JIANXIN HE

cpr. 800296-0177

har den 12. januar 2023   *has on 12 January 2023*
opnået   *been awarded the degree of*
kandidatgraden i   *Master of Science in*

nanoscience og teknologi   *Nanoscience and Technology*

og titlen   *and the title*

cand.scient.
candidatus scientiarum

Katrine Krogh Andersen
Dekan/*Dean*

Karen Rønnow
Studiechef/*Director of Studies*

DET NATUR- OG BIOVIDENSKABELIGE FAKULTET
FACULTY OF SCIENCE

KØBENHAVNS UNIVERSITET
DET NATUR- OG BIOVIDENSKABELIGE FAKULTET

Jianxin He
Cpr.: 800296-0177

har gennemført kandidatuddannelsen i
nanoscience og teknologi
12. januar 2023

Oversigt over prøver og bedømmelser side 1 af 2

Følgende resultater er opnået	Resultat 7-trinsskala	Resultat ECTS-skala	ECTS point
Speciale			
Long Timescale Simulation Study of the Self-Assembly of Biomolecules	12	A	60,0
Eksamenssprog engelsk			
Kandidatuddannelsen			
Unifying Concepts in Nanoscience	12	A	15,0
Eksamenssprog engelsk			
Nanocharacterization	7	C	10,0
Eksamenssprog engelsk			
Synthesis and Fabrication	12	A	10,0
Eksamenssprog engelsk			
Nanoelectronics..	4	D	5,0
Eksamenssprog engelsk			
Business, Innovation and Entrepreneurship.......................	10	B	5,0
Eksamenssprog engelsk			
Nano Energy Materials	10	B	5,0
Eksamenssprog engelsk			
Nanobiotechnology..	12	A	5,0
Eksamenssprog engelsk			

21. marts 2023

Betina Kongsbak
SCIENCE Uddannelse

KØBENHAVNS UNIVERSITET
DET NATUR- OG BIOVIDENSKABELIGE FAKULTET

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nanoscience og teknologi
12. januar 2023

Oversigt over prøver og bedømmelser side 2 af 2

Følgende resultater er opnået	**Resultat** 7-trinsskala	**Resultat** ECTS-skala	**ECTS** point
Bionanomaterials..	12	A	5,0
Eksamenssprog engelsk			

Adgangsgrundlaget til kandidatuddannelsen

Udenlandsk bachelor

21. marts 2023

Betina Kongsbak
SCIENCE Uddannelse

Jianxin He
Cpr.: 800296-0177

har gennemført kandidatuddannelsen i
nanoscience og teknologi
12. januar 2023

Kompetenceprofil for uddannelsen

Efter endt uddannelse har en kandidat i nanoscience og teknologi tilegnet sig følgende

Kompetencer til at:
- Formulere, strukturere og udføre et forskningsprojekt der indebærer udvikling og anvendelse af fagets metoder
- Styre komplekse arbejds- og udviklingssituationer i samarbejde med andre faggrupper, som for eksempel fysik, kemi og biologi
- På naturvidenskabelig baggrund, indgå i konstruktivt samarbejde om løsning af faglige problemstillinger inden for nanovidenskaben og nanoteknologien
- Opsøge og sammenfatte den tilgængelige viden inden for et område af nanovidenskaben
- Vurdere fagets metoder, deres muligheder og begrænsninger
- Diskutere fagets metoder, teori og resultater generelt såvel som på videnskabeligt niveau
- Vurdere anvendeligheden og hensigtsmæssigheden af teoretiske, eksperimentelle og praktiske metoder af fagets resultater i en industriel, samfundsmæssig og etisk sammenhæng på et nanovidenskabeligt grundlag
- Selvstændigt planlægge, lede og gennemføre projekter og anvende resultaterne af disse i en fagligt relateret beslutningsproces
- Systematisk og kritisk at sætte sig ind i nye fagområder
- Selvstændigt og kritisk strukturere egen kompetenceudvikling
- Identificere forretningsmuligheder og planlægge etablering af en virksomhed

Færdigheder i at:
- Bearbejde og analysere data
- Analysere og løse faglige spørgsmål og problemstillinger
- Opstille og analysere teoretiske modeller
- Læse og forstå original faglitteratur
- Benytte fagets vigtigste databaser
- Formidle og kommunikere nanovidenskabelige spørgsmål og videnskabelige problemstillinger i såvel et videnskabeligt som et alment forum
- Udvikle forretningsmodeller
- Analysere markedet for teknologiske produkter og service blandt andet i forbindelse med etablering af virksomhed

Viden om:
- Generel viden om aktuel nanoscience og har detaljeret viden baseret på højeste internationale forskning om centrale discipliner, metoder, teorier og begreber inden for et eller flere af de grundlæggende discipliner fysik, kemi, molekylær-biologi og biologi
- Basal viden inden for virksomhedsinnovation og iværksætteri, der gør kandidaten i stand til udvikle og vurdere planer for etablering af en virksomhed
- Gennem kurser og projektarbejde tilegnet sig viden og metode indenfor udvalgte forskningsaktive områder
- Gennem selvstændig forskning under vejledning har kandidaten desuden erhvervet sig dybtgående kendskab til et specialområde på internationalt niveau.

21. marts 2023

Betina Kongsbak
SCIENCE Uddannelse

UNIVERSITY OF COPENHAGEN
FACULTY OF SCIENCE

Jianxin He
Cpr.: 800296-0177

has completed the Master's programme in
Nanoscience and Technology
12 January 2023

Summary of examinations and grades page 1 of 2

The following grades were awarded	Grade 7-point scale	Grade ECTS scale	ECTS credits
Master's Thesis			
Long Timescale Simulation Study of the Self-Assembly of Biomolecules .... *Exam language English*	12	A	60,0
Master's Programme			
Unifying Concepts in Nanoscience .... *Exam language English*	12	A	15,0
Nanocharacterization .... *Exam language English*	7	C	10,0
Synthesis and Fabrication .... *Exam language English*	12	A	10,0
Nanoelectronics... *Exam language English*	4	D	5,0
Business, Innovation and Entrepreneurship....................... *Exam language English*	10	B	5,0
Nano Energy Materials .... *Exam language English*	10	B	5,0
Nanobiotechnology... *Exam language English*	12	A	5,0

21 March 2023

Betina Kongsbak
SCIENCE Study Administration

UNIVERSITY OF COPENHAGEN
FACULTY OF SCIENCE

Jianxin He
Cpr.: 800296-0177

has completed the Master's programme in
Nanoscience and Technology
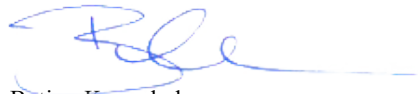12 January 2023

Summary of examinations and grades page 2 of 2

The following grades were awarded	Grade 7-point scale	Grade ECTS scale	ECTS credits
Bionanomaterials...	12	A	5,0
Exam language English			

Requirements for the graduate programme

International bachelor's degree

21 March 2023

Betina Kongsbak
SCIENCE Study Administration

Jianxin He
Cpr.: 800296-0177

has completed the Master's programme in
Nanoscience and Technology
12 January 2023

Skills profile for the programme

On completion of the programme, an MSc in Nanoscience and Technology has acquired the following:

Competencies to:
- Design, structure and conduct research projects involving the development and application of the methodologies specific to the discipline
- Manage complex work and development processes in cooperation with representatives of other fields of study such as physics, chemistry and biology
- Enter into constructive cooperation to address specialist problems and issues within the fields of nanoscience and nanotechnology, based on their background in the natural sciences
- Seek and summarise the knowledge available within a particular field of nanoscience
- Assess the methodologies specific to the discipline, their potential and limitations
- Discuss the methodologies, theories and results specific to the discipline in general and at a scientific level
- Assess the applicability and suitability of the theoretical, experimental and practical methodologies and of the results specific to the discipline in industrial, socio-economic and ethical contexts, working from a nanoscientific perspective
- Independently plan, manage and conduct projects and apply the results of such projects in informed decision-making processes
- Systematically and critically acquaint themselves with new subject areas
- Independently and critically structure their own competency development
- Identify business opportunities and plan the establishment of a business.

Skills to:
- Process and analyse data
- Analyse and address specialist questions, problems and issues
- Devise and analyse theoretical models
- Read and understand original specialist literature
- Use the most important databases specific to the discipline
- Disseminate knowledge and communicate about nanoscientific and scientific issues and problems to academic as well as layman audiences
- Develop business models
- Analyse the market for technological products and services, among other things in connection with the establishment of a business.

Knowledge about:
- General knowledge about the field of nanoscience at present and detailed knowledge based on international research at the highest level on central disciplines, methodologies, theories and concepts within one or more of the fundamental disciplines of physics, chemistry, molecular biology and biology
- Basic knowledge about business innovation and entrepreneurship, enabling graduates to develop and assess plans for the establishment of a business
- Through courses and project work, acquired knowledge and methodologies within selected research-active areas
- Through independent supervised research, acquired in-depth knowledge of a specialist field at an international level.

21 March 2023

Betina Kongsbak
SCIENCE Study Administration

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. INFORMATION IDENTIFYING THE HOLDER OF THE QUALIFICATION

1.1. Family name(s): He

1.2. Given name(s): Jianxin

1.3. Date of birth: 20 February 1996

1.4. Danish civil registration number: 800296-0177

2. INFORMATION IDENTIFYING THE QUALIFICATION

2.1. Name of qualification and title conferred *(in Danish):* Cand.scient. i nanoscience og teknologi, candidatus scientiarum

Name of qualification and title conferred *(in English)***:** Master of Science (MSc) in Nanoscience and Technology, candidatus scientiarum

2.2. Main fields of study: Nanoscience and Technology

2.3. Name and status of awarding institution: Name: Københavns Universitet/University of Copenhagen
Status: The University of Copenhagen is a state-recognised higher education institution, regulated according to the Ministry of Higher Education and Science. The University of Copenhagen is a university that has undergone external quality assurance by the Danish Accreditation Institution (in Danish: Danmarks Akkrediteringsinstitution), that is certified to follow the European Standards and Guidelines through registration in EQAR and membership in ENQA, in Denmark.

2.4. Name and status of institution administering the studies (See 2.3.)**:** Same as above

2.5. Language(s) of instruction/examination: English

3. INFORMATION ON THE LEVEL OF THE QUALIFICATION

3.1. Level of qualification: Master's degree at NQF/EQF Level 7 referring to Second Cycle in the Bologna QF.

3.2. Official length of programme: 2 years = 120 ECTS credit points

3.3. Access requirements: A completed Bachelor's degree in the field of Natural Science.

4. INFORMATION ON THE CONTENTS AND RESULTS GAINED

4.1. Mode of study: Full time study

4.2. Programme learning outcomes: Please refer to the enclosed skills profile.

4.3. Programme details and individual grades/marks/credits obtained: Please refer to the enclosed grade transcript.

4.4. Grading scheme and if applicable grade distribution information: Please refer to the enclosed explanation of the Danish education system and the grading scale.

4.5 Overall classification of the qualification: Not applicable for Danish qualifications.

5. INFORMATION ON THE FUNCTION OF THE QUALIFICATION

5.1. Access to further study: A completed Master's degree in Nanoscience and Technology gives access to further study within the field of Natural Science at NQF/EQF level 8 referring to Third Cycle in the Bologna QF.

5.2. Professional status: Graduates of the MSc programme in Nanoscience and Technology will be able to function as a link between specialists in, for example, physics and biology, and will be able to communicate technical and conceptual issues across the subject area. The graduates will in particular have an eye for new and unconventional applications of natural science techniques and methodologies, based on the many specific examples taught on the study programme.

6. ADDITIONAL INFORMATION

6.1. Additional information: Founded in 1479 by the Danish King Christian I, the University of Copenhagen is Denmark's oldest and largest institution of research and higher education. More than 37,000 students are enrolled in undergraduate and graduate programmes, plus an additional 2,500 PhD students. Staff members number 9,000. The University is divided into six faculties: Theology, Law, Social Sciences, Health and Medical Sciences, Humanities and Science; all situated in the capital of Denmark.

6.2. Further information:

Faculty of Science
Bülowsvej 17
DK - 1870 Frederiksberg C

Phone +4535332828
E-mail: science@science.ku.dk

General information on higher education in Denmark can be obtained from the following two homepages:
Ufm.dk Uddannelses- og Forskningsministeriet – The Ministry of Higher Education and Science
Enic-naric.net The National Academic Recognition Information Centres and the European National Information Centre on Academic Recognition and Mobility (ENIC/NARIC)

7. CERTIFICATION OF THE SUPPLEMENT

7.1. Date: 21 March 2023

7.2. Betina Kongsbak
7.3. Head of Section

UNIVERSITY OF COPENHAGEN

8. INFORMATION ON THE DANISH HIGHER EDUCATION SYSTEM

June 2016

Public higher education institutions in Denmark are regulated by national legislation concerning degree structures, teacher qualifications and examinations. Accreditation in higher education is undergoing transition from programme-based accreditation to institutional accreditation. Programmes and institutions are accredited by national, independent accreditation agencies and the Accreditation Council.

Higher education institutions

Higher education is offered by five types of higher education institutions:

1. Business academies (Erhvervsakademi) offering professionally oriented short cycle and first cycle degree programmes.
2. University Colleges (Professionshøjskole) offering professionally oriented first cycle degree programmes.
3. Maritime Education and Training Institutions offering professionally oriented short cycle and first cycle degree programmes.
4. General and specialised research universities (Universitet) offering first, second and third cycle degree programmes in academic disciplines.
5. University level institutions offering first, second and third cycle degree programmes in subject fields such as architecture, design, music, and fine and performing arts.

Most higher education institutions are regulated by the Ministry of Higher Education and Science (type 1-5).

The Ministry of Culture regulates a number of higher education institutions offering programmes within fine and performing arts (type 5).

Qualification framework

The qualification levels form the basis for the Danish National Qualifications Framework for Higher Education, which is certified in accordance with the overarching Bologna Framework according to the principles adopted by the European Ministers of Higher Education. Danish higher education qualifications at levels 5-8 of the Danish Qualifications Frame-work for Lifelong Learning (NQF) correspond with levels 5-8 of the European Qualifications Framework (EQF).

Admission and progression

General access to higher education in Denmark requires an Upper Secondary School Leaving Certificate or comparable qualifications. Admission to some particular programmes requires entrance examination or submission of a portfolio of artistic work. Holders of an Academy Profession degree can obtain a Professional Bachelor's degree within the same field of study through a top-up programme. Completion of a first cycle degree qualifies students for admission to the second cycle.

Ordinary Higher Education degrees

The Academy Profession degree is awarded after 90-150 ECTS and includes a period of work placement of at least 15 ECTS. The programmes are development-based and combine theoretical studies with a practical approach. Programmes are, among others, offered within Marketing Management, Computer Science and Chemical and Biotechnical Science. The Danish title is field of study followed by the abbreviation AK and the English title is AP Graduate in [field of study].

Overview of degrees in the Danish Higher Education System

Danish higher education institutions use the European Credit Transfer System (ECTS) for measuring study activities. 60 ECTS correspond to one year of full-time study.

Danish qualifications levels	Ordinary higher education degrees	Adult/Continuing higher education degrees	Qualifications Framework for the European Higher Education Area – Bologna Framework	European/National Qualifications Framework for Lifelong Learning – EQF/NQF
Academy Profession level	Academy Profession degree (90-150 ECTS)	Academy Profession degree (60 ECTS)	Short cycle	Level 5
Bachelor's level	Professional Bachelor's degree (180-240 ECTS)*	Diploma degree (60 ECTS)	First cycle	Level 6
	Bachelor's degree (within fine arts) (180 ECTS)			
	Bachelor's degree (180 ECTS)			
Master's level	Master's degree (within fine arts) (120-180 ECTS)	Master degree (60-90 ECTS)	Second cycle	Level 7
	Master's degree (120 ECTS)**			
PhD level	PhD degree (180 ECTS)		Third cycle	Level 8

* Can be obtained through a full regular bachelor's programme (180-240 ECTS) or a top up bachelor's programme (90 ECTS) following an Academy Profession degree. A few Professional Bachelor programmes are 270 ECTS.
** A few Master's programmes are up to 180 ECTS.

The Professional Bachelor's degree is awarded after 180-270 ECTS and includes a period of work placement of at least 30 ECTS. The programmes are applied programmes. They are development-based and combine theoretical studies with a practical approach. Examples of professional bachelor's degree holders are nurses, primary and lower secondary school teachers and certain types of engineers. The Danish title is Professionsbachelor i [field of study] and the English title is Bachelor of [field of study].

The Bachelor's degree from a university is awarded after 180 ECTS. The programmes are research-based and are offered in all scientific fields. The Danish title is Bachelor (BA) i [field of study] or Bachelor (BSc) i [field of study] and the English title is Bachelor of Arts (BA) in [field of study] or Bachelor (BSc) of Science in [field of study].

The Bachelor's degree (within fine arts) is awarded after 180 ECTS. The programmes are based on research and artistic research. Programmes are offered within the fine arts. The Danish title is Bachelor (BA) i [field of study], Bachelor i musik (BMus) [field of study] or Bachelor i billedkunst (BFA) [field of study] and the English title is Bachelor of Arts (BA) in [field of study], Bachelor of Music (BMus) [field of study] or Bachelor of Fine Arts (BFA) in [field of study]. A higher education degree within theatre or filmmaking is awarded after 3-4 years of study (180-240 ECTS).

The Master's degree is awarded after 120 ECTS. The programmes are research-based and are offered in all scientific fields. The Danish title is abbreviated to Cand.[latin abbreviation of academic area] i [field of study]. The English title is Master of Arts (MA) in [field of study] or Master of Science (MSc) in [field of study].

The Master's degree (within fine arts) is awarded after 120-180 ECTS. The programmes are based on research and artistic research. The Danish title is abbreviated to Cand.[latin abbreviation of academic area] [field of study]. The English title is Master of Arts (MA) in [field of study], Master of Music (MMus) [field of study] or Master of Fine Arts (MFA) in [field of study]. Music Academies offer a specialist degree of 2 to 4 years following the master's degree.

The PhD degree is awarded after 180 ECTS. PhD programmes are offered by the universities and some university level institutions offering degrees in the artistic and cultural field.

Detailed descriptions of degree levels can be found in the Danish Qualifications Framework at www.nqf.dk. Please consult the relevant Diploma Supplement for information about the learning outcome of any specific degree.

Adult and continuing higher education

- The programmes normally consist of 2 years of part-time study, equivalent to 1 year of full-time study (60 ECTS credits). Certain master programmes require 1½ years of full-time study (90 ECTS credits). Admission requirements are a relevant educational qualification and at least 2 years of relevant work experience.

- Adult and continuing education is available at levels corresponding to qualifications of the ordinary higher education system.

- The Further Adult Education degree (videregående voksenuddannelse/akademiuddannelse) is awarded after studies at short cycle level and gives access to diploma programmes.

- The Diploma degree (diplomuddannelse) is awarded after studies at first cycle level and gives access to master programmes.

- The Master degree (masteruddannelse) is awarded after studies at second cycle level.

The 7-point grading scale
The grading system used in all state-regulated education programmes as of September 2007 is the 7-point grading scale. Apart from the 7-point grading scale, pass/fail assessment may also be used. 02 is the minimum grade for passing an exam.

Description of grades: 12: For an excellent performance displaying a high level of command of all aspects of the relevant material, with no or only a few minor weaknesses; 10: For a very good performance displaying a high level of command of most aspects of the relevant material, with only minor weaknesses; 7: For a good performance displaying good command of the relevant material but also some weaknesses; 4: For a fair performance displaying some command of the relevant material but also some major weaknesses; 02 For a performance meeting only the minimum requirements for acceptance; 00: For a performance which does not meet the minimum requirements for acceptance; -3 For: a performance which is unacceptable in all respects.