

Diploma Supplement

This Diploma supplement model was developed by the European Commission, Council of Europe and UNESCO/CEPES. The purpose of the supplement is to provide sufficient independent data to improve the international 'transparency' and fair academic and professional recognition of qualifications (diplomas, degrees, certificates, etc.). It is designed to provide a description of the nature, level, context, content and status of the studies that were pursued and successfully completed by the individual named on the original qualification to which this supplement is appended. It should be free from any value judgements, equivalence statements or suggestions about recognition. Information in all eight sections should be provided. Where information is not provided, an explanation should give the reason why.

1. HOLDER OF THE QUALIFICATION

- 1.1 Family Name**
Cheung
- 1.2 First Name**
Vincent Ka Ming
- 1.3 Date, Place of Birth**
October 4, 1991, Hong Kong
- 1.4 Student ID Number or Code**
357955

2. QUALIFICATION

- 2.1 Name of Qualification and Title Conferred** (full, abbreviated; in original language)
Master of Science, M.Sc.
- 2.2 Main Field(s) of Study**
Theoretical Neuroscience, Experimental Neuroscience, Artificial Intelligence, and Machine Learning
- 2.3 Institution Awarding the Qualification**
Technische Universität Berlin (State University)
Humboldt Universität zu Berlin (State University)
- 2.4 Institution Administering the Studies**
Coordination: Bernstein Center for Computational Neuroscience (Public Research Institute founded by the German Ministry of Education and Research)
Teaching and Administration: Technische Universität Berlin (State University)
Teaching: Humboldt Universität zu Berlin (State University)
Teaching: Charité Universitätsmedizin (State University)
Teaching: Freie Universität Berlin (State University)
- 2.5 Language(s) of Instruction/Examination**
English

3. LEVEL OF THE QUALIFICATION

- 3.1 Level**
Master's degree (Second cycle degree)
- 3.2 Official Length of Programme**
2 years = 4 semesters = 120 creditpoints (according to ECTS)
- 3.3 Access Requirements**
The following is required for an application:
- a Bachelor or equivalent degree, typically in the natural sciences, in an engineering discipline, or in mathematics,
 - proficiency in English (for non-native speakers one of the following documents is required.
 - TOEFL test
 - 570 points in the paper based test or
 - 230 points in the computer based test or
 - 88 points in the internet based test),
 - the Cambridge Certificate of Proficiency,
 - the IELTS with at least band 7.0,
 - the TOEIC with a minimum of 785 points (395 points in each section)
 - or an equivalent certificate;
 - sufficient mathematical knowledge (i.e. at least 24 credit points) particularly in linear algebra (at least 6 credit points), analysis [including dynamical systems](at least 6 credit points), probability theory and statistics (at least 6 credit points).
- Applicants are selected according to criteria described in the Admission Regulation (Zulassungsordnung) that can be downloaded from: http://www.bccn-berlin.de/Graduate+Programs/Master_Program/Administration/

4. CONTENTS AND RESULTS GAINED

- 4.1 Mode of Study**
Full-time

4.2 Programme Requirements/Qualification Profile of the Graduate

The students shall be able to:

- develop new theoretical concepts on the function of neural systems,
- set up, evaluate and examine mathematic models of neural systems in close coordination with experimental and clinical research,
- develop new experimental paradigms from theoretical concepts and mathematic models,
- enhance experimental and clinical methods by developing new procedures for data acquisition and analysis,
- integrate ideas from the study of neural systems with IT- applications – above all in the area of machine intelligence,
- use the acquired technologies also in the clinical field,
- deal with the ethical and social consequences of this direction of research.

These study objectives require that:

- the transfer of specialized knowledge will include theoretical, methodological and experimental bases,
- interdisciplinary scientific work and successful theoretical-experimental cooperation in scientific projects ("lab rotations") will be trained,
- students will be made familiar with potential areas of application in the IT area and in Health Sciences and can deepen their knowledge in this area.
- social competence will be developed for the interdisciplinary work in joint projects.

4.3 Programme Details

Subjects studied, exams and marks - see certificate

4.4 Grading Scheme

individual grades		overall grade	
1,0; 1,3	sehr gut / very good	1,0 - 1,5	sehr gut / very good
1,7; 2,0; 2,3	gut / good	1,6 - 2,5	gut / good
2,7; 3,0; 3,3	befriedigend / satisfactory	2,6 - 3,5	befriedigend / satisfactory
3,7; 4,0	ausreichend / fair	3,6 - 4,0	ausreichend / fair

4.5 Overall Classification (in original language)

1,3 / sehr gut

5. FUNCTION OF THE QUALIFICATION

5.1 Access to Further Study

The MSc in Computational Neuroscience provides access to doctoral studies.

5.2 Professional Status

As a research-oriented course of studies, the MSc Computational Neuroscience provides optimal qualification for pursuing interdisciplinary research and development in brain sciences and artificial intelligence.

6. ADDITIONAL INFORMATION

6.1 Additional Information

Further information concerning the Master Program Computational Neuroscience is available on the web site <http://www.computational-neuroscience-berlin.de>. The study regulations, the examination regulations, and the admission regulations are available on the program's web site.

6.2 Further Information Sources

University: <http://www.tu-berlin.de/>

Studies: <http://www.computational-neuroscience-berlin.de>

national information sources see section 8

7. CERTIFICATION

This Diploma Supplement refers to the following original documents:

Urkunde über die Verleihung des Grades (Master of Science) vom June 28, 2016

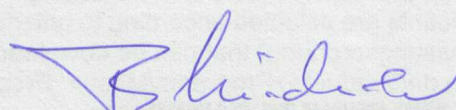
Prüfungszeugnis (Masterprüfung) vom June 28, 2016

Certification Date:

13.2.2017



(Official Stamp/Seal)



Chairperson of Examination Committee

8. National Higher Education Systems

The information on the national higher education system on the follow pages provides a context for the qualification and the type of higher education that awarded it (DSDOC 1/03.00).

8. INFORMATION ON THE GERMAN HIGHER EDUCATION SYSTEM¹

8.1 Types of Institutions and Institutional Status

Higher education (HE) studies in Germany are offered at three types of Higher Education Institutions (HEI).²

- *Universitäten* (Universities), including various specialized institutions, offer the whole range of academic disciplines. In the German tradition, universities focus in particular on basic research so that advanced stages of study have mainly theoretical orientation and research-oriented components.

- *Fachhochschulen* (Universities of Applied Sciences) concentrate their study programmes in engineering and other technical disciplines, business-related studies, social work, and design areas. The common mission of applied research and development implies a distinct application-oriented focus and professional character of studies, which include integrated and supervised work assignments in industry, enterprises or other relevant institutions.

- *Kunst- und Musikhochschulen* (Universities of Art/Music) offer studies for artistic careers in fine arts, performing arts and music; in such fields as directing, production, writing in theatre, film, and other media; and in a variety of design areas, architecture, media and communication.

Higher Education Institutions are either state or state-recognized institutions. In their operations, including the organization of studies and the designation and award of degrees, they are both subject to higher education legislation.

8.2 Types of Programmes and Degrees Awarded

Studies in all three types of institutions have traditionally been offered in integrated "long" (one-tier) programmes leading to *Diplom-* or *Magister Artium* degrees or completed by a *Staatsprüfung* (State Examination).

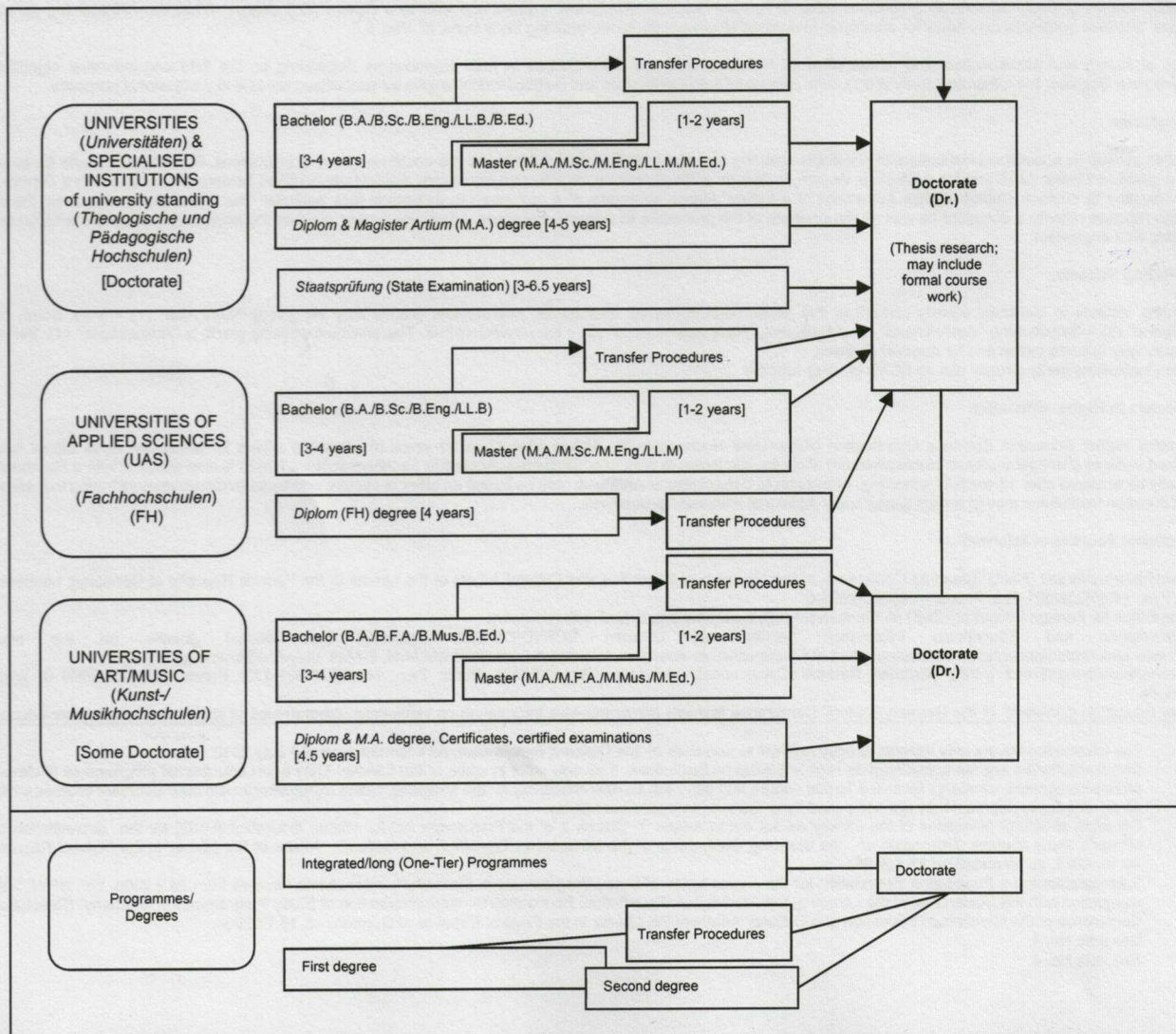
Within the framework of the Bologna-Process one-tier study programmes are successively being replaced by a two-tier study system. Since 1998, a scheme of first- and second-level degree programmes (Bachelor and Master) was introduced to be offered parallel to or instead of integrated "long" programmes. These programmes are designed to provide enlarged variety and flexibility to students in planning and pursuing educational objectives, they also enhance international compatibility of studies.

For details cf. Sec. 8.4.1, 8.4.2, and 8.4.3 respectively. Table 1 provides a synoptic summary.

8.3 Approval/Accreditation of Programmes and Degrees

To ensure quality and comparability of qualifications, the organization of studies and general degree requirements have to conform to principles and regulations established by the Standing Conference of the Ministers of Education and Cultural Affairs of the *Länder* in the Federal Republic of Germany (KMK).³ In 1999, a system of accreditation for programmes of study became operational under the control of an Accreditation Council at national level. All new programmes have to be accredited under this scheme; after a successful accreditation they receive the quality-label of the Accreditation Council.⁴

Table 1: Institutions, Programmes and Degrees in German Higher Education



8.4 Organization and Structure of Studies

The following programmes apply to all three types of institutions. Bachelor's and Master's study courses may be studied consecutively, at various higher education institutions, at different types of higher education institutions and with phases of professional work between the first and the second qualification. The organization of the study programmes makes use of modular components and of the European Credit Transfer and Accumulation System (ECTS) with 30 credits corresponding to one semester.

8.4.1 Bachelor

Bachelor degree study programmes lay the academic foundations, provide methodological skills and lead to qualifications related to the professional field. The Bachelor degree is awarded after 3 to 4 years.

The Bachelor degree programme includes a thesis requirement. Study courses leading to the Bachelor degree must be accredited according to the Law establishing a Foundation for the Accreditation of Study Programmes in Germany.³

First degree programmes (Bachelor) lead to Bachelor of Arts (B.A.), Bachelor of Science (B.Sc.), Bachelor of Engineering (B.Eng.), Bachelor of Laws (LL.B.), Bachelor of Fine Arts (B.F.A.), Bachelor of Music (B.Mus.) or Bachelor of Education (B.Ed.).

8.4.2 Master

Master is the second degree after another 1 to 2 years. Master study programmes may be differentiated by the profile types "practice-oriented" and "research-oriented". Higher Education Institutions define the profile.

The Master degree study programme includes a thesis requirement. Study programmes leading to the Master degree must be accredited according to the Law establishing a Foundation for the Accreditation of Study Programmes in Germany.⁶

Second degree programmes (Master) lead to Master of Arts (M.A.), Master of Science (M.Sc.), Master of Engineering (M.Eng.), Master of Laws (L.L.M.), Master of Fine Arts (M.F.A.), Master of Music (M.Mus.) or Master of Education (M.Ed.). Master study programmes which are designed for continuing education may carry other designations (e.g. MBA).

8.4.3 Integrated "Long" Programmes (One-Tier):

Diplom degrees, Magister Artium, Staatsprüfung

An integrated study programme is either mono-disciplinary (*Diplom* degrees, most programmes completed by a *Staatsprüfung*) or comprises a combination of either two major or one major and two minor fields (*Magister Artium*). The first stage (1.5 to 2 years) focuses on broad orientations and foundations of the field(s) of study. An Intermediate Examination (*Diplom-Vorprüfung* for *Diplom* degrees; *Zwischenprüfung* or credit requirements for the *Magister Artium*) is prerequisite to enter the second stage of advanced studies and specializations. Degree requirements include submission of a thesis (up to 6 months duration) and comprehensive final written and oral examinations. Similar regulations apply to studies leading to a *Staatsprüfung*. The level of qualification is equivalent to the Master level.

- Integrated studies at *Universitäten (U)* last 4 to 5 years (*Diplom* degree, *Magister Artium*) or 3 to 6.5 years (*Staatsprüfung*). The *Diplom* degree is awarded in engineering disciplines, the natural sciences as well as economics and business. In the humanities, the corresponding degree is usually the *Magister Artium* (M.A.). In the social sciences, the practice varies as a matter of institutional traditions. Studies preparing for the legal, medical and pharmaceutical professions are completed by a *Staatsprüfung*. This applies also to studies preparing for teaching professions of some *Länder*.

The three qualifications (*Diplom*, *Magister Artium* and *Staatsprüfung*) are academically equivalent. They qualify to apply for admission to doctoral studies. Further prerequisites for admission may be defined by the Higher Education Institution, cf. Sec. 8.5.

- Integrated studies at *Fachhochschulen (FH)*/Universities of Applied Sciences (UAS) last 4 years and lead to a *Diplom (FH)* degree. While the *FH/UAS* are non-doctorate granting institutions, qualified graduates may apply for admission to doctoral studies at doctorate-granting institutions, cf. Sec. 8.5.

- Studies at *Kunst- and Musikhochschulen* (Universities of Art/Music etc.) are more diverse in their organization, depending on the field and individual objectives. In addition to *Diplom/Magister* degrees, the integrated study programme awards include Certificates and certified examinations for specialized areas and professional purposes.

8.5 Doctorate

Universities as well as specialized institutions of university standing and some Universities of Art/Music are doctorate-granting institutions. Formal prerequisite for admission to doctoral work is a qualified Master (UAS and U), a *Magister* degree, a *Diplom*, a *Staatsprüfung*, or a foreign equivalent. Particularly qualified holders of a Bachelor or a *Diplom (FH)* degree may also be admitted to doctoral studies without acquisition of a further degree by means of a procedure to determine their aptitude. The universities respectively the doctorate-granting institutions regulate entry to a doctorate as well as the structure of the procedure to determine aptitude. Admission further requires the acceptance of the Dissertation research project by a professor as a supervisor.

8.6 Grading Scheme

The grading scheme in Germany usually comprises five levels (with numerical equivalents; intermediate grades may be given): "Sehr Gut" (1) = Very Good; "Gut" (2) = Good; "Befriedigend" (3) = Satisfactory; "Ausreichend" (4) = Sufficient; "Nicht ausreichend" (5) = Non-Sufficient/Fail. The minimum passing grade is "Ausreichend" (4). Verbal designations of grades may vary in some cases and for doctoral degrees.

In addition institutions partly already use an ECTS grading scheme.

8.7 Access to Higher Education

The General Higher Education Entrance Qualification (*Allgemeine Hochschulreife, Abitur*) after 12 to 13 years of schooling allows for admission to all higher educational studies. Specialized variants (*Fachgebundene Hochschulreife*) allow for admission to particular disciplines. Access to *Fachhochschulen (UAS)* is also possible with a *Fachhochschulreife*, which can usually be acquired after 12 years of schooling. Admission to Universities of Art/Music may be based on other or require additional evidence demonstrating individual aptitude. Higher Education Institutions may in certain cases apply additional admission procedures.

8.8 National Sources of Information

- *Kultusministerkonferenz (KMK)* [Standing Conference of the Ministers of Education and Cultural Affairs of the *Länder* in the Federal Republic of Germany]; Lennéstrasse 6, D-53113 Bonn; Fax: +49[0]228/501-229; Phone: +49[0]228/501-0

- Central Office for Foreign Education (ZaB) as German NARIC; www.kmk.org; E-Mail: zab@kmk.org

- "Documentation and Educational Information Service" as German EURYDICE-Unit, providing the national dossier on the education system (<http://www.kmk.org/dokumentation/zusammenarbeit-auf-europaeischer-ebene-im-eurydice-informationsnetz.html>); E-Mail: eurydice@kmk.org

- *Hochschulrektorenkonferenz (HRK)* [German Rectors' Conference]; Ahrstrasse 39, D-53175 Bonn; Fax: +49[0]228/887-110; Phone: +49[0]228/887-0; www.hrk.de; E-Mail: post@hrk.de

- "Higher Education Compass" of the German Rectors' Conference features comprehensive information on institutions, programmes of study, etc. (www.higher-education-compass.de)

¹ The information covers only aspects directly relevant to purposes of the Diploma Supplement. All information as of 1 July 2010.

² *Berufsakademien* are not considered as Higher Education Institutions, they only exist in some of the *Länder*. They offer educational programmes in close cooperation with private companies. Students receive a formal degree and carry out an apprenticeship at the company. Some *Berufsakademien* offer Bachelor courses which are recognized as an academic degree if they are accredited by a German accreditation agency.

³ Common structural guidelines of the *Länder* as set out in Article 9 Clause 2 of the Framework Act for Higher Education (HRG) for the accreditation of Bachelor's and Master's study courses (Resolution of the Standing Conference of the Ministers of Education and Cultural Affairs of the *Länder* in the Federal Republic of Germany of 10.10. 2003, as amended on 21.4.2005).

⁴ "Law establishing a Foundation "Foundation for the Accreditation of Study Programmes in Germany", entered into force as from 26.2.2005, GV. NRW. 2005, nr. 5, p. 45 in connection with the Declaration of the *Länder* to the Foundation "Foundation for the Accreditation of Study Programmes in Germany" (Resolution of the Standing Conference of the Ministers of Education and Cultural Affairs of the *Länder* in the Federal Republic of Germany of 16.12.2004).

⁵ See note No. 4.

⁶ See note No. 4.