Analytics and Operations research in Logistics mailing

Subject: Information regarding the specialization Analytics and Operations research in Logistics

Dear master student,

Thank you for choosing the master programme `Econometrics and Management Science’ and the specialization `Analytics and Operations research in Logistics’. In this letter, we aim to provide you with some information on the programming skills that are required in our master specialization. Note that this letter can also be found on <https://github.com/EconometricInstitute/ProgrammingInAORLtrack>  
such that you can click on the links.

The main language used in our curriculum is Java. Java is taught and used in our bachelor program as well. As a result, a major part of the students in our master is familiar with Java. Thus, if you would know Java as well, this would ease cooperation with fellow students. Java is an object-oriented programming language, similar to C# and, to a lesser extent, C++.

If you do not feel confident in your Java ability, we strongly recommend to brush up your Java skills. We suggest the following resources for this:

1. <https://java-programming.mooc.fi/part-1> is a course offered by the University of Helsinki. All parts, except Part 13 and Part 14 are relevant. This course also offers online exercises you can make if you create an account.
2. The course websites of the first year course Introduction to Programming <https://feb21011.ese.eur.nl/> and the second year course Programming <https://feb22012.ese.eur.nl/> of Erasmus School of Economics.
3. *Cave of programming* is another free course on Java, which mostly consists of videos. All videos, except the ones on recursion, serialization and the transient keyword are relevant (be sure to learn about the Java Collections Framework as well!). These videos can also be found on YouTube: <https://www.youtube.com/playlist?list=PL9DF6E4B45C36D411> <https://www.youtube.com/playlist?list=PLB841C370FAFB8EC7>

One of the important skills required in our program is the ability to solve (large) MIPs and LPs using a commercial solver, such as Gurobi or Cplex (note that we are mostly using Gurobi). We have set up a GitHub page where you can find installation information (Windows and Mac) and the use of Gurobi in Java including an example. You can find this page here:

1. <https://github.com/EconometricInstitute/ProgrammingInAORLtrack>

If you do not have prior experience with an object-oriented programming language and/or with solving MIPs and LPs with a commercial solver, we strongly advise you to study this material before the program starts. Doing so will ensure a smooth start of your master.

Besides Java, a few courses in our program use Python in examples or for short demonstrations. These courses will provide a short introduction into Python, if necessary.

I look forward to meeting you in September!

Best regards,  
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