

Visayas State University

MAIN CAMPUS

Atabuhay!

Greetings!

Ipinalat na ang Lapuan ng mga Gabante at sa rekomendasyon ng

Be it known to all that the Board of Regents and upon the recommendation of

Shadomihong Moncho ng Unibersidad ay nagmamad kay
the University Academic Council has conferred upon

Alisa J. Arce
Magna Cum Laude

ng titulong
the degree of

Bachelor of Science in Agriculture

kalakip ang mga karapatan at pribilehiyong kaugnay nito.
with all the rights and privileges appertaining thereto.

Nilang pagpapahayag, nakatatat din ang agapag ng Unibersidad


In testimony whereof, the seal of the University


at ang mga lagda ng Pangulo at ng Kalihim ng Unibersidad.

and the signatures of the President and the Secretary of the University are affixed herunto

Given at VSU, Visca, City of Baybay, Leyte, Philippines this 22nd day
ng Abril sa taon ng ating Pangunahon, Palanang Liko at Gabihina.
of April in the year of our Lord, Two Thousand and Fifteen.




DANIEL M. TUDTUD, JR.
Secretary of the University


JOSE L. BACALSO
President of the VSU System



VISAYAS STATE UNIVERSITY

(Formerly Visayas State College of Agriculture and Leyte State University)

Main Campus

Visca, Baybay City, Leyte 6521-A

Philippines

website : www.vsu.edu.ph

email : op@vsu.edu.ph

registrar@vsu.edu.ph

Tele Fax: (053) 563-7067

(053) 563-7428

OFFICIAL TRANSCRIPT OF RECORDS

PERSONAL DATA

Student Name : Arce, Lisa Itgano
Student Number : 11-1-00050
Date of Birth : July 08, 1994
Place of Birth : Hilongos, Leyte
Sex : Female
Religion : Roman Catholic
Citizenship : Filipino
Parent/Spouse : Mr. & Mrs. Ariel R. Arce
Address : 187 Brgy. Alejos, Bato, Leyte
Tel. No./Cell. No. : 0943-6212-591
Guardian :
Address/Cell. No. :



PRELIMINARY EDUCATION

Elementary : Bato Central School **Year** : 2007
Bato, Leyte
High School : Bato National High School **Year** : 2011
Bato, Leyte
Entrance : Form 138
Credential : Bato National High School
Bato, Leyte

GRADING SYSTEM

RATING	EQUIVALENT	INDICATION
1.00	97-100	Excellent
1.25	94-96	Highly Outstanding
1.50	91-93	Outstanding
1.75	88-90	Very Good
2.00	85-87	Good
2.25	82-84	Very Satisfactory
2.50	79-81	Satisfactory
2.75	76-78	Fair
3.00	75	Passing
5.00	BELOW 75	Failure
S - Satisfactory	Inc - Incomplete	
U - Unsatisfactory	Drp - Dropped	
Au - Audit (No credit)		

One collegiate unit of credit is one hour lecture or recitation each week or a total of 18 hours in a semester. Three hours of laboratory work, drafting, or a shop work each week or a total of 54 hours a semester are regarded as equivalent also to one unit of credit.

The semestral average of a student is computed by multiplying the number of units assigned to a course by the grade earned and the product divided by the total units earned for the semester.

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Page 1 of 3 pages

FELIEZER L. VELASCO
University Registrar



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(053) 563-7428

OFFICIAL TRANSCRIPT OF RECORDS

VISAYAS STATE UNIVERSITY (VSU), Visca, Baybay City, Leyte

11-1-00050 : **Arce, Lisa Itgano**

Bachelor of Science in Agriculture (BSA)

Course No.	Descriptive Title	Grade	Credit
First Semester, SY 2011-2012			
AgSc 11	INTRODUCTION TO AGRICULTURE	1.00	1.0
Biol 11	GENERAL BIOLOGY	1.25	4.0
Chem 13	GENERAL ORGANIC & INORGANIC CHEMISTRY	1.25	5.0
Engl 11	STUDY and THINKING SKILLS	1.25	3.0
Math 11	COLLEGE ALGEBRA	1.00	3.0
Psyc 11	GENERAL PSYCHOLOGY	1.00	3.0
ScSc 13	SOCIO-ECONOMIC SYSTEMS	1.25	3.0
PhyEd 11	PHYSICAL FITNESS AND GYMNASICS	1.25	2.0
NSTP 11c	CIVIC WELFARE TRAINING SERVICE (CWTS)	1.00	3.0
Second Semester, SY 2011-2012			
AnSc 21	PRINCIPLES OF ANIMAL SCIENCE	1.50	3.0
CrpSc 21	PRINCIPLES OF CROP SCIENCE	1.25	3.0
CSci 21	INFORMATION&COMM TECH. CONCEPTS&SKILLS	1.00	3.0
Engl 12	WRITING IN THE DISCIPLINE	1.25	3.0
Math 12	PLANE TRIGONOMETRY	1.00	3.0
Philo 12	CONTEMPORARY PHILOSOPHICAL THOUGHTS	1.25	3.0
Soci 11	GENERAL SOCIOLOGY	1.00	3.0
PhyEd 12	RECREATIONAL GAMES, RHYTHMIC ACTIVITIES & DANCE	1.25	2.0
NSTP 12c	CIVIC WELFARE TRAINING SERVICE (CWTS)	1.25	3.0
Summer 2012			
Practicum	SKILLS DEVELOPMENT	1.25	6.0
First Semester, SY 2012-2013			
AgSc 111	POSTHARVEST HANDLING AND SEED TECHNOLOGY	1.25	3.0
AgSc 12	AGRICULTURAL ECONOMICS AND MARKETING	1.00	3.0
AnSc 22	PRINCIPLES OF ANIMAL PRODUCTION	1.50	3.0
CrpSc 22	PRACTICES OF CROP PRODUCTION	1.00	3.0
Hum 11	INTRODUCTION TO HUMANITIES	1.00	3.0
PPrt 21	PRINCIPLES OF PLANT PROTECTION	1.00	3.0
ScSc 15	PHILIPPINE HISTORY, GOVERNMENT & CONSTITUTION	1.00	3.0
PhyEd 13	TEAM SPORTS	INC 1.00	2.0
Second Semester, SY 2012-2013			
AgEx 132	AGRICULTURAL EXTENSION AND COMMUNICATION	1.25	3.0
AgSc 13	INTRODUCTION TO ECOLOGICAL AGRICULTURE	1.25	3.0
AgSc 14	INTRODUCTION TO ENTERPRISE AND ENTREPRENEURSHIP	1.25	3.0
AnSc 171	SLAUGHTERING & PROC. OF ANIMAL PRODUCTS	1.25	3.0
Econ 16	GENERAL ECONOMICS AND TAXATION	1.00	3.0
Phys 11	GENERAL PHYSICS	1.75	4.0
PPrt 22	APPROACHES AND PRACTICES IN PEST MANAGEMENT	1.25	3.0
Soil 22	FUNDAMENTALS OF SOIL SCIENCE	1.50	3.0
PhyEd 14	INDIVIDUAL-DUAL SPORTS	1.50	2.0
Graduated with Highest Honors on April 5, 2013 with the Certificate of Agriculture Science (CAS) as per VSU Board of Regents Resolution No.05, s.2013 dated March 7, 2013.			
First Semester, 2013-2014			
Biol 22p	PRINCIPLES OF GENETICS	1.25	3.0
Engl 21	INTRODUCTION TO LITERATURE	1.00	3.0
Fili 11	KOMUNIKASYON SA AKADEMIKONG FILIPINO	1.50	3.0
Pbre 132	BASIC PLANT BIOCHEMISTRY AND PHYSIOLOGY	1.25	3.0
PBre 197	METHODS OF AGRICULTURAL RESEARCH	1.50	3.0
Soil 24	SOIL FERTILITY CONSERVATION AND MANAGEMENT	1.25	3.0
Stat 21	ELEMENTARY STATISTICS	1.50	3.0

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ELIEZER L. VELASCO

University Registrar



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VISAYAS STATE UNIVERSITY (VSU), Visca, Baybay City, Leyte

11-1-00050 : **Arce, Lisa Itgano**

Bachelor of Science in Agriculture (BSA)

Course No.	Descriptive Title	Grade	Credit
Second Semester, SY 2013-2014			
AgSc 113	MANAGEMENT OF EXTENSION PROGRAM	1.25	3.0
AgSc 114	PRIN.&PRACTICES OF PLANT BREEDING PROPATION & NURSERY MGT.	1.25	3.0
AgSc 123	AGRICULTURAL POLICY AND DEVELOPMENT	1.00	3.0
Fili 12	PAGBASA AT PAGSULAT TUNGO SA PANANALIKSIK	2.00	3.0
PBre 111	PRINCIPLES OF PLANT BREEDING	1.00	3.0
PBre 117	EXPT'L DESIGN & FLD PLOT TECHNIQUES	1.50	3.0
PBre 199-A	SEMINAR-A	1.00	1.0
PBre 200.1	UNDERGRADUATE THESIS	S	In Progress
PPrt 132	GENERAL PHYSIOLOGY & TOXICOLOGY	1.00	3.0
First Semester, SY 2014-2015			
AgSc 117	BASICS OF PROJECT STUDY AND DEVELOPMENT	1.00	3.0
AgSc 18	FUNDAMENTALS OF AGRICULTURAL ENGINEERING	1.50	3.0
Btec 110	BIOTECHNOLOGY AND SOCIETY	1.00	3.0
PBre 112	METHODS IN PLANT BREEDING	1.25	3.0
PBre 122	PLANT GENETICS I	1.00	3.0
PBre 199-B	SEMINAR-B	1.00	1.0
PBre 200.1	UNDERGRADUATE THESIS	S	In Progress
Spch 11	SPEECH COMMUNICATION	1.25	3.0
Second Semester, 2014-2015			
AgSc 121	AGRIBUSINESS COMMODITY SYSTEMS	1.25	3.0
PBre 131	CROP PLANT MORPHOLOGY & REPRODUCTIVE SYSTEM	1.00	3.0
PBre 141	PRINCIPLES OF PLANT MOLECULAR BIOLOGY & BIOTECHNOLOGY	1.75	3.0
PBre 199-C	COLLOQUIUM	1.50	1.0
PBRE 200.4	UNDERGRADUATE THESIS	1.00	6.0
ScSc 16	LIFE AND WORKS OF RIZAL	1.25	3.0

THESIS :

"Seed Setting Characters Of Progenies Derived From Different Panicle Sections of Seed Parents of Selected Aromatic Rice (*Oryza sativa* Linn.) Cultivars"

Graduated **Magna Cum Laude** on April 22, 2015 with the degree of Bachelor of Science in Agriculture (BSA), major in Plant Breeding as per VSU Board of Regents Resolution No. 17, s.2015 dated March 12, 2015.

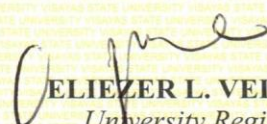
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Doc. Stamp Paid P15.00

REMARKS : FOR EMPLOYMENT

DATE ISSUED : April 22, 2015

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Page 3 of 3 pages


ELIEZER L. VELASCO
University Registrar

The Executive Board of Wageningen University
declares that
Het College van Bestuur van
Wageningen University verklaart dat

born
geboren

has passed the final examination of
the MSc programme
geslaagd is voor de MSc-opleiding

accredited on
geaccrediteerd op
according to the Higher Education and Research Act
conform de Wet op het Hoger onderwijs en Wetenschappelijk onderzoek

and has been awarded the degree
en is gerechtigd tot het voeren van de graad

Wageningen, The Netherlands
Wageningen, Nederland

Examining Board
Examencommissie

Examinee
Geëxamineerde

Master Degree

Lisa Itgano Arce

8 July 1994, Philippines

Plant Sciences

Specialisation

Plant Breeding and Genetic Resources

28 June 2013

Master of Science (MSc)

22 August 2018

Chair
Voorzitter

Secretary
Secretaris



For certified copy



2018/08/22



Diploma Supplement

MSc

Plant Sciences

This Diploma Supplement follows the model 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 (diploma, 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 be given the reason why.

1 INFORMATION IDENTIFYING THE HOLDER OF THE QUALIFICATION

1.1	Family name(s)	Arce
1.2	Given name(s)	Lisa Itgano
1.3	Date of Birth, Country	8 July 1994, Philippines
1.4	Student Identification Number	940708-017-080

6/11/19
LCM

2 INFORMATION IDENTIFYING THE QUALIFICATION

- 2.1 Name of qualification and title
conferred (in original language)
Master of Science in

Plant Sciences

Students who have successfully completed a Master study programme at Wageningen University are entitled to work as an engineer (ir) or as a Master of Science. No further certification is required.

- 2.2 Main field(s) of study for the
qualification

MSc programme in

Plant Sciences

Specialisation

Plant Breeding and Genetic Resources

- 2.3 Name and status of the awarding
institution (in original language)

Wageningen University; public university, state recognised

- 2.4 Name and status of institution
(if different from 2.3) administering
studies (in original language)

See 2.3

- 2.5 Language(s) of instruction/
examination

English.

3 INFORMATION ON THE LEVEL OF THE QUALIFICATION

- | | | |
|-----|----------------------------------|---|
| 3.1 | Level of qualification | Master Degree |
| 3.2 | Official length of the programme | The official duration of the programme is 120 ECTS, which equals two years of study. One ECTS equals 28 hours of study, according to the European Credit Transfer and Accumulation System |
| 3.3 | Access requirement(s) | <p>For admission to a Masters study programme, the student must possess a relevant Bachelors degree. The supplement to the Education and Examination Regulations of the Masters study programmes WU contains the list of Bachelors degrees that provide admission to one or more contiguous Masters study programmes.</p> <p>For admission to a non-contiguous Masters study programme, the student must have proof of admission to the relevant Masters study programme. This proof of admission is granted by the Executive Board. The proof of admission to the non-contiguous Masters study programmes is provided if the admission requirements are satisfied.</p> |

4.1 Mode of study

Full time Master programme

4.2 Programme requirements

Learning Outcomes

After successful completion of this MSc programme graduates are expected to be able to:

- explain and exemplify theories, methods and techniques that are relevant to the selected specialisation, and stay informed about recent developments in their field of specialisation as well as related fields;
- apply the knowledge of the physical, chemical and physiological aspects of crop growth and production, and of modelling and simulation to analyse yield constraints and develop appropriate crop management practices to sustain, and, where possible, improve food production (specialisation A - Crop Science);
- apply the knowledge of (environmental) plant physiology, crop ecology and post-harvest physiology in order to analyse plant growth in a protected environment, and develop technological approaches to control abiotic and biotic factors and improve post-harvest quality (specialisation B - Greenhouse Horticulture);
- apply the knowledge of soil quality, crop growth, nutrient dynamics, ecology and bio-interactions to analyse interactions between agriculture and the environment, for conservation of (agro-) biodiversity and to improve the sustainability of agricultural land use (production of food, feed and fuel) (specialisation C - Natural Resources Management);
- apply the knowledge of classical, molecular, population and quantitative genetics, plant physiology, statistics and genomics to design, develop and select varieties with improved yield, disease resistance, quality characteristics and suitability for sustainable plant production systems (specialisation D - Plant Breeding and Genetic Resources; specialisation F - Plant Breeding (Distance Learning));
- apply the knowledge of plant-insect, plant-pathogen and crop-weed relationships, both at ecological and molecular level to analyse and design strategies for integrated pest management by integrating genetic plant resistance, cultural practices and biological control (specialisation E - Plant Pathology and Entomology);
- apply the knowledge of plant physiology and development, breeding and biotechnology^a for biomass production to design a new biobased concept, research, product or process in an international or global context (specialisation G - Biomass Production and Carbon Capture);
- independently select and apply suitable laboratory techniques, analytical measurements, surveys, mathematical and statistical methods for the collection, processing and analysis of experimental data in plant science;
- independently resolve a scientific problem in plant sciences into research questions and develop a scientifically relevant research plan in which research question, hypothesis, experimental set-up and data analysis are described in relation to relevant literature;
- independently perform scientific experiments and analyse and interpret experimental data, in order to develop or design a novel solution, system, model or product;
- translate research data and scientific knowledge in the field of specialisation into relevant solutions to complex problems;
- critically select relevant scientific literature to analyse current concepts, theories, techniques and debates as a basis for defining research questions and testing hypotheses in order to draw conclusions and develop recommendations;
- communicate in professional English with specialists and non-specialists about research and solutions to problems related to the field of specialisation, both verbally (in presentations and debates) and in writing;
- co-operate in a multi-disciplinary international team in different team roles, including the role of team leader to plan, perform and manage project-based work;
- analyse and evaluate the socio-economic, ethical and environmental aspects related to the academic field of specialisation and integrate these in scientific work in an international context;
- self-reflect on personal knowledge, skills, attitudes and functioning, both individually and by giving and receiving feedback, and develop a personal learning path.

4.3 Programme details (e.g. modules or units studied), and the individual grades/marks/credits obtained

The following list shows all the courses of the programme the student has attended. It states the course, its number of credits, and the final mark the student obtained for it.

Subject	Description	ECTS credits	Mark
Core Subject			
YEI-60312	Research Master Cluster: Proposal Writing	12	8.0
Specialisation			
ABG-30306	Genomics	6	6.0
GEN-30306	Genetic Analysis, Tools and Concepts (GATC)	6	7.0
MAT-20306	Advanced Statistics	6	6.5
PBR-22303	Plant Breeding	3	8.5
PBR-30306	Breeding for Stress Tolerance and Quality	6	7.5
PBR-30806	Design of Plant Breeding Programmes	6	7.5
Optional Subject			
BIC-20306	Cell Physiology and Genetics	6	8.0
ENT-30806	Fundamental and Applied Aspects of the Biology of Insects	6	7.5
PHP-21303	Fundamentals of Plant Pathology and Entomology	3	7.5
PHP-30306	Plant-Microbe Interactions	6	6.5
PPH-90306	Trends in Plant Reproduction Biology: from Flowers to Seeds	6	7.0
Thesis			
PBR-80424	MSc Thesis Plant Breeding (Carried out in the Netherlands)	24	8.0
PBR-80436	MSc Thesis Plant Breeding (Carried out in the Netherlands)	36	8.0
Total		132	

Subject (course unit code)
The subject refers to the course unit code in the study handbook.

Duration of course unit
The duration of the course unit is described in the study handbook. Until the academic year 2009/2010 Wageningen University has 5 periods of 8 weeks (12 credits). As of the academic year 2010/2011 the number of periods is 6. This is divided in 4 periods of 8 weeks (12 credits) and 2 periods of 4 weeks (6 credits). Except thesis' and internships almost all courses have a duration of 1 period.

1 full academic year = 60 credits
1 period = 6 or 12 credits

Mark
Before 1 October 2010 Wageningen University gave the marks 6, 7, 8, 9 and 10. After 1 October 2010 Wageningen University has changed the range into 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 9.5 and 10.0

4.4 Grading Table

The grading table requires universities to keep track of their grading practice and culture, which is good practice in many institutions across Europe.

The ECTS grading table allows for simple, transparent interpretation and conversion of grades from one system or context to another, and therefore does justice to the level of academic performance of all learners. Used correctly, it bridges different grading systems as well as different cultures in the European Higher Education Area and beyond.

The grading table gives the distribution of grades for this specific programme. It presents how many students (in percentages) receive a specific grade. This provides all necessary information to convert the grade in any local grading system. In case of too few results to calculate the distribution, the programme specific grading table is replaced by the BSc average grading table.

From 1 October 2010, Wageningen University has extended the number of grades; 6.5, 7.5 etc. The grading table is based on data collected in the preceding years, therefore limited information is available about the distribution of the new grades. The grading table presented here, gives the most reliable overview.

National / Wageningen University Grade	Total number awarded in reference group	Grading percentages Plant Sciences*
10	6	0.2%
9.5	49	1.4%
9	160	4.6%
8.5	286	8.3%
8	592	17.2%
7.5	705	20.5%
7	701	20.4%
6.5	480	13.9%
6	464	13.5%
Total	3443	100%

* Based on the total number of grades awarded in the degree programme concerned (or average Wageningen University MSc programmes) during three preceding years.

- 4.5 Overall classification of the qualification (in original language) geslaagd
passed

5 INFORMATION ON THE FUNCTION OF THE QUALIFICATION

- 5.1 Access to further study A Master degree makes a student eligible for a PhD-programme.
- 5.2 Professional status (if applicable)

6 INFORMATION ON THE LEVEL OF THE QUALIFICATION

6.1 Additional information

The MSc programme Plant Sciences is accredited on 28 June 2013 by the NVAO.

6.2 Further information sources

www.wageningenuniversity.nl

Wageningen University
Student Service Centre
P.O. Box 414
6700 AK Wageningen
The Netherlands

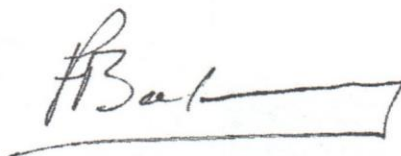
www.nuffic.nl

7 CERTIFICATION OF THE SUPPLEMENT

7.1 Date

22 August 2018

7.2 Signature



Dr F. Bakema

7.3 Capacity

Corporate Director Education, Research & Innovation

7.4 Official stamp

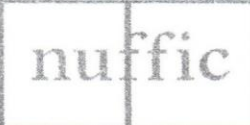


8 INFORMATION ON THE NATIONAL HIGHER EDUCATION SYSTEM

See enclosed description of the education system in the Netherlands.

The Dutch education system

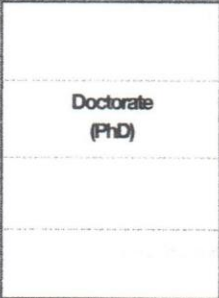
The higher education system in the Netherlands is based on a three-cycle degree system, consisting of a bachelor, master and PhD. Two types of programmes are offered: research-oriented degree programmes offered by research universities, and professional higher education programmes offered by universities of applied sciences.



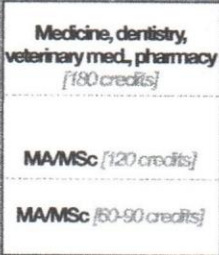
Netherlands organisation
for international cooperation
in higher education

Research universities

Third cycle
higher
education



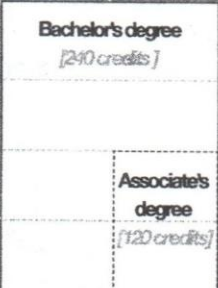
Second
cycle
higher
education



First cycle
higher
education,
including
short cycle



Universities of applied sciences

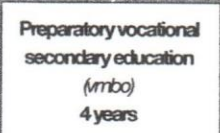
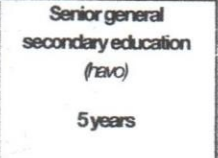
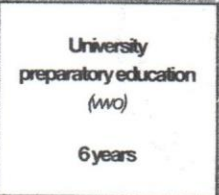


Most master's degrees offered by research universities require completion of 60-90 credits. Those in engineering, mathematics, natural sciences, and agriculture require 120 credits, in pharmacy, dentistry, medicine and veterinary medicine 180 credits. Some research universities offer 2-year professional doctorate programmes in engineering (PDEng).

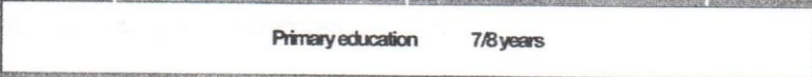
Most master's degrees offered by universities of applied sciences require completion of between 60 and 120 credits. Programmes in architecture, urban planning and landscape architecture require completion of 240 credits.

A solid arrow (→) indicates a right to access a dotted arrow (---→) indicates that some form of selection or bridging requirement may be applied.

Secondary
education



Primary
education



Higher education system in the Netherlands

Higher education in the Netherlands is organised around a three-cycle degree system, consisting of bachelor's, master's and PhD degrees.

Two types of higher education programmes are offered: research-oriented degree programmes offered primarily by research universities, and professional higher education programmes offered primarily by universities of applied sciences.

Primary and secondary education

Access to higher education

Children are allowed to begin school at the age of four, but are not legally required to do so until the age of five. Primary education lasts eight years (of which seven are compulsory). During their last year, pupils are advised on the type of secondary education they should pursue.

Secondary education, which begins at the age of twelve and is compulsory until the age of sixteen, is offered in various forms and at different levels. Vmbo programmes (four years) combine general and vocational education and prepare pupils to go on to senior secondary vocational education and training (mbo), lasting one to four years. There are two types of general education that grant admission to higher education: havo (five years) and vwo (six years). Pupils are enrolled according to their ability. The last two years of havo and the last three years of vwo are referred to as the 'second phase' (tweede fase), or upper secondary education. During these years, pupils focus on one of four subject clusters (profielen), each of which emphasises a certain field of study in addition to satisfying the general education requirements. Each cluster is designed to prepare pupils for study at the tertiary level. A pupil enrolled at a vwo or havo school can choose from the following subject clusters:

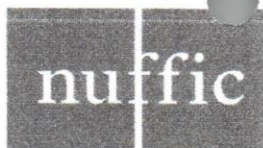
1. Science and Technology (Natuur en Techniek)
2. Science and Health (Natuur en Gezondheid)
3. Economics and Society (Economie en Maatschappij)
4. Culture and Society (Cultuur en Maatschappij)

Only the six-year vwo diploma grants access to bachelor's programmes at research universities; the havo diploma and the highest level of mbo grant access to bachelor's programmes at universities of applied sciences.

Higher education

Higher education in the Netherlands is offered at two types of institutions: research universities and universities of applied sciences. Research universities include general universities, universities specialising in engineering and agriculture, and the Open University. Universities of applied sciences include general institutions as well as institutions specialising in a specific field such as agriculture, fine and performing arts or teacher training. Whereas research universities are primarily responsible for offering research-oriented programmes, universities of applied sciences are primarily responsible for offering programmes of higher professional education, which prepare students for specific professions. These tend to be more practice oriented than programmes offered by research universities.

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In this binary, three-cycle system, bachelor's, master's and PhD degrees are awarded. Short-cycle higher education leading to the associate degree is offered by universities of applied sciences. Degree programmes and periods of study are quantified in terms of the ECTS credit system.

The focus of degree programmes determines both the number of credits required to complete the programme and the degree which is awarded. A research-oriented bachelor's programme requires the completion of 180 credits (three years) and graduates obtain the degree Bachelor of Arts or Bachelor of Science (BA/BSc), depending on the discipline. A bachelor's degree awarded in the applied arts and sciences requires 240 credits (four years), and graduates obtain a degree indicating the field of study (for example, Bachelor of Engineering, B Eng, or Bachelor of Nursing, B Nursing). An associate degree in the applied arts and sciences requires 120 credits (two years), and students who complete the two-year programme can continue studying for a bachelor's degree in the applied arts and sciences.

A research-oriented master's programme requires the completion of 60, 90 or 120 credits (one, one-and-a-half or two years). In engineering, agriculture, and mathematics and the natural sciences, 120 credits are always required. Graduates obtain a Master of Arts or Master of Science (MA/MSc). A master's degree awarded in the applied arts and sciences requires the completion of 60 to 120 credits and graduates obtain a degree indicating the field of study (for example, Master of Architecture, M Arch).

The third cycle of higher education, leading to a PhD, is offered only by research universities. The major requirement is completion of a dissertation based on original research that is publicly defended. All research universities award the PhD. In addition to doctorate programmes, the three engineering universities offer technological designer programmes consisting of advanced study and a personal design assignment in a number of engineering fields. The technical designer programme requires two years of study to complete and graduates obtain the degree Professional Doctorate in Engineering (PDEng). The training of medical specialists is the responsibility of the professional group in an organisational setting at a university hospital.

Requirements for access to higher education

For access to research-oriented bachelor's programmes, students are required to have a vwo diploma or to have completed the first year (60 credits) of a bachelor's programme at a university of applied sciences. The minimum access requirement to universities of applied sciences is either a havo diploma or a diploma of secondary vocational education (mbo), provided certain conditions are met. The vwo diploma also grants access to universities of applied sciences. For access to both types of higher education, pupils are required to have completed at least one of the subject clusters that fulfil the requirements for the higher education programme in question. A quota, or *numerus fixus*, applies for access to certain programmes, primarily in the medical sciences, and places are allocated mainly using a weighted lottery. Potential students older than 21 years who do not possess one of the qualifications mentioned above can qualify for access to higher education on the basis of an entrance examination and assessment (recognition of prior learning). For access to certain programmes, particularly those in the fine arts, students have to demonstrate the required artistic abilities. The only access requirement for the Open University is that applicants be at least eighteen years of age.

For access to all master's programmes, a bachelor's degree in one or more specific disciplines is required, in some cases in combination with other requirements. Graduates with a bachelor's degree in the applied arts and sciences usually have to fulfil additional requirements for access to a research-oriented master's programme.

Credit system and grading

A student's workload is measured in ECTS credits. According to Dutch law, one credit represents 28 hours of work and 60 credits represents one year of full-time study. The grading system used in the Netherlands is on a scale from 1 (very poor) to 10 (outstanding). The lowest passing grade is 6; 9s are seldom given and 10s are extremely rare. Grades 1-3 are hardly ever used. The academic year is 42 weeks long.

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Quality assurance and accreditation

A guaranteed standard of higher education, and alignment with the Qualifications Framework for the European Higher Education Area, is maintained through a system of legal regulation and quality assurance, in the form of accreditation. The Ministry of Education, Culture and Science is responsible for legislation pertaining to education. The agriculture and public health ministries play an important role in monitoring the content of study programmes in their respective fields.

Quality assurance is carried out through a system of accreditation, administered by the Accreditation Organisation of the Netherlands and Flanders (NVAO). According to the Dutch Higher Education Act, all degree programmes offered by research universities and universities of applied sciences must be evaluated according to established criteria. Programmes that meet the criteria are accredited: i.e. recognised for a period of six years. Only accredited programmes are eligible for government funding; students receive financial aid and graduate with a recognised degree only when enrolled in, and after having completed, an accredited degree programme. All accredited programmes are listed in the Central Register of Higher Education Study Programmes (CROHO).

Since January 2011, the Netherlands has a new accreditation system. The process described above still applies, but beginning in 2011, higher education institutions can request the NVAO to conduct an 'institutional quality assessment' to determine the extent to which the institution is capable of guaranteeing the quality of the programmes it offers. Programmes offered by institutions that receive a positive evaluation still have to be accredited, but the accreditation procedure takes less time and is not as extensive.

Besides the accreditation of degree programmes, the Netherlands has a system by which the Ministry of Education, Culture and Science recognises higher education institutions by conferring on them the status of either 'funded' or 'approved'. "Funded" indicates the institution is fully financed by the government. "Approved" indicates that the institution does not receive funds from the government and has to rely on its own sources of funding. Whether a degree programme is offered by a 'funded' or an 'approved' institution, it must be accredited and registered in CROHO to be considered recognised.

N.B. If a bachelor's or master's degree programme is not registered in the CROHO, the quality is not assured by the Dutch quality assurance system. The quality may however be assured by another system.

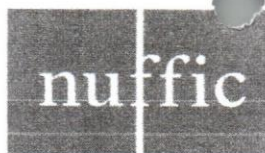
National Qualifications Frameworks

An important outcome of the Bologna Process is the development of a Framework for Qualifications of the European Higher Education Area. This overarching framework provides a general and common structure for qualifications awarded in three cycles of higher education in countries signatory to the Bologna Declaration, and offers recommendations and guidelines for the development of mutually understandable qualifications frameworks at national level.

The Netherlands was one of the first countries in the European Higher Education Area to complete this national qualifications framework, which was subsequently evaluated by the Verification Committee and found to be compatible with the Framework for Qualifications of the European Higher Education Area (QF-EHEA). The National Qualifications Framework of the Netherlands describes in detail the learning outcomes associated with three levels of higher education qualifications, in terms that are internationally compatible. The responsibility for overseeing the framework and updating it when necessary has been allocated to the NVAO. Further information on the framework can be obtained on the NVAO website: www.nvaovet/nqf-nl.

In addition to the QF-EHEA, the European Union also has an overarching European Qualifications Framework for Lifelong Learning (EQF-LLL). The EQF-LLL consists of eight levels and includes qualifications awarded in general and vocational secondary education, as well as in higher education. The Netherlands is currently in the final stages of developing its National Qualifications Framework based on the EQF-LLL.

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Nuffic is the Netherlands organisation for international cooperation in higher education. Our motto is Linking Knowledge Worldwide. This means linking people, because it's knowledge that makes us unique as people. Nuffic works in line with Dutch government policy to serve students and higher education institutions in three key areas:

Programme Management

Administering international mobility programmes (scholarships) and institutional cooperation programmes.

Information Services

Providing information about higher education systems in the Netherlands and in other countries; providing credential evaluation services; providing information in the Netherlands about studying abroad, and in other countries about studying in Holland; promoting Dutch higher education in other countries; encouraging international mobility.

Expertise

Conducting studies into international cooperation in higher education; providing information to expert groups and consultation forums; transferring our knowledge of international cooperation in higher education through courses and seminars.

Nuffic
Kortenaerkade 11
P.O. Box 29777
2502 LT The Hague
The Netherlands
t +31 (0)70 42 60 260
f +31 (0)70 42 60 399
www.nuffic.nl

Netherlands organisation
for international cooperation
in higher education