University of Gdańsk

Subject card

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|---|---|---|---|
| Subject name and code | Pathology and molecular diagnostics of aquatic organisms - laboratories classes, PG_00192234 | | |
| Field of study | Marine Biotechnology | | |
| Date of commencement of studies | October 2026 | Academic year of realisation of subject | 2026/2027 |
| Education level | Master's studies | Subject group | Obligatory subject group in the field of study |
| Mode of study | full-time studies | Mode of delivery | at the university |
| Year of study | 1 | Language of instruction | English |
| Semester of study | 1 | ECTS credits | 2.0 |
| Learning profile | academic | Assessment form | credit |
| Conducting unit | Laboratory of Aquaculture -> Department of Marine Biology and Biotechnology -> Faculty of Oceanography and Geography -> Rector | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | dr Ligia Panasiak | |
| | Teachers | dr Ligia Panasiak | |

**Lesson types**

| Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
|---|---|---|---|---|---|---|
| Number of study hours | 0.0 | 0.0 | 20.0 | 0.0 | 0.0 | 20 |

E-learning hours included: 0.0

**Learning activity and number of study hours**

| Learning activity | Participation in didactic classes included in study plan | Participation in consultation hours | Self-study | SUM |
|---|---|---|---|---|
| Number of study hours | 20 | 2.0 | 28.0 | 50 |

**Subject objectives**

The main goal is to obtain practical knowledge in the field of molecular diagnostics used in wild and farmed animals organisms from the aquatic environment. Students will acquire the ability to collect biological samples for further analysis laboratory, isolation and storage of research material, pathogen detection, ploidy assessment, genetic identification of sex and analysis disease disorders and gender development disorders.

**Learning outcomes**

| Course outcome | Subject outcome | Method of verification |
|---|---|---|
| [MBMU2-KU01] Can plan and conduct research in the laboratory and at sea, and to document procedures and results. Independently or under the supervision of an authorized staff member, carries out work using specialized equipment. Complies with occupational health and safety regulations. | Is able to plan and conduct research in the laboratory diagnostics and document activities and results; can under guidance the caregiver uses laboratory equipment; applies safety rules and occupational hygiene | [SU2] presentation/project/paper/ report<br>[SU6] demonstration of practical skills |
| [MBMU2-KK03] Is ready to apply the principles of occupational health and safety, especially in the laboratory and at sea; is responsible for their own and others' safety; can recognize hazards and take appropriate action | Is ready to apply occupational health and safety rules especially work in a diagnostic laboratory; is ready to be responsible for the safety of himself and others, and to recognize and take risks activities used | [SK6] demonstration of practical skills |
| [MBMU2-KW04] Knows and deeply understands advanced research methods used in marine biotechnology and related sciences | Knows and understands advanced methods to an in-depth level research used in pathology, molecular diagnostics of fish and related sciences | [SW2] presentation/project/paper/ report<br>[SW5] implementation of a problem task |

**Subject contents**

A1: Histological and cytogenetic characterization of fish with gonadal development disorders. A2: Molecular genetic diagnosis of sex in fish. A3: Application of the RT-PCR technique to identify VHS, IHN and IPN viruses and bacteria causing fish diseases.

<table>
<tr><td>Prerequisites and co-requisites</td><td colspan="3"></td></tr>
<tr><td>Assessment methods and criteria</td><td colspan="3"><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>test 1</td><td>51.0%</td><td>35.0%</td></tr>
<tr><td>report 2</td><td>51.0%</td><td>15.0%</td></tr>
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<tr><td>report 1</td><td>51.0%</td><td>15.0%</td></tr>
</table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td colspan="2">Maj-Paluch, J., Richert R. 2016. Characteristics of salmonid infectious pancreatic necrosis virus and its identification. Med. Veter. 72(4), 222-225. Fadaeifard F., et al. 2013. Multiplex PCR assay for detection of VHS, IPN and IHN in eyed egg, fry and broodstock of rainbow troutJ Pure Apll Microbiol. 7(4); 2838-2844. Haghighi Khiabanian asl, A. et al. 2008. Diagnosis of viral hemorrhagic septicemia (VHS) in Iranian rainbow trout aquaculture by pathology and molecular techniques. Bull. Euro. Fish Pathol. 28(5), 2008, 170. Demska-Zakęś K. Innovative techniques for biological assessment and protection of valuable species of farmed fish and crayfish. IRS Publishing House. 2008</td></tr>
<tr><td>Supplementary literature</td><td colspan="2">Scientific articles published in the Journal of Fish Disease, Aquaculture, Aquaculture Research, Aquaculture International, etc. Scientific Reports, PloS One, etc.</td></tr>
<tr><td>eResources addresses</td><td colspan="2"></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="3">Analysis of gonadal development disorders in triploid fish</td></tr>
<tr><td>Work placement</td><td colspan="3">Not applicable</td></tr>
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