

## Subject card

|                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                          |                   |                                     |                   |            |     |
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| Subject name and code                       | Marine and Inland Fisheries - lectures, PG_00156207                                                                                                                                                                                                                                                                                                                                                                                         |                                                          |                   |                                     |                   |            |     |
| Field of study                              | Aquaculture – Business And Technology                                                                                                                                                                                                                                                                                                                                                                                                       |                                                          |                   |                                     |                   |            |     |
| Date of commencement of studies             | October 2024                                                                                                                                                                                                                                                                                                                                                                                                                                | Academic year of realisation of subject                  |                   |                                     | 2024/2025         |            |     |
| Education level                             | undergraduate studies                                                                                                                                                                                                                                                                                                                                                                                                                       | Subject group                                            |                   |                                     |                   |            |     |
| Mode of study                               | full-time studies                                                                                                                                                                                                                                                                                                                                                                                                                           | Mode of delivery                                         |                   |                                     | at the university |            |     |
| Year of study                               | 1                                                                                                                                                                                                                                                                                                                                                                                                                                           | Language of instruction                                  |                   |                                     | Polish            |            |     |
| Semester of study                           | 1                                                                                                                                                                                                                                                                                                                                                                                                                                           | ECTS credits                                             |                   |                                     | 1.0               |            |     |
| Learning profile                            | practical                                                                                                                                                                                                                                                                                                                                                                                                                                   | Assessment form                                          |                   |                                     |                   |            |     |
| Conducting unit                             | Pracownia Akwakultury -> Katedra Biologii Morza i Biotechnologii -> Faculty of Oceanography and Geography                                                                                                                                                                                                                                                                                                                                   |                                                          |                   |                                     |                   |            |     |
| 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                                                                                                                                                                                                                                                                                                                                                                                                                       | 15.0                                                     | 0.0               | 0.0                                 | 0.0               | 0.0        | 15  |
|                                             | E-learning hours included: 0.0                                                                                                                                                                                                                                                                                                                                                                                                              |                                                          |                   |                                     |                   |            |     |
|                                             | Additional information:<br>Discussion,                                                                                                                                                                                                                                                                                                                                                                                                      |                                                          |                   |                                     |                   |            |     |
|                                             | Problem-solving,                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                          |                   |                                     |                   |            |     |
| Lecture with multimedia presentation.       |                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                          |                   |                                     |                   |            |     |
| 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                                                                                                                                                                                                                                                                                                                                                                                                                       | 15                                                       |                   | 10.0                                |                   | 5.0        | 30  |
| Subject objectives                          | Introducing students to the environmental conditions of seas and estuaries (including basic ecology principles), fishing methods in marine and estuarine waters, marine fish production, inland fisheries, including fishing gear used in inland waters. Presenting to students the characteristics of fish production in inland and marine waters, conducting hydrological research of waters, and their potential use in fish production. |                                                          |                   |                                     |                   |            |     |

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| Learning outcomes               | Course outcome                                                                                                                                                                                                                                                                                                                        | Subject outcome                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Method of verification            |
|                                 | [AKWAL3_W06] knows and discusses techniques, research methods and tools used in aquaculture                                                                                                                                                                                                                                           | Student are acquainted with and discusses the techniques, research methods, and tools used in marine and inland fisheries.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | [SW4] test/exam - oral or written |
|                                 | [AKWAL3_W03] knows and understands the conceptual categories and terminology related to the biological basis of aquatic organisms breeding, as well as concepts directly relevant to the practical applications of this knowledge                                                                                                     | Students are familiar with and understand the conceptual categories and terminology of marine and inland fisheries.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | [SW4] test/exam - oral or written |
|                                 | [AKWAL3_W01] knows and understands the relationship between the achievements in the selected fields of science and disciplines of natural sciences, and the possibility of their application in socio-economic life                                                                                                                   | Students are familiar with and understand the connections between the achievements of selected natural science disciplines and their potential applications in analyzing and managing marine and inland fisheries.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | [SW4] test/exam - oral or written |
| Subject contents                | 1. Environmental conditions in seas and estuaries.<br><br>2. Fishing methods for marine waters and estuaries.<br><br>3. Marine fishery production.<br><br>4. Inland fishery.<br><br>5. Types of lakes in Poland in relation to fishery and methods of their management.<br><br>6. Fishery tools and equipment used for inland waters. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                   |
| Prerequisites and co-requisites | Basic understanding of fish biology and ecology                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                   |
| Assessment methods and criteria | Subject passing criteria                                                                                                                                                                                                                                                                                                              | Passing threshold                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Percentage of the final grade     |
|                                 | Activity in classes - engagement in discussions                                                                                                                                                                                                                                                                                       | 51.0%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 25.0%                             |
|                                 | Test                                                                                                                                                                                                                                                                                                                                  | 51.0%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 75.0%                             |
| Recommended reading             | Basic literature                                                                                                                                                                                                                                                                                                                      | 1. FAO. 2022. The State of World Fisheries and Aquaculture 2022. Towards Blue Transformation. Rome, FAO. <a href="https://doi.org/10.4060/cc0461en">https://doi.org/10.4060/cc0461en</a> ,<br><br>2. Gulland J. A., The Fish Resources of the Ocean, FAO, 1971,<br><br>3. Rybactwo śródlądowe - praca zbiorowa pod red. J.A. Szczerbowskiego, 2008, Wyd. IRS,<br><br>4. Cetinić Perica; Świniarski Józef, Technologia połowu organizmów morskich, Gdansk, 1993 <a href="https://smp.am.szczecin.pl/dlibra/publication/1037/edition/667/content">https://smp.am.szczecin.pl/dlibra/publication/1037/edition/667/content</a> ,<br><br>5. Filipiak J., Sadowski J., Trzebiatowski R., Gospodarka rybacka na wodach otwartych, AR, Szczecin, 1999,<br><br>6. Sikorski, Z. E. (2004). <i>Ryby i bezkręgowce morskie: pozyskiwanie, właściwości i przetwarzanie</i> . Wydawnictwa Naukowo-Techniczne. |                                   |

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|                                                                | Supplementary literature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <p>1. Rudnicki A, Poradnik rybaka jeziorowego, PWRiL, Warszawa, 1957,</p> <p>2. Caddy J.F., Griffiths R.C., Living marine resources and their sustainable development: some environmental and institutional perspectives, FAO, Rome, 1995,</p> <p>3. Leszek Myszowski. Obraz polskiej akwakultury w 2021 roku na podstawie badań statystycznych przy zastosowaniu kwestionariusza RRW-22. XLVII Szkolenie - Konferencja Hodowców Ryb Łososiowatych 13-14 października 2022, Gdynia,</p> <p>4. Niezależne sprawozdanie z obrotu ryb i skorupiaków krajowej akwakultury - ocena dobrych, zrównoważonych perspektyw rynkowych Opracowanie wykonane w ramach Umowy nr BBF.IV.320.V. 10.2018/2018/790 zawartej w dniu 29.05.2018 r. w Warszawie pomiędzy Ministerstwem Gospodarki Morskiej i Żeglugi Śródlądowej a Instytutem Rybactwa Śródlądowego im. Stanisława Sakowicza w Olsztynie Olsztyn, czerwiec 2018 r. <a href="https://www.arimr.gov.pl/fileadmin/pliki/PO-ryby/PO_RYBY_2014-2020/Pliki_do_pobrania/Niezalezne_sprawozdanie_z_obrotu/Opracowanie-Ryby-MGM-2018.pdf">https://www.arimr.gov.pl/fileadmin/pliki/PO-ryby/PO_RYBY_2014-2020/Pliki_do_pobrania/Niezalezne_sprawozdanie_z_obrotu/Opracowanie-Ryby-MGM-2018.pdf</a>,</p> <p>5. Mirosław Kuklik - Narzędzia i metody połowów w rybołówstwie przybrzeżnym <a href="http://plgr.pl/UserFiles/rybak_271-312.pdf">http://plgr.pl/UserFiles/rybak_271-312.pdf</a>.</p> |
|                                                                | eResources addresses                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Adresy na platformie eNauczanie:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Example issues/<br>example questions/<br>tasks being completed | <ol style="list-style-type: none"> <li>1. Fish production conditions in inland waters and population density,</li> <li>2. Reproduction, mortality, age structure, population development of fish, lifespan, and growth rate,</li> <li>3. Population movement, production, species interactions, fish feeding habits, impact of fishing on fish populations,</li> <li>4. Overview of aquatic organisms produced in aquaculture,</li> <li>5. Inland water fisheries (basic principles and elements of management, lake, river, and reservoir fisheries, pond culture, major species caught in Poland, concept of sustainable fisheries),</li> <li>6. Basics of salmonid aquaculture (history, production technology, characteristics of trout farming facilities, major salmonid species produced alongside rainbow trout),</li> <li>7. Basics of carp farming (Cyprinus carpio) (history, technology, characteristics of carp farming facilities, other species produced in polyculture with carp),</li> <li>8. Fish and invertebrate mariculture (history, major species produced, production methods, and scale),</li> <li>9. Importance of limnology and hydrometeorology in fisheries,</li> <li>10. Importance of potamology and krenology in fisheries,</li> <li>11. Stocking and fish conservation,</li> <li>12. Biomanipulation as a fishery tool for lake restoration,</li> <li>13. List and briefly describe tools used in marine and inland fisheries for catching aquatic organisms.</li> </ol> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Work placement                                                 | Not applicable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

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