

The Ecology Laboratory

It includes high-performance equipment for scientific research in the fields of ecology, biology, water quality and water quality indicators which may be used for:

- sorting samples of aquatic macroinvertebrates;
- determining and quantifying biological quality indicators according to the Water Framework Directive (WFD) (macroinvertebrates, macrophytes, phytoplankton, chlorophyll);
- studying and analysing invasive species biologically and ecologically;
- determining and assessing biological quality and diversity indices for classifying surface aquatic ecosystems into quality classes according to the WFD;
- monitoring and assessing benthic fauna biodiversity in aquatic ecosystems (lotic and lentic);
- assessing the ecological status of surface water bodies by using biological quality parameters.

Members:

- **Lecturer dr. biol. Maria Cătălina ȚOPA**

<https://dcfm.ugal.ro/index.php/membri>



Equipment:

Stereomicroscope, Zeiss SteREO Discovery.V12

Uses:

- observation, preparation, sorting, handling and documentation of specimens very diverse in their nature and composition;
- determination of fauna and vegetation samples/specimens;
- high-quality colour pictures of samples;
- real-time images and recordings;
- developmental biology, microbiology, anatomy;
- material testing, semiconductor industry, fiberglass engineering;
- research/education, forensic medicine, restorations.

Technical Specifications:

- principle of operation with continuous zoom;
- transmitted LED lighting for examination by transmission of samples;
- LED lighting with adjustable circular incidence and intensity;
- motorized;
- 2 cold light LED sources with luminous flux and a lifespan of 50,000 hours;
- touch screen panel;
- attachable optical systems (lenses, eyepieces and camera adapters, video camera - video documentation);
- accessories: colour digital camera, graphics station (computer), biological data analysis software.



The Ecology Laboratory

Equipment:

Transmitted light microscope ZEISS Axio Imager 2

Uses:

- obtaining advanced fluorescent and optical images, excellent signal-to-noise ratio;
- investigation and determination of high-precision biological preparations (having the highest stability class);
- observation, recording and performance of complex imaging experiments: tissue sections in pathology, determination of brain specimens in neuroscience, determination at the level of fauna species and aquatic vegetation;
- biology and medicine - examination of blood and/or human body tissues;
- examination of materials;
- biological research and analysis;
- cell examination;
- high-quality sample photos;
- medical examinations in laboratories (research), clinics and medical offices;
- industrial applications (pharmacology, engineering).



The Ecology Laboratory

Equipment:

Transmitted light microscope ZEISS Axio Imager 2

Technical Specifications:

- accessories: colour digital camera, graphics station (computer);
- LED lighting, colour temperature 5700K, minimum operating time 60,000 hours;
- 120W fluorescence;
- binocular photo tube, ergonomically inclined to a maximum of 15°, with the image 100% in the eyepiece or 100% in the photo port and 25 mm field;
- 10X, 20X, 40X, 63X fluid lens;
- 100X apochromatic lens with numerical aperture of at least 1.4 for examination in transmitted light field, phase contrast and fluorescence, working distance minimum 0.17mm;
- digital video camera control and analysis software.



The Ecology Laboratory

Equipment:

Invertoscope with camera and software ZEISS Axio Vert.A1

Uses:

- analysis and examination of conventional materials and evidence;
- examination of large samples, workpieces, etc .;
- quantitative analysis and phytoplankton sample determinations;
- identification and counting of phytoplankton units;
- biology research;
- research in the field of environment and medicine;
- analysis of samples specific to metallographic laboratories, automotive industry, microsystems engineering, geology institutes, exploration industry;
- related areas which contribute to the monitoring and evaluation of environmental quality (water, sediment, metallographic samples, etc.).



The Ecology Laboratory

Equipment:

Invertoscope with camera and software ZEISS Axio Vert.A1

Technical Specifications:

- LED lighting with ECO Power function;
- light field examination, phase contrast and DIC;
- inverted microscope stand, equipped with a revolver head for 5 objectives;
- photo binocular tube inclined at 45 degrees;
- support for moving the preparation in the range of 130 x 85 mm with right or left actuation;
- petri dish holder and microscope slides;
- fluid lens, magnification 20x, 40x, 63x;
- digital camera and graphics station;
- ZEN software;
- cell cultures kept in their protected environment.



The Ecology Laboratory

Equipment:

Vacuum pump, Merck Millipore, EZ-Stream® Vacuum Filtration Pump

Uses:

- microbiological analysis;
- water and aqueous solutions filtration.

Technical Specifications:

- connection to the collector or to the filter device;
- the maximum vacuum delivered is 700bar;
- low noise up to 60dB;
- flow rate from 3.8 to 4 L / min;
- compact design;
- gas seal with coated diaphragm;
- compatible with slightly aggressive gases and vapours;
- no lubrication required.



Equipment:

6-station filtration system with hoses and membranes, EZ-Fit™ Manifold

Uses:

- physico-chemical and biological analysis of samples;
- general microbiological analysis;
- beer analysis, bottled water;
- pharmaceutical analysis;
- water monitoring.

Technical Specifications:

- material - steel;
- stations with individual shut-off / opening valve, which can be used independently;
- stations with concave sintered metal sieve used as filter holder (for buckling sterilization);
- autoclavable silicone with a 5-meter tube and a 9.5 mm-inner diameter;
- membrane dispenser (curve);
- set of membranes and funnels;
- filtration and vacuum pump systems simultaneously operable;
- filtration system connected to the vacuum pump.



Equipment:

Sedimentation chamber Utermöhl Pack

Uses:

- analysis of plankton samples with inverted microscope;
- plankton sedimentation before analysis, preventing any alteration of the sample.

Technical Specifications:

- combined plate chamber consisting of 3 cylinders of 10 ml, 50 ml and 100 ml;
- plate dimensions: 43x120mm;
- plate diameter: 39mm and 42mm;
- inner diameter of the sedimentation cylinder: 26 mm;
- Utermöhl aluminum support which allows the Utermöhl motherboard to be adapted to any inverted microscope.



Equipment:

Universal Laboratory Centrifuge 320R

Uses:

- centrifugation activity, including plaques, blood tubes, cell culture, microliter and cytology.

Technical Specifications:

- digital display for parameter values during spin;
- temperature range: -20°C and $+40^{\circ}\text{C}$ with precooling function;
- max. capacity 4 x 200 ml / 6 x 94 ml;
- RPM max. 16,000 min^{-1} ;
- operating time 1 sec – 99 min: 59 sec, continuous operation, short cycle mode (pulse button);
- rapid centrifugation of samples;
- smooth and high-performance engine operation.

