Summer Course „**Hydrobiology and inland environmental science in Poland”**

by the Faculty of Fisheries Sciences, Hokkaido University **(HU)**, Japan

and the Faculty of Biology and Biotechnology,

the University of Warmia and Mazury in Olsztyn **(UWM)**, Poland

**28 August - 8 September 2017**

**Coordinators: prof. Katsutoshi ARAI, prof. Takafumi FUJIMOTO from HU;**

 **prof. Alicja BORON from UWM**

Each Group contains 4 students (2 from HU and 2 from UMW), one assistant professor and/or PhD student (UWM) - supervisors of Students-Participants and one professors (HU or UWM).

**PT** – practical training

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| Day  | Activities |
|  | **Group #1** | **Group #2** |
| **26.08 Saturday** | **Arrival (15:00) by LOT** (stay one night at Warszawa, because of arrival is at 15:00  |
| **27.08 Sunday** | **Move to Olsztyn** (**Katsutoshi ARAI and HU students**)**Alicja BORON, Katsutoshi ARAI;** Orientation; 16:15-17:00 Welcome party/Ice breaking (coffee/tea with sweets) |
| **28. 08. (Monday)**9:00-9:20 | **Prof. Tadeusz Kaminski**, Dean of the Faculty of Biology and BiotechnologyWelcome addressStart of the summer course by **Katsutoshi ARAI, Takafumi FUJIMOTO - coordinators from HU** and **Alicja BORON - coordinator from UWM** |
| 9:30-11:00 (2hrs) | Lecture by prof. A. Boron **"Hydrobiology as the science of life processes in water - field of research interests and inland water bodies in Poland"** |
| 11:00-11:45 (1hrs)  | **Two Mini-projects –** One for each group of students **– short introduction into the topics and organization of the Summer Course** by Katsutoshi ARAI, Alicja BORON |
| **MP#1** (21 hrs.)by Dorota Juchno, PhD **"Gonad histology of the Prussian carp *Carassius gibelio* (Teleostei, Cyprinidae) males from bisexual population"**  | 1. **MP#2** (21 hrs.)by Aleksandra Szabelska, PhD student and Lech Kirtiklis, PhD
2. **"The length and chromosomal mapping of 5S rDNA sequence of *Carassius gibelio* diploids and triploids"**
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| 12:00-13:00 | Lunch |
| 13:30-15:00 (2hrs)15:00-15:45 (1hrs) | *Tour (c. 30’) to the Polish Academy of Sciences in Olsztyn (PAN)* Lecture by prof. Andrzej Ciereszko, PAN **"Cryopreservation of the fish sperm"**PT: **Scientific groups of Gamete and Embryo Biology** – visit in PAN  |
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| **29. 08. (Tuesday)**8:30-10:00 (2hrs)10:15-13:15 (4hrs) | Lecture by prof. Stanisław Czachorowski **"Animals living in Polish inland water bodies; characteristic of the most typical taxa, adaptations and limitations"**PT by prof. Stanisław Czachorowski **"Identification of main typical invertebrates taxa inhabiting Polish lakes and rivers"**(field trip to lake, river, collecting samples) |
| 13:15-14:15 | Lunch |
| 14:15-15:45 (2hrs) | **MP#1** (21 hrs.) by Dorota Juchno, PhD **"Gonad histology of the Prussian carp *Carassius gibelio* (Teleostei, Cyprinidae) males from bisexual population"** | 1. **MP#2** (21 hrs.)by Aleksandra Szabelska, PhD student and Lech Kirtiklis, PhD
2. **"The length and chromosomal mapping of 5S rDNA sequence of *Carassius gibelio* diploids and triploids"**
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| **30. 08. (Wednesday)**8:30-10:00 (2hrs) | Lecture by Lech Kirtiklis, PhD **"Taxonomical identification - a review of the genetic methods"** |
| 10:00-12:15 (3hrs) | PT by Lech Kirtiklis, PhD **"Molecular techniques in freshwater animals’ taxonomy"**  |
| 12:15-13:15 | Lunch |
| 13:30-15:45(3hrs) | **MP#1** (21 hrs.) by Dorota Juchno, PhD **"Gonad histology of the Prussian carp *Carassius gibelio* (Teleostei, Cyprinidae) males from bisexual population"** | 1. **MP#2** (21 hrs.)by Aleksandra Szabelska, PhD student and Lech Kirtiklis, PhD

**"The length and chromosomal mapping of 5S rDNA sequence of *Carassius gibelio* diploids and triploids"** |
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| **31. 08. (Thursday)**8:30-10:00 (2hrs) | Lecture by prof. Katsutoshi ARAI, HU **"Clonal loach in nature - Its reproduction and origin "** |
| 10:30-12:00 (2hrs) | Lecture by prof. Katsutoshi ARAI, HU **" Polyploidy and aneuploidy in wild pond loach"** |
| 12:00-13:00 | Lunch |  |
| 13:00-16:00 (4hrs) | **MP#1** (21 hrs.) by Dorota Juchno, PhD **"Gonad histology of the Prussian carp *Carassius gibelio* (Teleostei, Cyprinidae) males from bisexual population""** | 1. **MP#2** (21 hrs.)by Aleksandra Szabelska, PhD student and Lech Kirtiklis, PhD

**"The length and chromosomal mapping of 5S rDNA sequence of *Carassius gibelio* diploids and triploids"** |
| **01.09. (Friday)****02. 09. (Saturday)** | Students; Professors; Trip to Krakow and Wieliczka Salt Mine; to know the culture and tradition of Poland (2 days plus one night) |
| **03.09.2017 Sunday** | UWM and HU students - tour of Olsztyn |
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| **04. 09 (Monday)**8:30-10:00 (2hrs) | Lecture by prof. Takafumi Fujimoto, HU **"Chromosome set manipulation in fish"** |
| 10:30-12:00 (2hrs) | Lecture by prof. Takafumi Fujimoto, HU **" Embryo manipulation as a developmental engineering in fish "** |
| 12:00-13:00 | lunch |
| 13:00-16:00 (4hrs) | **MP#1** (21 hrs.) by Dorota Juchno, PhD **"Gonad histology of the Prussian carp *Carassius gibelio* (Teleostei, Cyprinidae) males from bisexual population"** | **MP#2** (21 hrs.)by Aleksandra Szabelska, PhD student and Lech Kirtiklis, PhD**"The length and chromosomal mapping of 5S rDNA sequence of *Carassius gibelio* diploids and triploids"** |
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| **05. 09. (Tuesday)**8:30-10:00 (2hrs) | Lecture by prof. Dorota Fopp-Bayat **“Application of genetic analysis in aquaculture and conservation of sturgeons”**  |
| 12:30-13:00 | lunch |
| 13:00-16:00 (4hrs) | PT: by prof. Dorota Fopp-Bayat **"Analysis of the basic parameters of water quality"** |
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| **06. 09. (Wednesday)**(whole day trip) | **(4 hrs.)** plus 5 – 6 hrs. round-trip by train/bus**: “Production process of salmonid fish” IFI, the Department of Salmonid Fish Farming, Rutki, Gdansk** |
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| **07. 09. (Thursday)**9:00-10:30 (2hrs) | Lecture by prof. A. Boron **"Freshwater fishes of Poland with data on farm species”** |
| 10:30-12:00 (2hrs) | **MP#1** (21 hrs.) by Dorota Juchno, PhD **"Gonad histology of the Prussian carp *Carassius gibelio* (Teleostei, Cyprinidae) males from bisexual population"** | **MP#2** (21 hrs.)by Aleksandra Szabelska, PhD student and Lech Kirtiklis, PhD **"The length and chromosomal mapping of 5S rDNA sequence of *Carassius gibelio* diploids and triploids"** |
| 12:00-13:00 | lunch |  |
| 13:00-15:15 (3hrs) | **Preparation of the final presentation - the results of Mini-Project (#1);** D. Juchno, PhD | **Preparation of the final presentation - the results of Mini-Project (#2);** A. Szabelska, PhD student, L. Kirtiklis, PhD |
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| **08. 09. (Friday)**8:30-10:00 (2hrs) | **Preparation of the final presentation - the results of Mini-Project (#1);** D. Juchno, PhD | **Preparation of the final presentation - the results of Mini-Project (#2);** A. Szabelska, PhD student,L. Kirtiklis, PhD |
| 10:00-12:15 (3hrs) | Seminar- **Final presentation and discussing of the results of Mini-Projects** by prof. Alicja BORON and prof. Takafumi FUJIMOTO; |
| 12:15-13:15 | Lunch |
| 17:00-**∞** | **Official Dinner, summarizing of the Summer Course, closing remarks**  |
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| **09.09. (Saturday)****10.09. (Sunday)** | Move to Warszawa, stay one night (09.09).Leave to Japan (10.09) |

**Running the summer course and excursion for 10 days (excluding weekend) with 4 to 8 hours
of lectures/training courses/seminars in each day**

**1. In total during the Summer Course will be given 81 hours of different activities as following:**

a) 20 hours (20 x 45') of lectures,

b) 16 hours of practical training,

c) 42 hours of practical training in scientific research realizing as two Mini-Projects,

d) 3 hours of seminars.

**2. Each Student-Participant will get 2/4 ECTS points (in UWM) = 2 credits (in HU)**

**and take part in 60 hours of different activities as following:**

a) 20 hours (20 x 45') of lectures,

b) 16 hours of practical training,

c) 21 hours of practical training in scientific research realizing as two Mini-Projects
 (16 hrs. by Mini-project + 5 hrs. by Preparation of the final presentation),

d) 3 hours of seminars.

**Total hours of lectures, training courses and seminars for each of Students
and also in each working day of the Summer Course**

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| **Day** | **lectures** | **Mini-Projects realization** | **PT****(practical training)** | **seminars,** **presentations/****preparation** | **Total****hours** |
| **28. 08. (Monday)** | 4 | 1 | 1 | - | 6 |
| **29. 08. (Tuesday)** | 2 | 2 | 4 | - | 8 |
| **30. 08. (Wednesday)** | 2 | 3 | 3 | - | 8 |
| **31. 08. (Thursday)** | 4 | 4 | - | - | 8 |
| **1.09. (Friday)** | - | - | - | - | - |
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| **4. 09 (Monday)** | 4 | 4 | - | - | 8 |
| **5. 09. (Tuesday)** | 2 | - | 4 | - | 6 |
| **6. 09. (Wednesday)** | - | - | 4 | - | 4 |
| **7. 09. (Thursday)** | 2 | 2 | - | 3 | 7 |
| **8.09. (Friday)** | - | - | - | 5 | 5 |
| **Total 60** | **20** | **16** | **16** | **8** | **60** |