**PLAN OF LABORATORY CLASSES**

on Histology, Cytology and Embryology

**For the Foreign Students Faculty (Course of studies in English)**

for the **Spring semester** of the 2021/2022 academic year

|  |  |
| --- | --- |
|  | **BASIC LITERATURE** |
| **Unit 1** | **Histological techniques. Structural Components of Tissues** |
|  | 1. Zimatkin, S. М. Basics of Histology, Cytology, Embryology / S. M. Zimatkin, 2020. – P. 4–9.2. Zimatkin, S. M. Histology, Cytology, Embryology:[Manual for International Students of Medical High Schools] / S. M. Zimatkin, 2019. – P. 4–12. 3. Junqueira's basic histology [Текст] : text & atlas / Anthony L. Mescher. – 14 th ed. – New York [etc.] : McGraw-Hill Education, 2016. – P. 1–16.4. Zimatkin, S. M. Histology, Cytology and Embryology. Practical Manual and Exercise (Course of studies in English) / S. M. Zimatkin, 2022. – P. 3–6.5. Zimatkin, S. M. Histology, Cytology and Embryology:  Atlas of practice preparations manual for International Students of Medical High Schools – Minsk, 2017. – P. 5–6.**Electronic sources:** 1. <http://edu.grsmu.by/mod/page/view.php?id=2982>
2. <https://www.youtube.com/watch?v=RZrCflzUAjo&list=PL1_TM5oTU-4Nxo4eZ4WHd6RC7yng0JC5R&index=2>
3. <http://edu.grsmu.by/pluginfile.php/3225/mod_resource/content/1/01-Introdactory.pdf>
 |
| **Unit 2** | **Cytology. Organelles and Inclusions.** |
|  | 1. Zimatkin, S. М. Basics of Histology, Cytology, Embryology / S. M. Zimatkin, 2020. – P. 9–21.2. Zimatkin, S. M. Histology, Cytology, Embryology:[Manual for International Students of Medical High Schools] / S. M. Zimatkin, 2019. – P. 13–23.3. Junqueira's basic histology [Текст] : text & atlas / Anthony L. Mescher. – 14 th ed. – New York [etc.] : McGraw-Hill Education, 2016. – P. 17–52.4. Zimatkin, S. M. Histology, Cytology and Embryology. Practical Manual and Exercise (Course of studies in English) / S. M. Zimatkin, 2022. – P. 7–10.5. Zimatkin, S. M. Histology, Cytology and Embryology:  Atlas of practice preparations manual for International Students of Medical High Schools – Minsk, 2017. – P. 7–9.**Electronic sources:** 1. <http://edu.grsmu.by/mod/page/view.php?id=2983>
2. <https://www.youtube.com/watch?v=JnjvngdbFcg&list=PL1_TM5oTU-4Nxo4eZ4WHd6RC7yng0JC5R&index=3>
3. <http://edu.grsmu.by/pluginfile.php/3226/mod_resource/content/1/02.%20Cytology.%20Cytoplasm.pdf>
 |
| **Unit 3** | **Nucleus. Cell Cycle.** |
|  | 1. Zimatkin, S. М. Basics of Histology, Cytology, Embryology / S. M. Zimatkin, 2020. – P. 21–28.2. Zimatkin, S. M. Histology, Cytology, Embryology:[Manual for International Students of Medical High Schools] / S. M. Zimatkin, 2019. – P. 24–30.3. Junqueira's basic histology [Текст] : text & atlas / Anthony L. Mescher. – 14 th ed. – New York [etc.] : McGraw-Hill Education, 2016. – P. 53–70.4. Zimatkin, S. M. Histology, Cytology and Embryology. Practical Manual and Exercise (Course of studies in English) / S. M. Zimatkin, 2022. – P. 11–14.5. Zimatkin, S. M. Histology, Cytology and Embryology:  Atlas of practice preparations manual for International Students of Medical High Schools– Minsk, 2017. – P. 10.**Electronic sources:** 1. <http://edu.grsmu.by/mod/page/view.php?id=2983>
2. <https://www.youtube.com/watch?v=gcbAkhMx1Gs&list=PL1_TM5oTU-4Nxo4eZ4WHd6RC7yng0JC5R&index=4>
3. <http://edu.grsmu.by/pluginfile.php/3227/mod_resource/content/1/03-Nucleus.pdf>
 |
| **Unit 4** | **Introduction to General Histology. Epithelial Tissues. Glands.** |
|  | 1. Zimatkin, S. М. Basics of Histology, Cytology, Embryology / S. M. Zimatkin, 2020. – P. 28–35.2. Zimatkin, S. M. Histology, Cytology, Embryology:[Manual for International Students of Medical High Schools] / S. M. Zimatkin, 2019. – P. 31–37.3. Junqueira's basic histology [Текст] : text & atlas / Anthony L. Mescher. – 14 th ed. – New York [etc.] : McGraw-Hill Education, 2016. – P. 71–95.4. Zimatkin, S. M. Histology, Cytology and Embryology. Practical Manual and Exercise (Course of studies in English) / S. M. Zimatkin, 2022. – P. 15–19.5. Zimatkin, S. M. Histology, Cytology and Embryology:  Atlas of practice preparations manual for International Students of Medical High Schools – Minsk, 2017. – P. 11–13.**Electronic sources:** 1. <http://edu.grsmu.by/mod/page/view.php?id=2984>
2. <https://www.youtube.com/watch?v=k5-fpWdEvFs&list=PL1_TM5oTU-4Nxo4eZ4WHd6RC7yng0JC5R&index=5>
3. <http://edu.grsmu.by/pluginfile.php/3228/mod_resource/content/1/04-Epithelium.pdf>
 |
| **Unit 5** | **Blood and Lymph.** |
|  | 1. Zimatkin, S. М. Basics of Histology, Cytology, Embryology / S. M. Zimatkin, 2020. – P. 35–46.2. Zimatkin, S. M. Histology, Cytology, Embryology:[Manual for International Students of Medical High Schools] / S. M. Zimatkin, 2019. – P. 38–47.3. Junqueira's basic histology [Текст] : text & atlas / Anthony L. Mescher. – 14 th ed. – New York [etc.] : McGraw-Hill Education, 2016. – P. 237–266.4. Zimatkin, S. M. Histology, Cytology and Embryology. Practical Manual and Exercise (Course of studies in English) / S. M. Zimatkin, 2022. – P. 20–25.5. Zimatkin, S. M. Histology, Cytology and Embryology:  Atlas of practice preparations manual for International Students of Medical High Schools – Minsk, 2017. – P. 14.**Electronic sources:** 1. <http://edu.grsmu.by/mod/page/view.php?id=2984>
2. <https://www.youtube.com/watch?v=Hu-e2R9IQ6I&list=PL1_TM5oTU-4Nxo4eZ4WHd6RC7yng0JC5R&index=6>
3. <https://www.youtube.com/watch?v=0deCbmh7PHs>
4. <http://edu.grsmu.by/pluginfile.php/3229/mod_resource/content/1/05-Blood.pdf>
 |
| **Unit 6** | **Connective Tissues.** |
|  | 1. Zimatkin, S. М. Basics of Histology, Cytology, Embryology / S. M. Zimatkin, 2020. – P. 46–53.2. Zimatkin, S. M. Histology, Cytology, Embryology:[Manual for International Students of Medical High Schools] / S. M. Zimatkin, 2019. – P. 48–55.3. Junqueira's basic histology [Текст] : text & atlas / Anthony L. Mescher. – 14 th ed. – New York [etc.] : McGraw-Hill Education, 2016. – P. 96–121.4. Zimatkin, S. M. Histology, Cytology and Embryology. Practical Manual and Exercise (Course of studies in English) / S. M. Zimatkin, 2022. – P. 26–31.5. Zimatkin, S. M. Histology, Cytology and Embryology:  Atlas of practice preparations manual for International Students of Medical High Schools – Minsk, 2017. – P. 15–17.**Electronic sources:** 1. <http://edu.grsmu.by/mod/page/view.php?id=2985>
2. <https://www.youtube.com/watch?v=LuLDVxBTGdk&list=PL1_TM5oTU-4Nxo4eZ4WHd6RC7yng0JC5R&index=7>
3. <http://edu.grsmu.by/pluginfile.php/3230/mod_resource/content/1/06-Connective%20tissues.pdf>
 |
| **Unit 7** | **Cartilage and Bone Tissues.** |
|  | 1. Zimatkin, S. М. Basics of Histology, Cytology, Embryology / S. M. Zimatkin, 2020. – P. 53–62.2. Zimatkin, S. M. Histology, Cytology, Embryology:[Manual for International Students of Medical High Schools] / S. M. Zimatkin, 2019. – P. 56–63.3. Junqueira's basic histology [Текст] : text & atlas / Anthony L. Mescher. – 14 th ed. – New York [etc.] : McGraw-Hill Education, 2016. – P. 129–160.4. Zimatkin, S. M. Histology, Cytology and Embryology. Practical Manual and Exercise (Course of studies in English) / S. M. Zimatkin, 2022. – P. 32–35.5. Zimatkin, S. M. Histology, Cytology and Embryology:  Atlas of practice preparations manual for International Students of Medical High Schools – Minsk, 2017. – P. 18–20.**Electronic sources:** 1. <http://edu.grsmu.by/mod/page/view.php?id=2985>
2. <https://www.youtube.com/watch?v=8Rn-lkvRp8c&list=PL1_TM5oTU-4Nxo4eZ4WHd6RC7yng0JC5R&index=8>
3. <http://edu.grsmu.by/pluginfile.php/3231/mod_resource/content/1/07-Cartilage-bone.pdf>
 |
| **Unit 8** | **Intermediate Exam 1.** |
|  | 1. Zimatkin, S. M. Histology, Cytology and Embryology:  Atlas of practice preparations manual for International Students of Medical High Schools – Minsk, 2017. – P. 5–20.**Electronic source:** 1. <https://www.youtube.com/watch?v=PmIAeYxodes&list=PL1_TM5oTU-4Nxo4eZ4WHd6RC7yng0JC5R&index=32>
 |
| **Unit 9** | **Muscular Tissues.** |
|  | 1. Zimatkin, S. М. Basics of Histology, Cytology, Embryology / S. M. Zimatkin, 2020. – P. 62–69.2. Zimatkin, S. M. Histology, Cytology, Embryology:[Manual for International Students of Medical High Schools] / S. M. Zimatkin, 2019. – P. 64–70.3. Junqueira's basic histology [Текст] : text & atlas / Anthony L. Mescher. – 14 th ed. – New York [etc.] : McGraw-Hill Education, 2016. – P. 193–214.4. Zimatkin, S. M. Histology, Cytology and Embryology. Practical Manual and Exercise (Course of studies in English) / S. M. Zimatkin, 2022. – P. 36–41.5. Zimatkin, S. M. Histology, Cytology and Embryology:  Atlas of practice preparations manual for International Students of Medical High Schools – Minsk, 2017. – P. 21–22.**Electronic sources:** 1. <http://edu.grsmu.by/mod/page/view.php?id=2986>
2. <https://www.youtube.com/watch?v=xb1ksplrifY&list=PL1_TM5oTU-4Nxo4eZ4WHd6RC7yng0JC5R&index=9>
3. <http://edu.grsmu.by/pluginfile.php/3232/mod_resource/content/1/08-Muscle.pdf>
 |
| **Unit 10** | **Nerve Tissue. Neurons and Neuroglia. Nerve Fibers. Nerve Endings.** |
|  | 1. Zimatkin, S. М. Basics of Histology, Cytology, Embryology / S. M. Zimatkin, 2020. – P. 69–83.2. Zimatkin, S. M. Histology, Cytology, Embryology:[Manual for International Students of Medical High Schools] / S. M. Zimatkin, 2019. – P. 71–83.3. Junqueira's basic histology [Текст] : text & atlas / Anthony L. Mescher. – 14 th ed. – New York [etc.] : McGraw-Hill Education, 2016. – P. 161–174, 182–189.4. Zimatkin, S. M. Histology, Cytology and Embryology. Practical Manual and Exercise (Course of studies in English) / S. M. Zimatkin, 2022. – P. 42–52.5. Zimatkin, S. M. Histology, Cytology and Embryology:  Atlas of practice preparations manual for International Students of Medical High Schools – Minsk, 2017. – P. 23–24.**Electronic sources:** 1. <http://edu.grsmu.by/mod/page/view.php?id=2987>
2. <https://www.youtube.com/watch?v=0MHhcdY-hac&list=PL1_TM5oTU-4Nxo4eZ4WHd6RC7yng0JC5R&index=10>
3. <https://www.youtube.com/watch?v=FORL8MMTpiM&list=PL1_TM5oTU-4Nxo4eZ4WHd6RC7yng0JC5R&index=11>
4. <http://edu.grsmu.by/pluginfile.php/3233/mod_resource/content/1/09-Neurons%20and%20neuroglia.pdf>
5. <http://edu.grsmu.by/pluginfile.php/3234/mod_resource/content/1/10-Nervous%20fibres.pdf>
 |
| **Unit 11** | **Spinal Cord. Spinal ganglion. Autonomic Nervous System.** |
|  | 1. Zimatkin, S. М. Basics of Histology, Cytology, Embryology / S. M. Zimatkin, 2020. – P. 83–88.2. Zimatkin, S. M. Histology, Cytology, Embryology:[Manual for International Students of Medical High Schools] / S. M. Zimatkin, 2019. – P. 84–89.3. Junqueira's basic histology [Текст] : text & atlas / Anthony L. Mescher. – 14 th ed. – New York [etc.] : McGraw-Hill Education, 2016. – P. 175–181.4. Zimatkin, S. M. Histology, Cytology and Embryology. Practical Manual and Exercise (Course of studies in English) / S. M. Zimatkin, 2022. – P. 53–56.5. Zimatkin, S. M. Histology, Cytology and Embryology:  Atlas of practice preparations manual for International Students of Medical High Schools – Minsk, 2017. – P. 25–26.**Electronic sources:** 1. <http://edu.grsmu.by/mod/page/view.php?id=2988>
2. <https://www.youtube.com/watch?v=YUD4xE9VAsg&list=PL1_TM5oTU-4Nxo4eZ4WHd6RC7yng0JC5R&index=12>
3. <http://edu.grsmu.by/pluginfile.php/3235/mod_resource/content/1/11-Nerv.%20sys.%201.pdf>
 |
| **Unit 12** | **Brain** |
|  | 1. Zimatkin, S. М. Basics of Histology, Cytology, Embryology / S. M. Zimatkin, 2020. – P. 88–93.2. Zimatkin, S. M. Histology, Cytology, Embryology:[Manual for International Students of Medical High Schools] / S. M. Zimatkin, 2019. – P. 90–95.3. Junqueira's basic histology [Текст] : text & atlas / Anthony L. Mescher. – 14 th ed. – New York [etc.] : McGraw-Hill Education, 2016. – P. 175–181.4. Zimatkin, S. M. Histology, Cytology and Embryology. Practical Manual and Exercise (Course of studies in English) / S. M. Zimatkin, 2022. – P. 57–59.5. Zimatkin, S. M. Histology, Cytology and Embryology:  Atlas of practice preparations manual for International Students of Medical High Schools – Minsk, 2017. – P. 27.**Electronic sources:** 1. <http://edu.grsmu.by/mod/page/view.php?id=2988>
2. <https://www.youtube.com/watch?v=ZIWJYclpa2A&list=PL1_TM5oTU-4Nxo4eZ4WHd6RC7yng0JC5R&index=13>
3. <http://edu.grsmu.by/pluginfile.php/3236/mod_resource/content/1/12-Nerv.sys-2.pdf>
 |
| **Unit 13** | **Organs of Special Senses-1. Organ of Vision (Eye).****Olfactory organ.** |
|  | 1. Zimatkin, S. М. Basics of Histology, Cytology, Embryology / S. M. Zimatkin, 2020. – P. 93–103.2. Zimatkin, S. M. Histology, Cytology, Embryology:[Manual for International Students of Medical High Schools] / S. M. Zimatkin, 2019. – P. 96–103.3. Junqueira's basic histology [Текст] : text & atlas / Anthony L. Mescher. – 14 th ed. – New York [etc.] : McGraw-Hill Education, 2016. – P. 490–508.4. Zimatkin, S. M. Histology, Cytology and Embryology. Practical Manual and Exercise (Course of studies in English) / S. M. Zimatkin, 2022. – P. 60–63.5. Zimatkin, S. M. Histology, Cytology and Embryology:  Atlas of practice preparations manual for International Students of Medical High Schools – Minsk, 2017. – P. 28.**Electronic sources:** 1. <http://edu.grsmu.by/mod/page/view.php?id=2989>
2. <https://www.youtube.com/watch?v=cUdUnm_DWQ8&list=PL1_TM5oTU-4Nxo4eZ4WHd6RC7yng0JC5R&index=14>
3. <http://edu.grsmu.by/pluginfile.php/3237/mod_resource/content/1/13.%20Special%20senses-1.pdf>
 |
| **Unit 14** | **Organs of Special Senses-2. Gustatory organ.****Organ of Hearing and Equilibrium (Ear).** |
|  | 1. Zimatkin, S. М. Basics of Histology, Cytology, Embryology / S. M. Zimatkin, 2020. – P. 104–113.2. Zimatkin, S. M. Histology, Cytology, Embryology:[Manual for International Students of Medical High Schools] / S. M. Zimatkin, 2019. – P. 104–110.3. Junqueira's basic histology [Текст] : text & atlas / Anthony L. Mescher. – 14 th ed. – New York [etc.] : McGraw-Hill Education, 2016. – P. 509–523.4. Zimatkin, S. M. Histology, Cytology and Embryology. Practical Manual and Exercise (Course of studies in English) / S. M. Zimatkin, 2022. – P. 64–67.5. Zimatkin, S. M. Histology, Cytology and Embryology:  Atlas of practice preparations manual for International Students of Medical High Schools – Minsk, 2017. – P. 29.**Electronic sources:** 1. <http://edu.grsmu.by/mod/page/view.php?id=2990>
2. <https://www.youtube.com/watch?v=h4qwqiGRseY&list=PL1_TM5oTU-4Nxo4eZ4WHd6RC7yng0JC5R&index=15>
3. <http://edu.grsmu.by/pluginfile.php/3238/mod_resource/content/1/14-Ear.pdf>
 |
| **Unit 15** | **Cardio-vascular system.** |
|   | 1. Zimatkin, S. М. Basics of Histology, Cytology, Embryology / S. M. Zimatkin, 2020. – P. 113–122.2. Zimatkin, S. M. Histology, Cytology, Embryology:[Manual for International Students of Medical High Schools] / S. M. Zimatkin, 2019. – P. 111–118.3. Junqueira's basic histology [Текст] : text & atlas / Anthony L. Mescher. – 14 th ed. – New York [etc.] : McGraw-Hill Education, 2016. – P. 215–237.4. Zimatkin, S. M. Histology, Cytology and Embryology. Practical Manual and Exercise (Course of studies in English) / S. M. Zimatkin, 2022. – P. 68–75.5. Zimatkin, S. M. Histology, Cytology and Embryology:  Atlas of practice preparations manual for International Students of Medical High Schools – Minsk, 2017. – P. 30–33.**Electronic sources:** 1. <http://edu.grsmu.by/mod/page/view.php?id=2991>
2. <https://www.youtube.com/watch?v=ToZ1FKnC2b8&list=PL1_TM5oTU-4Nxo4eZ4WHd6RC7yng0JC5R&index=16>
3. <http://edu.grsmu.by/pluginfile.php/3239/mod_resource/content/1/15-16-Cardio-vascular.pdf>
 |
| **Unit 16** | **Intermediate Exam 2** |
|  | 1. Zimatkin, S. M. Histology, Cytology and Embryology:  Atlas of practice preparations manual for International Students of Medical High Schools – Minsk, 2017. – P. 21–31.**Electronic source:** 1. <https://www.youtube.com/watch?v=FDQ1sX8O37A&list=PL1_TM5oTU-4Nxo4eZ4WHd6RC7yng0JC5R&index=33>
 |
| **Unit 17** | **Final class of the Spring semester** |

**ADDITIONAL LITERATURE**

1. Ross, Michael H. Histology [Текст] : a Text and Atlas : with Correlated Cell and Molecular Biology / Michael H. Ross, Wojciech Pawlina, 2011. – XVII, 974 p.

2. Singh, Inderbir. Textbook of Human Histology [Текст]: with Colour Atlas & Practical Guide / Inderbir Singh, 2011. – IX, 386 p.

3. Zimatkin, S. M. Histology, Cytology and Embryology [Электронный ресурс]  : computer tests and examination questions for Medical Faculty for International students (English medium of instruction) / S. M. Zimatkin, E. Ch. Mihаlchuk, V. B. Kuznetsova, 2013 on-line

4. Zimatkin, S. M. Histology. Course of  lectures [Текст]: (course of studies in English) / S. M. Zimatkin, 2013. – 235 p.