Warsaw University of Technology

COURSE REGULATION

Course: **Advanced R programming**
4606-ES-000000L-0259
Coordinators: **prof. dr hab. inż. Janusz Hołyst**

Period: **Summer Semester 2023/2024**
2024L
Approval date: **17.01.2024**

1. Course allocation

The subject is intended for PhD students of any semester who have basic programming skills in the R language. The aim of the subject is to familiarize participants with advanced applications of the R language and the latest trends in data analysis and visualization.

2. Conducting classes

Hybrid mode. Participants have the opportunity to participate in classes live or remotely via MS Teams.

3. Course materials

The materials will be posted on the Teacher's website https://rpaluch.fens.org.pl/arp/

4. Class attendance

Attendance at classes is not obligatory. Self-learning is possible using materials prepared by the Teacher.

5. Verification of achievement of learning outcomes

The course includes 5 laboratory classes and 5 project classes, 3 hours each. Laboratory classes take the form of workshops during which the Teacher explaines new content about R packages and presents their operation live. At the end of the laboratory classes, the Teacher assigns participants mini-projects to complete within two weeks. In the week following the laboratory classes, participants can consult their projects with the Instructor during design classes. Each mini-project is rated from 0 to 10 points. A total of 50 points can be obtained.

6. Aids acceptable for use during verification of achievement of learning outcomes

Materials provided by the Teacher, books and tutorials, also online.

7. Rules for passing the course and for calculating the final grade

The final grade is based on the sum of points from 5 mini-projects according to the table below:

0 ; 25 2.0

(26 ; 30) 3.0

31 ; 35) 3.5

36 ; 40) 4.0

41 ; 45) 4.5

46 ; 50 5.0

If the Student does not obtain enough points to pass the course, it is possible to complete an additional project for a maximum of 10 points.

8. Deadline and procedure for announcing grades

Proposed grades are presented by USOS no later than 10 days after the last project classes.

9. Rules for retaking classes due to failure to pass a course

Elective subject - does not require repetition. In the event of failure, the doctoral student has the right to re-register for the course and pass it on the same terms as doctoral students taking the course for the first time.

10. Other

Content:

1. Advanced function writing and attributes; units tests; Debugging; exception handling
2. The Rcpp package; creating and publishing own R packages
3. Text processing and mining; regular expressions; web scraping
4. Developing web applications in the Shiny package
5. Selected ggplot2 extensions