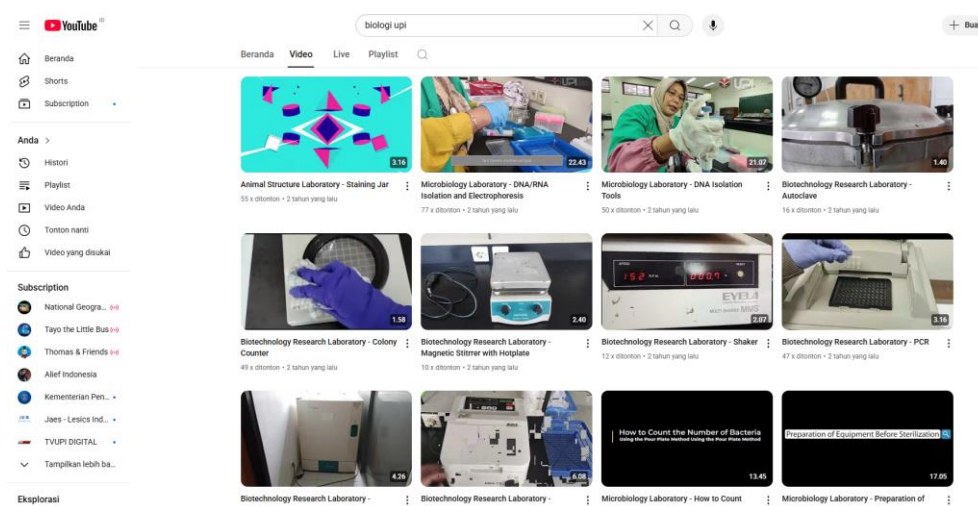


SUMMARY OF ANNEX 11: OVERVIEW OF LABS AND EQUIPMENT

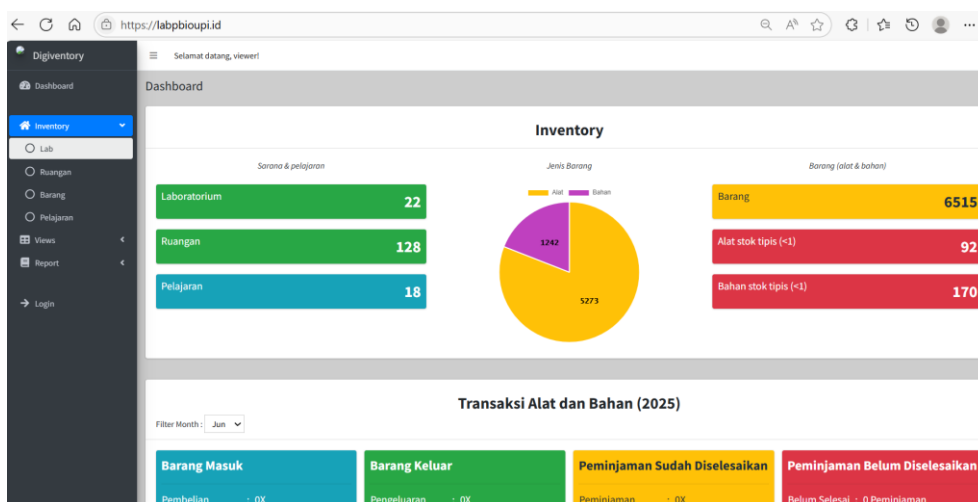
The MP-BE is equipped with complete laboratory facilities, consisting of animal structure laboratory, plant structure laboratory, microbiology laboratory, physiology laboratory, ecology laboratory, research laboratory, and microteaching laboratory. The MP-BE laboratory is also equipped with a botanical garden.

The MP-BE Program maintains a YouTube channel to archive and showcase various laboratory activities, including practicums, research, and community engagement. The link is as follows:

<https://www.youtube.com/@biologiupiedu/videos>



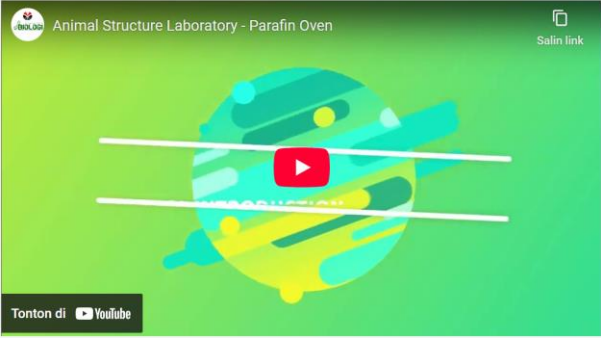



The inventory of each laboratory is available through the digital inventory system, which can be accessed via the following link: <https://labpbipiupi.id/>



The following are the description of each lab.

No.	Laboratory	Description
1	<p>Physiology Laboratory</p>   <p>Source: https://youtu.be/gaicuS0OmtY</p>	<p>The Physiology Laboratory of the Department of Biology Education, FPMIPA UPI, is located on the 1st floor of the JICA Building, FPMIPA UPI, in room N102. This laboratory was established to support the academic programs of the Department of Biology Education, FPMIPA UPI, by providing facilities for research and experimentation in the fields of Plant Physiology, Animal and Human Physiology, Biochemistry, and Plant Propagation.</p> <p>With a solid foundation in Physiology and Biochemistry, supported by the skills of the educational staff, including laboratory assistants, laboratory technicians, and technical staff, the facilities and infrastructure of the Physiology Laboratory have continued to grow over time. This expansion has enhanced its ability to support practicum and research activities for undergraduate and graduate students within the Department of Biology Education and UPI, as well as for other institutions.</p> <p>Research conducted in the Physiology Laboratory also serves community outreach and service programs. Practicum, research, and community service activities that can be carried out in this laboratory include those related to Plant Physiology, Animal and Human Physiology, Plant Propagation, Biochemistry, Blood Type Testing, Cholesterol Testing, and Electrocardiogram (ECG) Testing.</p>
2	<p>Plant Structure Laboratory</p> 	<p>The Plant Structure Laboratory of the Department of Biology Education, FPMIPA UPI, is located on the 1st floor of the JICA Building, FPMIPA UPI, in room N105. This laboratory was established to support the academic programs of the Department of Biology Education, FPMIPA UPI, by providing facilities for research and experimentation in the fields of Plant Anatomy, Plant Microtechnique, Plant Morphology, Plant Development, and Plant Biosystematics.</p> <p>With a strong foundation in the understanding of Plant Structure, supported by the expertise of the educational personnel—including laboratory assistants, laboratory technicians, and technical staff—the facilities and infrastructure of the Plant Structure Laboratory have expanded over time. This growth has enabled the laboratory to support practicum and research activities for both undergraduate and graduate students within the Department of Biology Education and UPI, as well as for other institutions.</p> <p>Research conducted in the Plant Structure Laboratory also contributes to community services and outreach programs. Practicum, research, and community service activities that can be carried out in this laboratory include those related to Plant Anatomy, Plant Microtechnique, Plant</p>

No.	Laboratory	Description
	 <p>Source: https://youtu.be/L4rd1JuUN1Q</p>	<p>Morphology, Plant Development, Plant Biosystematics, Herbarium, and Bioplastics.</p>
3	<p>Animal Structure Laboratory</p>   <p>Source: https://youtu.be/RWOW7oiICZE</p>	<p>The Animal Structure Laboratory of the Department of Biology Education, FPMIPA UPI, is located on the 2nd floor of the JICA Building, FPMIPA UPI, in room N205. This laboratory was established to support the academic programs of the Department of Biology Education, FPMIPA UPI, by providing facilities for research and experimentation in the fields of Animal and Human Body Structure, Animal Development, Animal Biosystematics, Parasitology, Animal Behavior, Entomology, and Endocrinology.</p> <p>With a strong foundation in the understanding of Animal Structure, supported by the expertise of educational personnel—including laboratory assistants, laboratory technicians, and technical staff—the Animal Structure Laboratory has continued to expand its facilities and infrastructure over time. This development enables the laboratory to support practicum and research activities for undergraduate and graduate students within the Department of Biology Education and UPI, as well as for other institutions.</p> <p>Research conducted in the Animal Structure Laboratory also contributes to public services and community engagement programs. Practicum, research, and community service activities that can be carried out in this laboratory include those related to Animal and Human Body Structure, Animal Development, Animal Biosystematics, Parasitology, Animal Behavior, Entomology, Endocrinology, Bioplastics, Taxidermy, Wet Specimen Preservation, and Animal Skeletal Preservation.</p>
4	<p>Microbiology and Genetics Laboratory</p> 	<p>The Microbiology and Genetics Laboratory of the Department of Biology Education, FPMIPA UPI, is located on the 2nd floor of the JICA Building, FPMIPA UPI, in room N204. This laboratory was established to support the academic programs of the Department of Biology Education, FPMIPA UPI, by providing facilities for research and experimentation in the fields of Microbiology, Genetics, Molecular Biology, Bioprocessing, Applied Microbiology, and Bioinformatics.</p> <p>With a solid foundation in Microbiology and Genetics, supported by the expertise of educational personnel—including laboratory assistants, laboratory technicians, and</p>

No.	Laboratory	Description
	 <p>Source: https://youtu.be/zN5nIW-6hOI</p>	<p>technical staff—the facilities and infrastructure of the Microbiology and Genetics Laboratory have gradually expanded over time. This growth allows the laboratory to support practicum and research activities for undergraduate and graduate students within the Department of Biology Education and UPI, as well as other institutions.</p> <p>Research conducted in the Microbiology and Genetics Laboratory also contributes to public services and community engagement. Practicum, research, and community service activities that can be conducted in this laboratory include those related to Microbiology, Genetics, Molecular Biology, Bioprocessing, Applied Microbiology, Bioinformatics, Culture Media Preparation, Drosophila Development, and Bacterial and Fungal Culture Development.</p>
5	<p>Ecology and Environmental Research Laboratory</p>   <p>Source: https://youtu.be/o1qn78jlgYc</p>	<p>The Ecology and Environmental Research Laboratory of the Department of Biology Education, FPMIPA UPI, is located in the UPI Botanical Garden area. This laboratory was established to support the academic programs of the Department of Biology Education, FPMIPA UPI, by providing facilities for research and experimentation in the fields of Ecology, Terrestrial Biology, Marine Biology, Plant Biosystematics, Freshwater Biology, Toxicology, and Environmental Research.</p> <p>With a strong foundation in the understanding of Ecology and Environmental Science, supported by the expertise of educational personnel—including laboratory assistants, laboratory technicians, and technical staff—the facilities and infrastructure of the Ecology and Environmental Research Laboratory have grown over time. This development allows the laboratory to support practicum and research activities for undergraduate and graduate students within the Department of Biology Education and UPI, as well as other institutions.</p> <p>Research conducted in the Ecology and Environmental Research Laboratory also contributes to public services and community outreach. Practicum, research, and community service activities that can be carried out in this laboratory include those related to Ecology, Terrestrial Biology, Marine Biology, Plant Biosystematics, Freshwater Biology, Toxicology, Bioremediation, and Environmental Research.</p>
6	<p>Biotechnology Research Laboratory</p>	<p>The Biotechnology Research Laboratory of the Department of Biology Education, FPMIPA UPI, is located on the 3rd floor of the FPMIPA B Building, UPI, in room B306. This laboratory was established to support the academic programs of the Department of Biology Education, FPMIPA UPI, by providing facilities for research and experimentation in the fields of Microbiology, Genetics, Bioremediation, and Molecular Biology.</p>

No.	Laboratory	Description
	 <p>Source: https://youtu.be/ICbIbhb1Vmo</p>	<p>With a strong foundation in biotechnology research, supported by the expertise of educational personnel—including laboratory assistants, laboratory technicians, and technical staff—the Biotechnology Research Laboratory has continuously expanded its facilities and infrastructure. This development enables the laboratory to support practicum and research activities for undergraduate and graduate students within the Department of Biology Education and UPI, as well as for other institutions.</p> <p>Research conducted in the Biotechnology Research Laboratory also contributes to community service and public engagement. Practicum, research, and community service activities that can be carried out in this laboratory include those related to Microbiology, Genetics, Bioremediation, Molecular Biology, Bioassays, Microbial Testing, and Culture Media Preparation for research purposes.</p>
7	<p>Botanical Garden</p>  <p>Source: https://youtu.be/Avv4jM4QMLs</p>	<p>The Botanical Garden of the Department of Biology Education, FPMIPA UPI, is located within the Universitas Pendidikan Indonesia (UPI) campus area, next to the UPI Rectorate Building. This botanical garden was established to support the academic programs of the Department of Biology Education, FPMIPA UPI, by providing a facility for plant collections on the UPI campus, rare plant collections, hydroponic/ aquaponic learning, and both academic and non-academic educational activities.</p> <p>Supported by the skills and expertise of educational personnel—including laboratory assistants, laboratory technicians, and garden technicians—the Botanical Garden has continued to expand its facilities and infrastructure over time. This growth enables the garden to support practicum and research activities for undergraduate and graduate students within the Department of Biology Education and UPI, as well as other institutions.</p> <p>Research conducted in the Botanical Garden also contributes to community service and outreach programs. Practicum, research, and community service activities that can be carried out in this facility include those related to hydroponics, plant cultivation, animal cultivation, and more.</p>