub/queue/concepts-of-genetics-10th-editionb745288cea82274b99a050690229105482905.html">https://epdf.pub/queue/concepts-of-genetics-10th-editionb745288cea82274b99a050690229105482905.html</a>	
Organization and time	<ul style="list-style-type: none"> <li>- Depending on the number of participants, this in person block course will take place on 2-3 appointments in Nov 2022 – Jan 2023. Location: Landesbehördenhaus, I.80; 10.15 am – 17.00 pm</li> <li>- Appointments will be discussed with the students in a preliminary meeting, which will be either in person or via zoom. The date of the preliminary meeting will be announced via email.</li> </ul>	
Language	English	
Remarks	<p><b>Due to the limited number of slots everyone must register by email to: <a href="mailto:mmatthes@uni-bonn.de">mmatthes@uni-bonn.de</a>.</b></p> <p><b>Latest time point for registration is October 7<sup>th</sup>!!!</b></p>	