**Табела 5.2** Course specification **7ОRT3O15**

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| **Curriculum**: Field and Vegetable Crops |
| **Type and level of study**: Basic academic studies, the first level |
| **Subject of course:** Genetics |
| **Teacher:** prof. dr Miodrag D. Dimitrijević, prof. dr Sofija R. Petrović **Teaching Assistant:** Borislav M. Banjac, MSc |
| **Course status:** Mandatory  |
| **Credits:** 6 |
| **Conditional:** None |
| **Course aims:** The course is designed as a general genetics and is aimed for participants to meet and adopt general principles of inheritance and vertical transmission of genetic information, genetic interactions, cell division and organelles carriers of hereditary material, genetic material structure and function, with the laws of population and the genotype by environment interaction, as well as, the changes caused by transplantation (chimeras, vegetative hybrids). |
| **Course outcome** The student should be qualified for further upgrade through master's and doctoral programs for scientific work, to participate in breeding programs of agricultural organisms and to work in the economy, in all the jobs where an understanding of the hereditary basis functioning of organisms and organism by environment interaction, is required. |
| **Course content:***Theoretical lectures:* Introduction. The organism and the external environment. Cells and chromosomes. The structure and function of the genetic material. Cell division and fertilization. Independent gene segregation. Multiple alleles. Non-allelic gene interaction. Genetic linkage. Sex determination and sexually related genes. Quantitative traits inheritance. *Species* and *Genus* hybridization. Changes in the genome structure. Genetic laws of the population. Inbreeding and heterosys. Changes caused by transplantation. *Practical teaching*: Practical classes are held during the exercise program and monitors and follows the lecture topic. |
| **Literature:*****Fundamental literature***1. Borojević, Slavko, Borojević, Katarina 1976: Genetics, Faculty of Agriculture, Novi Sad. [*org. serbian*]2. Kraljević-Balalić, Marija, Petrović, S., Vapa, Ljiljana: Genetics. Theoretical fundamentals and problems. Faculty of Agriculture, Institute of Field and Vegetable Crops and Faculty of Sciences, Novi Sad, 1991. [*org. serbian*]3. Dimitrijević, Miodrag, Petrović, Sofija 2005: Population Genetics. Genotype Adaptability and Stability. Publ. Faculty of Agriculture, Novi Sad, Institute of Field and Vegetable Crops, Novi Sad. [*org. serbian*]***Additional literature***1. Marinković, M., Tucić, N., Kekić, V.: Genetics, Scientific book, Beograd, 1982. [*org. serbian*]
2. Dimitrijević, M., Petrović, Sofija: Genetically Modified Organisms. Issues and Dilemmas. Green network of Vojvodina, Novi Sad, 2004. [*org. serbian*]
3. Bošković, Jelena, Isajev, V.: Genetics. Megatrend University, Beograd, 2007. [*org. serbian*]

***Recommended literature in English***1. Primrose, S.B. and Twynman, R.M.: Principles of Gene Manipulation and Genomics 7th Ed. Blackwell Publ., 2006.
2. Kang, M.S.: Quantitative Genetics, Genomics, and Plant Breeding. CABI Publ., 2002.
3. Singh, R.J.: Plant Cytogenetics 2nd Ed. CRC Press, 2002.
4. Ackuaah, G.: Principles of Plant Genetics and Breeding. Blackwell Publ., 2007.
5. Klug, W.S., Cummings, M.R., Spencer, Charlotte A., Palladino, M.A.: Concepts of Genetics 10th Ed. Pearson, 2012.

*All the other literature for this level of studies could be used in consultation with the course lecturers.*  |
| **Lecture hours**  | Other hours0 |
| Lectures:45 | Exercises:30 | Other forms of lecturing:0 | Scientific research work:0 |
| **Teaching methods**Teaching is done using modern techniques. Theoretical part of the training is conducted in a Faculty lecture halls. All lectures are computer processed and presented. The practical part of the course takes place in cabinetmaking work in adapted air-conditioned room, with individual seats for students (40 seats), which is equipped with a computer, video beam, overhead projectors and microscopes. |
| **Evaluation of knowledge (maximum 100 points)** |
| **Pre-exam commitments** | **Points** | **Final exam** | **Points** |
| Activity during lectures | 5 | Written exam | 30 |
| Practical classes | 2.5 | Oral exam | 30 |
| Colloquium  | 3 x 10 | *..........* |  |
| Seminar | 2.5 |  |  |
| Method of testing knowledge could be different, and in the table above just a few options are given: (written exams, oral exam, project presentations, seminars, etc ......) |