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| Subject                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Introduction to Fisheries Science<br>(水産科学概論)                    | Day/Period | Fri./2nd                | Object                     | AMB/JYPE                    |
| Instructor<br>(Post)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | T. Nakano (Prof.) et al.                                         | Categories | Specialized<br>Subjects | Preferable<br>Participants | 2nd-year &<br>JYPE students |
| Position                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Faculty of Agriculture (Graduate School of Agricultural Science) |            |                         | Credits                    | 2                           |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                  |            |                         | Semester                   | 4                           |
| Subject<br>Numbering                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ABS-APS255E                                                      |            |                         | Language Used<br>in Course | English                     |
| 1. Class subject<br><b>Introduction to Fisheries Science</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                  |            |                         |                            |                             |
| 2. Object and summary of class<br>This course provides an overview of fisheries science. Students will learn the fundamentals of fisheries science as it relates broadly to marine biology, from molecules to ecosystems.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                  |            |                         |                            |                             |
| 3. Keywords<br>Fisheries science, fundamentals, overview                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                  |            |                         |                            |                             |
| 4. Goal of study<br>The goal is to understand the fundamentals of fisheries science from ecology, physiology, genetics, molecular biology and evolution, and to appreciate fisheries science as it relates to applied marine biology.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                  |            |                         |                            |                             |
| 5. Contents and progress schedule of class<br>The following lectures will be given, but the order is yet to be determined.<br><br>1. “Reproductive physiology of bivalves” (K. Nagasawa)<br>2. “How to know the fish age” (S. Katayama)<br>3. “How to know the fish migration” (S. Katayama)<br>4. “Think about the marine ecosystem” (A. Tanaka)<br>5. “The meanings of 'primary producer' in the ocean” (A. Tanaka)<br>6. “Food chemistry of fish and shellfish” (T. Nakano)<br>7. “Plankton in the ocean 1” (A. Yamaguchi)<br>8. “Biochemistry of seaweed” (T. Yokoyama)<br>9. “How to cultivate quality sea urchins” (T. Unuma)<br>10. “Plankton in the ocean 2” (G. Nishitani)<br>11. “Flatfish metamorphosis and aquaculture” (H. Yokoi)<br>12. “Biological sequence comparison methods” (Y. Sakai)<br>13. "Evolution and fisheries resources" (M. Ikeda)<br>14. "Coastal ecosystem dynamics and fisheries resources" (T. Fujii)<br>15. “Molecular phylogenetics: Tools and applications” (C. Ames) |                                                                  |            |                         |                            |                             |
| 6. Preparation<br>None in particular.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                  |            |                         |                            |                             |
| 7. Record end evaluation method<br>Evaluation will be based on class attendance (70%) and report scores (30%).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                  |            |                         |                            |                             |
| 8. Textbook and references<br>None in particular.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                  |            |                         |                            |                             |
| 9. Self-study<br>Students should review the lecture contents thoroughly using the handouts.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                  |            |                         |                            |                             |
| 10. Practical business                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                  |            |                         |                            |                             |
| 11. In addition<br>If students have questions about a lecture, they can ask the instructor by e-mail or visit his/her office after asking for his/her availability in advance.<br>E-mail: nakanot@tohoku.ac.jp (T. Nakano).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                  |            |                         |                            |                             |