**The STUDENT’S INDIVIDUAL TASKS (IT) and WORK WITH SCIENTIFIC RESOURCES (WSR)**

**on discipline “General Genetics”:**

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| **№**  | **Title** | **The passing types**  | **Terms of passing (week)** | **Score** |
|  | WSR 1. The ideas of ancient philosophers on heredity. | Essays and reports | 1 | 0.5 |
|  | WSR 2. The development of a cell theory and its importance to genetics. | Essays and reports | 1 | 0.5 |
|  | WSR 3. The development of theories of direct and indirect inheritance. | Questioning on LC | 1 | 0.5 |
|  | WSR 4. The theory of gemmules and its experimental refutation. | Questioning on LC | 2 | 0.5 |
|  | WSR 5. The war between the "oocists" and "spermatists." | Essays and reports | 2 | 0.5 |
|  | WSR 6. Galton's work "Hereditary Genius" | Essays and reports | 2 | 0.5 |
|  | WSR 7. Eugenics - the science of "improving" the human race. | Questioning on LC | 3 | 0.5 |
|  | WSR 8. The eugenics influence on policy. The main misconception of eugenics. | Essays and reports | 3 | 0.5 |
|  | WSR 9. Hard fate of genetics during the socialism establishment period. | Essays and reports | 3 | 0.5 |
|  | IT 1. Tasks on monohybrid crosses | Solutions presented in individual notebooks | 3 | 8 |
|  | WSR 10. The discovery and study of chromosomes. | Essays and reports | 4 | 0.5 |
|  | WSR 11. Karyotypes. Methods of chromosomes study. | Questioning on LC | 4 | 1 |
|  | WSR 12. A variety of cellular forms and functions. | Questioning on LC | 4 | 1 |
|  | IT 2. Tasks on dihybrid crosses | Solutions presented in individual notebooks | 4 | 9 |
|  | WSR 13. Meiosis. Stage of meiosis. Gametogenesis and sporogenesis. The biological significance of meiosis. | Questioning on LC | 5 | 1 |
|  | WSR 14. The work of Mendel. "Experiments on Plant Hybridization" | Questioning on LC | 5 | 1 |
|  | WSR 15. Drosophila is a favorable genetic object. | Essays and reports | 5 | 1 |
|  | IT 2. Tasks on interaction between nonallelic genes | Solutions presented in individual notebooks | 5 | 9 |
|  | WSR 16. The cytological basis of the law of gametes purity. | Questioning on LC | 6 | 1 |
|  | WSR 17. The cytological basis of splitting. | Questioning on LC | 6 | 1 |
|  | WSR 18. Dominant and recessive traits in humans. | Questioning on LC | 6 | 1 |
|  | WSR 19. Human blood types. | Questioning on LC | 7 | 0.5 |
|  | WSR 20. Non-allelic genes interaction in Humans. | Essays and reports | 7 | 1 |
|  | WSR 21. Gametogenesis and sporogenesis. | Essays and reports | 7 | 0.5 |
|  | IT 4. Tasks on sex-linked inheritance | Solutions presented in individual notebooks | 7 | 9 |
|  | WSR 22. Progammed sex determination. | Questioning on LC | 9 | 1 |
|  | WSR 23. Epigamic sex determination. | Questioning on LC | 9 | 0.5 |
|  | WSR 24. Autosomes and sex chromosomes of different species. | Questioning on LC | 9 | 1 |
|  | IT 5. Tasks on genetic linkage and crossingover | Solutions presented in individual notebooks | 9 | 20 |
|  | WSR 25. Singamic sex determination. | Questioning on LC | 10 | 1 |
|  | WSR 26. Methods of sex early detection. | Essays and reports | 10 | 0.5 |
|  | WSR 27. Physiological regulation of sex. | Essays and reports | 10 | 1 |
|  | WSR 28. The practical significance of sex-linked traits. | Questioning on LC | 11 | 0.5 |
|  | WSR 29. The mechanisms of gene dosage compensation. | Essays and reports | 11 | 1 |
|  | WSR 30. The Vavilov’s law of homologous series of genetic variability. | Questioning on LC | 11 | 1 |
|  | WSR 31. Twin method. | Questioning on LC | 12 | 0.5 |
|  | WSR 32. Cytogenetic method. | Questioning on LC | 12 | 0.5 |
|  | WSR 33. Spontaneous and induced mutagenesis. | Questioning on LC | 12 | 1 |
|  | IT 5. Tasks on genetics of populations | Solutions presented in individual notebooks | 12 | 15 |
|  | WSR 34. The significance of the work of the T.Morgan’s school for the development of genetics. | Essays and reports | 13 | 0.5 |
|  | WSR 35. Developmental genetics. | Essays and reports | 13 | 1 |
|  | WSR 36. The radiation influence on the genotype. | Essays and reports | 13 | 0.5 |
|  | WSR 37. A variety of cellular forms and functions. | Questioning on LC | 14 | 0.5 |
|  | WSR 38. Differential gene activity. | Essays and reports | 14 | 1 |
|  | WSR 39. Modern views on the molecular mechanism of crossing over. | Questioning on LC | 14 | 0.5 |
|  | WSR 40. The current state of genetic research in the world. | Essays and reports | 15 | 0.5 |
|  | WSR 41. The current state of genetic research in Kazakhstan. | Questioning on LC | 15 | 1 |
|  | WSR 42. Genomic projects. | Questioning on LC | 15 | 0.5 |

**Resources for individual students works:**

**Basic:**

1. William S. Klug and Michael R. Cummings. Essentials of Genetics
2. Wayne M. Becker, Lewis J. Kleinsmith and others. The World of the Cell.
3. Weaver R.F., Hedrick P.W. Genetics. McGraw-Hill Publishing Company, 1997.
4. Tamarin R.N. Principles of Genetics. Fifth edition London, Wm. Brown Publishers, 1996.
5. Russel P. Fundamentals of Genetics. New York, Harper Collins, College Publishers, 1994.
6. Жимулев И.Ф. Общая и молекулярная генетика. Учебник для ВУЗов. Н.: Изд-во Новосибирского университета, 2002 г.
7. Под ред. Инге-Вечтомова С.Г. Общая генетика. Методическое пособие. СПб.: Изд-во Н-Л, 2007. 124 с.
8. Бакай А.В., Кочиш И.И., Скрипченко Г.Г. Генетика. Учебник для ВУЗов. М.: КолосС, 2006, 448 с.
9. Глазер В.М., Ким А.И., Орлова Н.Н., Удина И.Г., Алтухов Ю.П. Задачи по современной генетике. Учебное пособие. Под ред. Асланяна М.М. М.: КДУ, 2005. 224 с.

**Additional:**

1. Клаг Уильям С., Каммингс Майкл Р. Мир биологии и медицины: Основы генетики // Москва: Техносфера. 4-е издание. 2009. 896 с.
2. Под ред. Инге-Вечтомова С.Г. Общая генетика. Методическое пособие. СПб.: Изд-во Н-Л, 2007. 124 с.
3. Иванов В.И., Барышникова Н.В., Билева Дж.С., Дадали Е.Л., Константинова А.М., Кузнецова О.В., Поляков А.В. Генетика. Учебник для ВУЗов. Под ред. академика РАМН Иванова В.И. М.: ИКЦ «Академкнига», 2006, 638 с.
4. Бочков Н.П. Клиническая генетика // Учебник для ВУЗов. Москва: ГЭОТАР-МЕД. 2-е издание. 2002. 448 с.
5. Морозов Е.И., Тарасевич Е.И., Анохина В.С. Генетика в вопросах и ответах. Минск, Университетское, 1999.
6. Сингер М., Берг П. Гены и геномы. В 2-х томах, М.: Мир, 1998.
7. Алиханян С.И., Акифьев А.П., Чернин Л.С. Общая генетика. Учебник для ВУЗов. М.: Высшая школа, 1995.
8. Фогель Ф., Мотульски А. Генетика человека. В 3-х томах (пер. с англ.), М.: Мир, 1990.
9. Минченко А.Г., Дударева И.А. Митохондриальный геном. Новосибирск, Наука, 1990.
10. Инге-Вечтомов С.Г. Генетика с основами селекции. Учебник для ВУЗов. М.: Высшая школа, 1989.
11. Организация генома. Сборник научных трудов / Под ред. Ю.Ф. Богданова и А.А.Прозорова. М.: Наука, 1989.
12. Айала Ф., Кайгер Дж. Современная генетика. В 3-х томах (пер. с англ.), М.: Мир, 1988.
13. Бороевич С. Принципы и методы селекции растений. М., 1984.
14. Бочков Н.П., Захаров А.Д., Иванов В.И. Медицинская генетика. М.: Медицина, 1984.
15. Инге-Вечтомов С.Г. Введение в молекулярную генетику. ЛГУ, 1983.
16. Гершензон С.М. Основы современной генетики. Учебник для ВУЗов. 2-е изд., исп. и доп. Киев.: Наук. Думка, 1983.
17. Лобашев М.Е., Ватти К.В., Тихомирова М.М. Генетика с основами селекции. Учебник для ВУЗов. 2-е изд., перераб. М.: Просвещение, 1979.
18. Корочкин Л.И. Взаимодействие генов в развитии. М.: Наука, 1977.
19. Дубинин Н.П. Общая генетика. Учебник для ВУЗов. 2-е изд. перераб. и доп. М.: Наука, 1976.