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| Course: | THE GENETIC BASES OF PLANT BREEDING |
| Course id: МFM1I08 |
| Number of ECTS: 5 |
| Teachers: | Sofija R. Petrović, PhD, professor; Miodrag D. Dimitrijević, PhD, professor; Borislav M. Banjac, MSc, assistant |
| Course status | Elective |
| Number of active teaching classes (weekly) |
| Lectures: 2 | Practical classes: 2 | Other teaching types: | Study research work: | Other classes: |
| Precondition courses | None |
| 1. Educational goal

The goal of this course is to achieve scientific and academic skills, develop creative skills and mastery of specific practical skills needed for the future development of the careers that are in line with modern developments. The course provides knowledge of the genetic base, methods and creation principles of new exploitable genetic variability in plant breeding. A special emphasis of the course is on pre-breeding to resistance to biotic stresses (pests and pathogens). |
| 1. Educational outcomes

Developing the ability of students to follow modern achievements in science and profession, developing the ability to solve problems using scientific methods and procedures in the process of inheritance, population behavior in the selection process, and understanding how to use the basic methods of genetics and breeding, as well as, the development of critical and creative thinking. |
| 1. Course content

*Theoretical study*The relationship of the organism and the environment, genetic resources, Origin and evolution of genetic resistance; centers of genetic diversity of plants, protection, collection, conservation and evaluation of germplasm, the genetic structure of plant populations; Quantitative and qualitative characteristics, parental choice and selection criteria, methods of breeding self-pollinated and pollinated plant species; Vegetative propagation and somaclonal variation; procedures to broaden the genetic variability, breeding for yield, quality and tolerance to biotic and abiotic stress; Transgenic resistance to pathogens and pests*Practical classes:* Practical classes are conducted during the exercise program and monitor and follow the lecture topic. |
| 1. Teaching methods

Classes are conducted using modern techniques. Theoretical part of teaching is done in university classrooms. All lectures are computer processed and presented. Practical training takes place in the work of the cabinet for an air-conditioned room is equipped with individual seats for students (40 seats), which is equipped with computers, video projectors and microscopes. |
| Knowledge evaluation (maximum 100 points) |
| Pre-examination obligations | Mandatory | Points | Final exam  | Mandatory | Points |
| Lecture attendance | Yes | 5 | Written part of the exam Oral part of the exam | YesYes | 3030 |
| Tests | Yes | 30 |  |
| Exercise attendance | Yes | 2.5 |
| Seminars | Yes | 2.5 |
| Literature  |
| Ord. | Author | Title | Publisher | Year |
|  | Borojević S.& Borojević K. | Genetics | University of Novi Sad, Novi Sad | 1976 |
|  | Borojević S | Principles and methods of plant breeding | RU "Ćirpanov", Novi Sad | 1981 |
|  | Kraljević-Balalić M., Petrović S., Vapa, Lj. | Genetics.Theoretical basics with problems. | Faculty of Agriculture, Institute of Field and Vegetable Crops and Science, Novi Sad | 1991 |
|  | Dimitrijević M. & Petrovic S. | Population genetics. Adaptability and stability of genotypes.  | Faculty of Agriculture and the Institute of Field and Vegetable Crops, Novi Sad | 2005 |
|  | Marinković M., Tucić N., Kekić V.  | Genetics | Scientific Book, Belgrade | 1982 |
|  | Dimitrijević M. & Petrovic S. | Genetically modified organisms. Questions and dilemmas. | Green Network of Vojvodina, Novi Sad  | 2004 |
|  | Bošković J. & Isayev V. | Genetics  | Megatrend University, Belgrade  | 2007 |

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| Znak univerziteta | UNIVERSITY OF NOVI SADFACULTY OF AGRICULTURE 21000 NOVI SAD, TRG DOSITEJA OBRADOVIĆA 8 | Znak fakulteta2 |
| Study Programme AccreditationMASTER ACADEMIC STUDIES IN PLANT MEDICINE |
| Table 5.2 Course specification |