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| [**Master of Computer Science**](https://www.uantwerpen.be/en/education/education-and-training/?q=computer%20science&f=48,13&s=491) **- Pre-screening form** |

1. **Personal Data**

|  |  |
| --- | --- |
| Last Name |  |
| First Name |  |
| Date of Birth *(dd/mm/yyyy)* |  |
| Gender *(Male/Female)* |  |

1. **Academic Data**

|  |  |
| --- | --- |
| Institute/University |  |
| Address |  |
| E-mail of Faculty contact person |  |
| URL programme of degree(s) relevant to this application |  |
| Diploma/Degree  |  |
| From  |  |
| Until  |  |
| Final Grade |  |
| Grade conversion scheme into % |  |
| Extra info |  |

*(Copy this table as often as necessary.)*

1. **Professional and practical experience**

|  |  |
| --- | --- |
| Employer |  |
| Function title |  |
| Type of work |  |
| Duration from mm:yyyy until mm:yyyy |  |

*(Copy table as often as necessary.)*

1. **Scientific background requirements common to all majors**

|  |
| --- |
|  **Computer skills (mostly non-scientific)*** UNIX-based operating system (Ubuntu or similar): file operations, installing software and libraries, shell scripting, regular expressions, network configuration proficiency;
* familiarity with at least one integrated development environment (e.g. Eclipse, Code: Blocks, netbeans);
* usage of compiler, linker, debugger, profiler etc. in at least on environment;
* usage of Version Control Systems (SVN, Mercurial, Git or similar);
* familiarity with at least one word processing system. Experience with LaTeX is recommended.

You may have acquired some of these skills on your own, outside a course. If this is the case, mention “self study” as the Course Name. |
| Course Name | Semester | Grade | Keywords |
|  |  |  |  |
| Course description: |
|  |  |  |  |
| Course description: |

*(Add as many lines as appropriate. Avoid courses that do not cover these subjects.*)

|  |
| --- |
|  **Programming and software development*** Proficiency in at least one dynamically typed object oriented language (e.g. Python, Ruby);
* proficiency in at least one statically typed object oriented language (e.g. C++, Java);
* thorough understanding of **object-oriented** constructs (classes, inheritance, polymorphism);this proficiency is crucial  **–** demonstrate clearly that you master object-orientation!
* thorough understanding of programming constructs (generics, exception handling, threads);
* strong programming skills including use of appropriate language idioms, design patterns, etc;
 |
| Course Name | Semester | Grade | Keywords |
|  |  |  |  |
| Course description: |
|  |  |  |  |
| Course description: |

*(Add as many lines as appropriate. Avoid courses that do not cover these subjects.*)

|  |
| --- |
|  **Mathematics** * Discrete mathematics (set theory, number theory, logic, proof by induction);
* calculus (summation, integrals, boundedness, injection/surjection/bijection, continuity, limits);
* elementary statistics ( mean, average, probability, distributions);
* **algebra (vector, matrix, floating point, least squares,...).**
 |
| Course Name | Semester | Grade | Keywords |
|  |  |  |  |
| Course description: |
|  |  |  |  |
| Course description: |

*(Add as many lines as appropriate. Avoid courses that do not cover these subjects.*)

|  |
| --- |
| **Algorithms, Data Structures and Theoretical Concepts*** Binary trees and search trees, tables, priority queues, balanced search trees;
* graph searching, flow networks;
* Turing machines, finite state machines;
* time and space complexity;
* context free grammars;
* regular expressions;
 |
| Course Name | Semester | Grade | Keywords |
|  |  |  |  |
| Course description: |
|  |  |  |  |
| Course description: |

*(Add as many lines as appropriate. Avoid courses that do not cover these subjects.*)

|  |
| --- |
|  **Databases and XML*** Relational database model;
* XML (DOM or SAX parser, XSLT).
 |
| Course Name | Semester | Grade | Keywords |
|  |  |  |  |
| Course description: |
|  |  |  |  |
| Course description: |

*(Add as many lines as appropriate. Avoid courses that do not cover these subjects.*)

|  |
| --- |
| **Networks*** ISO/OSI layered reference model;
* basic knowledge about communication networks;
* basic knowledge about distributed systems;
* Client Server Model;
* using wire shark/tcpdump;
* reading technical documentation (RFCs, standards,...).
 |
| Course Name | Semester | Grade | Keywords |
|  |  |  |  |
| Course description: |
|  |  |  |  |
| Course description: |

*(Add as many lines as appropriate. Avoid courses that do not cover these subjects.*)

1. **Background requirements specific to your major of interest**

Your background needs to be stronger with respect to the major you choose. Below are requirements specific to each major. **You need to fill out the box for the major you apply for (you can apply for only one major).**

**Data Science Major specific requirements*:***

|  |
| --- |
|  **Databases** * SQL, relational algebra;
* functional dependencies, normal forms;
* transactions (two-phase commit);
* data mining (classification, clustering, frequent pattern mining).
 |
| Course Name | Semester | Grade | Keywords |
|  |  |  |  |
| Course description: |
|  |  |  |  |
| Course description: |

*(Add as many lines as appropriate. Avoid courses that do not cover these subjects.*)

**Software Engineering Major specific requirements:**

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| --- |
|  **Software Engineering*** Unit testing, regression testing;
* familiarity with structured development processes, analysis, architecture and design of software;
* Object Oriented Design Patterns **(factory, singleton, adapter/wrapper, bridge, façade, proxy, command, observer, visitor, iterator, state, model-view-controller)**.
* Unified Modeling Language (class diagram, object diagram, activity diagram, state machine diagram, sequence diagram).
 |
| Course Name | Semester | Grade | Keywords |
|  |  |  |  |
| Course description: |
|  |  |  |  |
| Course description: |

 *(Add as many lines as appropriate. Avoid courses that do not cover these subjects.*)

**Computer Networks and Distributed Systems Major specific requirements:**

|  |
| --- |
|  **Computer Networks** * Physical layer: signals and their representation, modulation and coding, multiplexing;
* Link layer: Fault detection (CRC), flow control (stop and wait protocol, sliding window protocol, ARQ protocols), ALOHA, Ethernet, IEEE 802.11, ARP;
* Network layer: IPv4, IPv6, routing;
* Transport layer: TCP, UDP;
* basic knowledge about communication networks (IP networks, GSM, WLAN, DSL, HFC, …).

 **Distributed Systems*** Distributed middleware;
* distributed communication: remote procedure calls, message exchange;
* fault tolerance: distributed failure detection, masking and recovery;
* clock synchronization: physical and logical clock synchronization (vector clocks, Lamport clocks);
* replication: consistency models, replica management;
* coordination: distributed mutual exclusion and election mechanisms.
 |
| Course Name | Semester | Grade | Keywords |
|  |  |  |  |
| Course description: |
|  |  |  |  |
| Course description: |

*(Add as many lines as appropriate. Avoid courses that do not cover these subjects.*)

1. **Tentative selection of elective Courses**

|  |  |  |
| --- | --- | --- |
| Course  | Year, Semester | ECTS |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

Guidelines and Examples **IMPORTANT!**

This pre-screening is a preliminary appraisal of the suitability of your academic background and is one of the decisive components in the [Admissions procedure at the University of Antwerp](https://www.uantwerpen.be/en/education/admission-and-enrolment/admission/master/). The decision of the Pre-screening Board will be based on the information you provide in your pre-screening application.
*Follow these “Guidelines and Examples” and fill out your pre-screening application meticulously.
Please make sure to****convert and rename this document to “lastname\_firstname.pdf”****and upload your pre-screening application along with all the required supporting documents to* [*mobility online*](https://www.service4mobility.com/europe/BewerbungServlet?identifier=ANTWERP01&kz_bew_pers=S&kz_bew_art=IN&aust_prog=DEPR&sprache=en)*.*

1. **Personal Data**

All fields of this section have to be filled out.

1. **Academic Data**
* List as many as relevant to this application and copy the table as often as necessary.
* Add supporting documents as proof to your application.
* Only Higher Education is requested, start with highest/most advanced degree.

|  |  |
| --- | --- |
| University /College/Institute | Fill out full name of the university/college/institute and full name of the faculty |
| Address | Fill out the address of the university/college/institute where you followed the majority of the courses |
| Faculty contact person | Fill out name, e-mail, phone numder of contact person at this faculty |
| URL-programma | Fill out URL of degree(s) relevant to this application |
| Diploma/Degree  | Fill out title of the obtained diploma relevant to this application |
| From  | Fill out month and year you started the programme. |
| Until  | Fill out month and year you finished or will finish the programme. |
| Final Grade | Fill out final grade noted on the diploma, certificate or transcript. **Convert** all grades **into** **percentage** or add a conversion scheme. If you know how you are ranked within your class, this can be valuable information to provide. |
| Extra info | Any extra valuable info concerning this programme. Internship info, reference letters, ... |

Example – Academic Data

|  |  |
| --- | --- |
| Institute/University  | University of Antwerp - Faculty of Science<https://www.uantwerpen.be/en/faculties/faculty-of-science/> |
| Address | Middelheimcampus, Middelheimlaan 1, 2020 Antwerpen, Belgium |
| Faculty contact person | John SmithMaster-cs@uantwerpen.beT +32 03 000 00 00 |
| URL-programma | Fill out URL of degree(s) relevant to this application |
| Diploma/Degree  | Bachelor of Science in Computer Science; Master of Engineering in Information Technology |
| From  | 09/2010 |
| Until  | 07/2013 |
| Final Grade | B+ (72%) |
| Example - Grade conversion scheme | A+ = … (example: 85-100%)A- = … (example: 75-85%)B+ = … (example: 65-75%)... |
| Extra info | Did research on ...in Internship course of 10 ECTS. |

1. **Professional and practical experience**
* List as many as appropriate and copy table as often as necessary.
* Add the supporting documents as proof in attachment to your application.

|  |  |
| --- | --- |
| Employer | Fill out Name, address, e-mail, webpage url of your employer |
| Function title | Fill out your function title. |
| Type of work | Give a brief job description |
| Duration (from...until...) | Fill out period: from: mm:yy until mm:yy |

Example – Professional and practical experience *(Add as many lines as necessary*)

|  |  |
| --- | --- |
| Employer | Alcatel-Lucent, Antwerp, Belgium + address + e-mail + webpage url |
| Function title | Internship. |
| Type of work | Internship of 6 weeks with Focus on Cloud computing. Formalized algorithm on. |
| Duration (from...until...) | From 07/2013 until 08/2013 |

1. **Scientific background requirements common to all majors**

To be eligible for the programme Master of Computer Science, a student should have a strong scientific background in order to be able to pass all the courses.

When the grades you obtained are represented by letters or other then provide us with a conversion scheme into percentage (see above: academic data). Usually you can find them on the Transcript of Records.
An indicative set of concepts/disciplines that need to be understood, whatever your choice of major, are outlined here. This set is made as an equivalent of competences of a local Bachelor student. Try to prove you have the required background by filling out the tables (see example below). Provide us with the names of the courses from your own curriculum with a content equivalent to the requirements. This can be more than one course!

Example – Scientific background requirements common to all majors

|  |
| --- |
| **Programming and software development** * proficiency in at least one statically typed object oriented language (e.g. C++, Java);
* *...*
 |
| *Course Name* | *Semester* | *Grade* | *Keywords* |
| *Introduction into programming* | *4* | *B-* | *Arrays, structs, ….* |
| *Course: Introduction into programming**Description: We start with a procedural approach and explain all syntactic constructs for data specification and instruction handling. We discuss composite types, top-down design, abstraction, modular programming. An introduction to object-orientation is given, using explicit pointer syntax, and focusing on encapsulation and reuse.An overview of abstraction techniques is given (procedural, classic ADT, objects).* |
| *….* | *…* | *….* | *….* |
| *Course:* *Description:.* |

*(Add as many lines as appropriate. Avoid courses that do not cover these subjects.*)

1. **Scientific background requirements specific to your major of interest**

Obviously, your background needs to be stronger with respect to the major you choose. In this section you’ll find the requirements specific to each of the three majors. You need to fill out the box only for the major you’re applying for. The remarks of the previous section on how to fill out the boxes apply here as well.

List all the courses filled out in the tables above and give their descriptions.

This part is very important! Applications lacking appropriate descriptions will not be processed.

Please, highlight in a light color the keywords of the course. If you have scans from an official syllabus (in English, French, Dutch or German) you can add those in attachment to the application and refer to it in this section. Example: see section 4.

1. **Tentative curriculum selection of elective courses**

The document “MaCos-ProgrammeStructure” contains an up-to-date description of the structure of the programme “Master Computer Science”. Study it carefully and specify here your tentative list of elective courses for 30 ECTS credits spread over 2 years. Indicate the semester and year of the elective courses.

Example – Tentative curriculum selection of elective courses for Major Computer Networks and Distributed Systems

|  |  |  |
| --- | --- | --- |
| Course  | Year, Semester | ECTS |
| Topics in Distributed Systems | 1st year, 1st semester | 6 |
| Advanced Networking Lab | 1st year, 2nd semester | 6 |
| Information Retrieval | 2nd year, 1st semester | 6 |
| Model driven engineering | 2nd year, 1st semester | 6 |
| Parallel Computing | 2nd year, 2nd semester | 6 |