



Universität Hamburg

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UHH · Fachbereich Informatik · Vogt-Koelln-Str. 30 · D-22527 Hamburg

Faculty of Mathematics, Informatics and  
Natural Sciences

Department of Informatics



# MSc Programme

## „Intelligent Adaptive Systems (IAS)“



Web: <http://www.master-intelligent-adaptive-systems.com/>

Email: [ias-info@informatik.uni-hamburg.de](mailto:ias-info@informatik.uni-hamburg.de)

Intelligent systems and robots are expected to become an integral part of our daily lives. In order to be accepted by, and interact efficiently and naturally with humans, they have to adapt to changing environments as well as the users they interact with. Intelligent systems are not only expected to automatically acquire and manage knowledge through a variety of sensors but also to learn and optimise their behaviour over time. This International Master's programme aims to provide students with the ability to create these intelligent adaptive systems and to prepare them for a future market, where intelligent behaviour is considered the standard for computer systems.

The IAS curriculum is focused on intelligent adaptive behaviour of artificial systems, ranging from robots to computer systems. The selected modules provide a comprehensive overview, including technical aspects and state-of-the-art algorithms and methods. Students are introduced to current research in the corresponding fields and have the opportunity to deepen the acquired knowledge by participating in international research projects.

The Master in Intelligent Adaptive Systems is a 2-year research oriented programme that is taught in English. Students, both national and international, can profit from an international environment by improving their grasp of the English language and engaging in cultural exchange. This exchange is fostered in seminars and work groups, where teamwork is promoted, and extended in extra-curricular discussions and activities. Through the proximity to current research projects, students have the possibility of a smooth transition into collaborative research environments and continuing education and study.

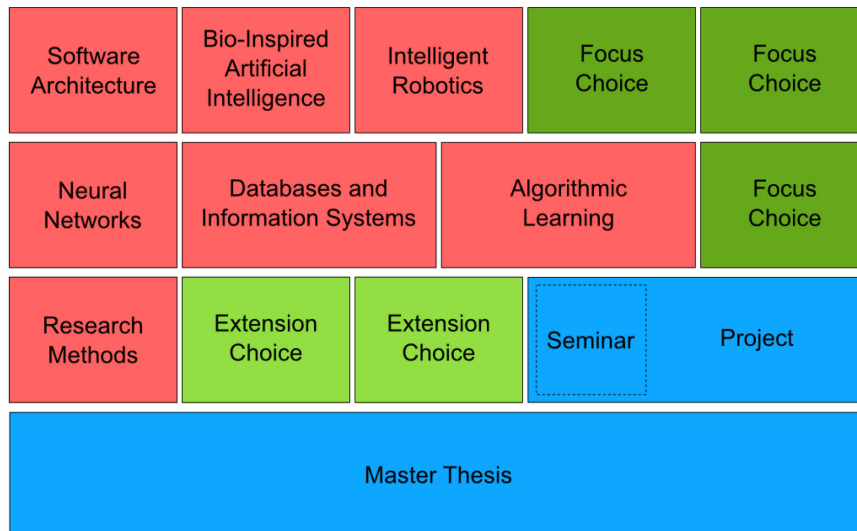
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## Curriculum

The Master's programme is comprised of 120 credit points that are distributed between compulsory core lectures, selectable focus and extending lectures, and project work:

- Core Lectures (48 CP)
- Focus Choice (18 CP)
- Extending Choice (12 CP)
- Project and Thesis (42 CP)



### Core Lectures

Core lectures are **compulsory** for all students. This set of lectures conveys an in-depth understanding of different types of intelligent adaptive systems and introduces students to the most current research in the different topics. All core modules consist of a combination of lecture and seminar/tutorial to foster student participation and constant application of learned concepts.

### Focus Choice

Focus choice slots provide students with the opportunity to strengthen their background in a chosen field or deepen their knowledge in a field which complements the core modules. Focus modules will be chosen in consultation with an assigned advisor and can be selected from a list that aligns well with the overall focus of the master. This list contains single modules that supplement core lectures as well as suggested sets of lectures that together form a coherent focus area. It will be reviewed on a regular basis to reflect current research and to include newly emerged and complementary teaching areas.

Example areas these modules are selected from may include:

- Language and image processing
- Robot technology
- Knowledge processing
- Complex Systems

## **Extension Choice**

12 credit points can be selected from a range of lectures taught at the Department of Informatics or other departments. In comparison to the focus options, these modules can be used to gain knowledge in fields that go beyond the scope of this programme, but are linked to its contents, e.g. Psychology or Biology. The lectures are again chosen in consultation with an advisor, to guarantee a sensible choice in alignment with the student's background and aims.

## **Project and Thesis**

After lectures and seminars, where the focus is usually on individual work, the students participate in a group project before undertaking a research project that finally leads to the master thesis. The group project focuses on teamwork and the scientific exchange and defense of ideas to prepare students for a collaborative scientific environment. Students are encouraged to choose projects in preparation of their master thesis and to actively take part in research projects of a chosen area. Two to three students are expected to work as an independent group with a supervisor from the corresponding area. A seminar, where all groups meet, gives students the opportunity to present their work in an environment comparable to a scientific conference.

In contrast to that, students work full time on an independent research project in the last semester that ends with submission of the final Master's thesis.

## How to Apply:

### Application requirements:

The following requirements have to be fulfilled in order to apply for the Master course:

1. A **Bachelor degree** in
  - a. Informatik
  - b. Wirtschaftsinformatik
  - c. Software-System-Entwicklung
  - d. Computing in Science
  - e. Mensch-Computer-Interaktionfrom the Faculty of Mathematics, Informatics and Science at the Universität Hamburg, **or**
2. A **Bachelor degree** from the Universität Hamburg or another University in a related field, insofar as 60 CP were acquired in the field of computer science, which are comparable to the curriculum of the BSc “Informatik” (Computer Science) at the University of Hamburg. Comparability of the degree will be established by the admission commission.
3. Proof of **English language proficiency** by (or comparable with):
  - a. CEFR/TELC B2
  - b. IELTS 6.5
  - c. TOEFL (IBT 90, PBT 575, CBT 230)
  - d. Cambridge CAE or CPEComparability will be established by the admission commission.

### Selection Process:

If the number of applicants that fulfil all requirements exceeds the number of available spaces for this Master's course, the applications are ranked and selected using the following criteria:

1. The quality of the motivational letter, in particular with regard to a continuing education and further professional qualification. The admission commission may also ask for a phone interview to answer open questions.
2. The result of the highest obtained degree and the comparability of its content to the BSc “Informatik” at the University of Hamburg
3. Relevant professional and international experience gained through study or work abroad

The criteria are rated individually and then combined, with criterion 1 accounting for 40% and the other two for 30% each.

## Application procedure:

The application period for admission in the following winter term (starting October 1) is:

**15.02.-31.03**

You can apply to the Master in Intelligent Adaptive Systems in two steps:

1. Fill out and submit the application form **electronically** on the [application portal](#) of the Universität Hamburg. Further information can be found [here](#).  
Once completed, print and sign the summary of the online registration form.
2. Please send all following documents (as paper copies) to the address of the department of Informatics given below. Please submit **only copies of all certificates** and other documents; a verification of accordance with the original documents will be performed after conditional admission. For all documents that are written in languages other than German or English, certified English or German translations have to be provided.
  - a. A **letter of motivation** written by yourself in English language (max. 2 pages) in which you explain your choice of course and place of study in regard to your academic and professional aims.
  - b. The **Bsc certificate**, including a **transcript of records** (list of all completed module examinations) and a **diploma supplement** (description of completed degree). If you have not received your degree from a German University (but e.g. a German University for Applied Sciences or a higher education institution in another country), please include a description of each module's contents and the literature list used. If you have not finished your Bachelor's degree at the time of application, please submit evidence for the ECTS credit points acquired so far. Following current regulations, a total of 150 ECTS credit points (or equivalent) has to be evidenced.
  - c. **Curriculum Vitae**, including all acquired certificates
  - d. Proof(s) of **English language proficiency** (see requirements)
  - e. The printed and signed summary of the **online application form**

**The application will only be considered complete, once the paper copies have been received!**

Applications with documents arriving after the official deadline will not enter the selection process.

**Please send all documents to:**

Dr. Sven Magg  
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Vogt-Koelln-Straße 30  
22527 Hamburg  
Germany