**The list of Independent works of Doctoral students**

**on discipline SPGR 7303 «Modern Problems of Plant Genetics»**

**(1-15 weeks)**

**All IWS must be done on time. Plagiarism is completely prohibited.**

|  |  |  |  |
| --- | --- | --- | --- |
| **week** | **Title** | **Number of hours** | **Max score** |
| 3 | IWD 1. Modern problems of plant genetics. (individual / group project). | 2 | 15 |
| 7 | IWD 2. Chromosome Engineering and Crop Improvement. | 2 | 15 |
| 9 | IWD 3. Control work | 1 | - |
| 10 | IWD 4 Plant genome analysis. Pan-genome of plants. | 2 | 15 |
| 12 | IWD 5. The plant microbiome. NGS. | 2 | 15 |
| 14 | IWD 6. Control work | 1 | - |

**REFERENCES for Independent works of students**

**Literature**

Main:

1. Шулембаева К.К., Токубаева А.А. Реконструкция генома мягкой пшеницы на основе хромосомной инженерии и отделенной гибридизации: монография. КазНУ им. аль-Фараби. - Алматы : Қазақ ун-ті, 2019. - 240 с.

2. Огурцов А.Н., Близнюк О.Н., Масалитина Н.Ю. Основы генной инженерии и биоинженерии. Учебное пособие. Часть 1.: Молекулярные основы генных технологий. Харьков: НТУ "ХПИ", 2018. - 288 с.

Additional:

1. Нефедова Л.Н., Применение молекулярных методов исследования в генетике: Учебное пособие. - М.: НИЦ Инфра-М, 2012. - 104 с.

2. Муминов Т.А., Куандыков Е.У. Основы молекулярной биологии : курс лекций. - Алматы : ССК, 2017. – 222 с.

3.Varshney Rajeev K. Plant Genetics and Molecular Biology. - London: Springer, 2018. - 298 p.

4. Halford Nigel G. Crop Biotechnology: Genetic Modification And Genome Editing. - London: World Scientific, 2018. - 218 p.

5. Glick Bernard R. Molecular biotechnology: principles and applications of recombinant DNA. - 4th ed. - Washington, 2010. - 1200 p.

**Research infrastructure**

1. Laboratories and other locations where teaching and learning will take place

**Professional scientific databases**

1. <https://vc.ru/future/109057-gennaya-inzheneriya-sostoyanie-na-2020>

2. <https://sites.google.com/site/anogurtsov/lectures/ge>2.

**Internet resources** (at least 3-5)

1. <http://elibrary.kaznu.kz/ru>

2. MOOC / video lectures, etc.

3. <https://www.isaaa.org/resources/publications/pocketk/16/>