Title	**Biotechnology in Agriculture**
Code	ZDIA36
Study Program	
Semester	
ECTS	5
Status	□ obligatory x elective
Lecturer	prof.dr.sc. Vlado Guberac
Co-Lecturers	prof.dr.sc. Sonja Marić
Requirements for Enrolment	-
Objectives	To educate participants about implementation of biotechnology in agriculture and about possibilities for combining classical breeding methods with biotechnology in plant breeding
Learning Outcomes	After completing the subject student will be able to: 1. Evaluate the importance of biotechnology in agricultural production 2. Recommend proper biotechnology method 3. Critically estimate advances and deficiency of implementation of biotechnology in agriculture 4. Evaluate importance of implementation of marker assisted selection in plant breeding

Connection between Learning Outcomes, Curricular and Student Activities

Student Activities	ECTS	Learning Outcomes	Curricular Activities	Methods of Assessment	Credits*	
					min	max
Attending the lectures and active participation	0,5	1-4	Lectures and exercises	Records of student activities	5	10
Literature studying, seminar preparation and presentation	1,5	3-4	Seminar	Seminar examination and evaluation	15	30
Preparing for exam by studying required and recommended literature	3	1-4	Final exam	Oral exam	30	60
Total	**5**				**50**	**100**

Consultations	If needed appointments with students		
Learning Activities	**Lectures**	**Seminars**	**Practice**
Hours	5	5	5
Contents / Teaching Units	Plant genome; organization and expression of plant genes; Plant and tissue culture (development of haploid plants); somaclonic variability; advances and deficiency of marker assisted selection in plant breeding; RFPL method, PCR (RAPD, SSR, AFLP); gene transfer and GMO in plant breeding. Execution of one PCR based method and evaluation of differences between genotypes.		
Obligatory Literature	1. Jelaska, Sibila (1994): Kultura biljnih stanica i tkiva. Školska knjiga. Zagreb 2. Collin, H.A. and Edwards, S. (1998): Plant Cell Culture. BIOS Scientific Publishers. Oxford, UK. 3. A. Slater, N. Scott, M. Fowler (2003): Plant biotechnology. Oxford University Press. Oxford.UK. p. 346		

	4. Newton, C.R. and Graham, G.A. (1997): PCR. Second edition. BIOS Scientific Publishers. Oxford, UK For seminar work students will use newest scientific papers published in international scientific journals
Recommended literature	William Bains (2000): Biotechnology: From A to Z. Oxford University Press. UK. p. 411
Requirements for Aquiring Signature	seminar work
Type of Exam	oral
Lectures Language	Croatian/English
Quality Monitoring	According to the rules of the University