

Module number	EM3
Module name	Molecular Plant Nutrition
Program of Study	MSc elective module
Offered	Once a year, summer semester
Module coordinator	Prof. Dr. Karl H. Mühling
Module advisor	Prof. Dr. Karl H. Mühling
Courses and teachers	<p>Lecture: Molecular Plant Nutrition (K. H. Mühling with C.-M. Geilfus and B. Pitann)</p> <p>Seminar: Plant Stress Physiology (K. H. Mühling with B. Pitann)</p> <p>Exercise: Molecular Plant Nutrition (K. H. Mühling with C.-M. Geilfus and B. Pitann)</p>
Prerequisites	Advanced understanding of plant nutrition and physiology (according to modules „Biochemistry and Proteomics“(MM3) and „Introduction to Molecular Biology“ (MM1))
Language	English
Module capacity on campus students	15, Registration from February 1 st to April 1 st at the secretary's office of the Plant Nutrition and Soil Science Institute, CAU, Hermann-Rodewald-Str. 2, 1 st floor, room 110
Module capacity off campus students	5
Course types (classroom/ total workload)	Lecture (30 h /90 h), seminar (15 h/45 h), exercise (15 h/45 h)
Schedule	Weekly courses
Grading	Oral exam: 75% (K.H. Mühling), Seminar presentation: 25% (K.H. Mühling)
ID-card	Required for exams
European Credit Points	6
Module Objectives	The students gain an overview of the key nutritional and molecular signal pathways in plant metabolism. They have molecular knowledge of the function of carrier and channel proteins and their importance in nutrient acquisition and efficiency. They have practical experience in biochemical and molecular techniques in plant nutrition.
Contents	<ul style="list-style-type: none"> ▪ biosynthesis and structure of nucleic acids ▪ transcription and RNA silencing ▪ translation and protein folding ▪ nutritional signal transduction ▪ ion transport by carriers and channels ▪ nutrient use efficiency ▪ gene expression and proteomics under abiotic stress
Taught Skills	Professional and methodical responsibility, key qualifications
Course Materials	to be announced at the beginning of the lecture