BSc Minors in English

Wageningen University
Overview BSc Minors for Exchange Students

All minors presented on this information sheet are taught in English. For more information please surf to: www.wageningenuniversity.nl/minors For contact details or to apply, please surf to: www.wu.nl/exchange

First semester

- Agricultural Business Management
- Climate Change, Mitigation and Adaptation Strategies for Society
- Concepts in Crop Production
- Consumer Behaviour
- Earth and Health
- Environmental Policy and Management
- Experimental Plant Sciences
- Food Technology
- Food, Intestinal Homeostasis and Disease
- Foods of Animal Origin
- Freedom from Hunger
- Gender Aspects of Sustainable Food Systems
- Geo-information for Environment and Society
- Healthy Ageing in Humans and Model Species
- Innovation and Entrepreneurship
- International Land and Water Management (English possible)
- Microbes Inside
- Plant Biotechnology
- Quality of Fresh Plant Products in Supply Chains
- Supply Chain Management
- Systems Biology
- Urban Environmental Management

Second Semester

- Biobased Technology
- Biodiversity: from Micro to Macro and from Cause to Consequence
- Biotechnology
- Disaster and Recovery
- Ecology and Biological Control of Insects
- Economics and Policy
- Environmental Education
- Food Safety
- Marine Living Resources
- Plant Breeding
- Sustainable Agriculture and Consumption
- Systems in Plant Production
- Tourism, Conservation and Development
- Wildlife Biodiversity
FIRST SEMESTER (Sept.-Jan.)

**Agricultural Business Management**
Deals with business economics, management and marketing in agriculture.
- Economics of Agribusiness
- Decision Science 1
- Agricultural Business Economics
- Management and Marketing
- Advanced Management and Marketing

**Climate Change - Mitigation and Adaptation Strategies for Society**
Gain a broad basis of knowledge needed in order to deal with climate change issues.
- Introduction to Global Change
- Principles of CC Economics and Policy
- Principles of Earth and Ecosystem Science
- Sustainability Transitions
- System Earth
- Environmental Systems Analysis
- Adaptation to Climate Change (CC)
- Adaptation to CC in Developing Countries

**Concepts in Crop Production**
Food security, depletion of natural resources and need for economically viable, sustainable and socially acceptable cropping and farming systems.
- Physiology and Development of Plants in Horticulture
- Quantitative Aspects of Crop Production
- Concepts in Environmental Plant Physiology
- Systems Analysis, Simulation and Systems Management
- Quantitative Analysis of Land use Systems

**Consumer Behaviour**
A broad introduction to consumer behaviour and focus on the way in which consumers adopt and use products and services that are brought to the market by a production chain.
- Principles of Consumer Studies
- Consumer and Technology
- Gender, Culture, Consumers and Markets
- Lifestyles and Consumption
Earth and Health
Study the linkages between the environment (geology, soil, water), the food we eat (plants, animal products), the way this food co-determines human health (nutrition, health effects) and trade aspects (global flow of nutrients and food products).

- Economics of Agribusiness
- Food Components and Health
- Linking Earth to Health
- Soil-Plant Relations

Environmental Policy and Management
Focus on the social and economic causes of environmental problems and the social, economic and communicative methods and policy instruments for solving them.

- Environmental Management and Industry
- Principles of Climate Change Economics and Policy
- Environmental Policy: Analysis and Eval.
- Environmental Communication and Innov.

Experimental Plant Sciences
Focuses on the improvement of the quality of plant production and plant products for various purposes including health-related, pharmaceutical and industrial use.

- Genomics
- Plant Plasticity and Adaptation
- Ecophysiology
- Plant Biotechnology
- Molecular Aspects of Bio-interactions
- Cell Biology and Advanced Imaging Techn.

Food Technology
Aspects of food microbiology, food chemistry, food physics and food process engineering play a central role during food production.

- Mathematical Concepts for Food Technology
- Food Microbiology
- Food Chemistry
- Process Engineering
- Food Related Allergies and Intolerances
- Food Physics
**Food, Intestinal Homeostasis and Disease**
Focuses on a better comprehension of the interplay between host (gut) immunity, infectious organisms, microbiota and nutrition to maintain intestinal homeostasis and prevent chronic inflammatory conditions.

- Basics of Infectious Diseases
- Food Components and Health
- Food Related Allergies and Intolerances
- Cell Biology and Health
- Pharmacology and Nutrition

**Foods of Animal Origin**
Focuses on topics that are important in producing products of animal origin. The production of meat- and milk products and the important issues during the production processes are discussed.

- Food Quality Management
- Meat Science
- Milk in the Dairy Chain
- Food Related Allergies and Intolerances
- Principles of Animal Nutrition

**Freedom from Hunger**
Understand the interplay between global and local factors in producing hunger and to design human rights-based responses to food crises.

- Food Crises: the big picture
- Law and Public Power
- Humanitarian Aid and Reconstruction
- Global Food Security
- Food, Nutrition and Human Rights

**Gender Aspects of Sustainable Food Systems**
Approach changes and pressing issues around food systems from an integrated bio-physical, economic, political, social and cultural perspective.

- Rural Gender Studies
- Food Heritage and History: Food, Gender and Cultural Heritage Governance
- Global Food Security
- Gender and Natural Resources
Geo-information for Environment and Society
The combined use of earth observation techniques (Remote Sensing) and Geographic Information Systems (GIS) for problem solving within the environmental and social disciplines is an asset of the Wageningen approach.

- Introduction Geo-information Science
- Geo-information for Society
- Remote Sensing
- Geo-Information Tools
- GIS BSc research project

Healthy Ageing in Humans and Model Species
Focus on the role of nutrition and physical exercise for healthy ageing in humans and pet animals.

- Fundamentals of Genetics and Molecular Biology
- Concepts and Theories of Healthy Ageing
- Communication & Persuasion
- Interventions for Healthy Ageing in Humans and Model Species
- Pharmacology and Nutrition

Innovation and Entrepreneurship
Focuses on the value of knowledge, innovation and entrepreneurship in life sciences, environmental sciences and agriculture.

- Principles of Entrepreneurship
- Management and Marketing
- Economics of Science and Technology
- Financial and Business Management
- Agricultural Business Economics
- Innovation Management and Cross Disciplinary Design

International Land and Water Management (English possible)
Introduction to the field of International Land and Water Management.

- Irrigation & Water Management
- Degradation and Soil & Water Conservation
- Global Food Security
- Introduction Geo-information Science
- Adaptation to Climate Change in Developing Countries
**Microbes Inside**
Challenging examples of how the omnipresent nature and function of microbes, including bacteria, archaea and fungi, affects our life. We are colonized since birth by complex microbial communities (also known as our microbiome) that are important for health and disease.

- Microbial Ecology
- Immunomodulation by Food and Feed
- Microbial Disease Mechanisms
- Research Methods Microbiology
- Microbes Inside

**Plant Biotechnology**
Covers all relevant topics in this academic field. Building on general BSc-level knowledge on cell biology, genetics, plant physiology and molecular biology.

- Fundamentals of Plant Breeding, Plant Pathology and Entomology
- Genetic Analysis, Tools and Concepts (GATC)
- Plant Biotechnology
- Genomics
- Plants and Health

**Quality of Fresh Plant Products in Supply Chains**
Understand the basis of post-harvest deterioration, quality control and quality improvement.

- Food Quality Management
- Sensory Science I: Principles of Sensory Science
- Product Quality and Post-Harvest Physiology
- Microbiology & Biochemistry
- Food Quality Analysis and Judgement

**Supply Chain Management**
Aims at a theoretical basis of and introduction to multidisciplinary analysis of food supply chains.

- Financial and Business Management
- Decision Science
- Supply Chain Management
- Management and Marketing
English taught BSc Minors Overview

**Systems Biology**
Studies in an integrated, quantitative manner the mechanisms by which cellular components, cell organisms and communities interact in space and time.

- Bio-Information Technology
- Introduction to Systems and Synthetic Biology
- Systems Analysis, Simulation and Systems Management
- Introduction to Functional Genomics
- Molecular Systems Biology: From Omics to integrative Bioinformatics

**Urban Environmental Management**
Core disciplines (Technology, Policy, Land Use Planning) and issues of Urban Environmental Management to BSc students of various disciplines from within and outside Wageningen University.

- Environmental Management and Industry
- Principles of Urban Environmental Management
- Basic Technologies for Urban Environmental Management
- Sustainability Transitions: Concepts, Issues and Indicators
- Planning for Urban Quality of Life
SECOND SEMESTER (*Febr.-Jun.*)

**Biobased Technology**
Focuses on technical strategies and development to replace fossils by bio-mass. Attention is given to a number of renewable resource applications.
- Renewable Energy: Sources, Technology & Applications
- Biobased Economy (New Course)
- Biorefinery
- Renewable Res. and Production of Indust.Chem.

**Biodiversity: from Micro to Macro and from Cause to Consequence**
Underlying concepts and theories are taught of population and evolutionary ecology.
- Population and Systems Ecology
- Molecular and Evolutionary Ecology
- Ecology of Commun., Ecosys. and Landscapes
- Functional Biodiversity
- Plant, Vegetation and Systems Ecology

**Biotechnology**
Biotechnology is defined as the industrial exploitation of living organisms or exploitation of components derived from these organisms.
- Cell Physiology and Genetics
- Enzymology
- Environmental Process Engineering
- Bio Organic Chemistry
- Gene Technology
- Bioreactor Design
- Mathematics for Time-dependent Systems
- Physical Transport Phenomena

**Disaster and Recovery**
Conceptual tools and professional competencies to develop an effective and responsible engagement with recovery processes.
- Natural Hazards and Disasters
- Innovation Management and Cross-Disciplinary Design
- Institutions, Recovery and Resilience
- Disaster-proof Planning and Preparedness
English taught BSc Minors Overview

**Ecology and Biological Control of Insects**
Focus on the application of ecological knowledge to durable management of insect pests.
- Insect Ecology
- Molecular and Evolutionary Ecology
- Biological Control of Insects
- Behavioural Ecology
- Insect-Plant Interactions

**Economics and Policy**
Focuses on economics and economic policy analysis relating to typical Wageningen issues, such as food, environment and rural development.
- Agriculture, Food and Policy
- Environmental Economics & Policy
- Microeconomics
- Economics and Governance

**Environmental Education**
Pays special attention to the possibilities and constraints the digital age provides for such teaching, communication and learning.
- Didactic Skills
- Sustainable Development
- Life-Science Comm. and Learning in the Dig.Age
- Applied Env. Education and Communication

**Food Safety**
Become acquainted with the basic aspects of food safety.
- Risk Communication
- Basics in Food Technology
- Quality of Animal Products
- Food Hazards
- Quality Systems Operations
- Food Properties and Function
English taught BSc Minors Overview

Marine Living Resources
Focuses on the use and management of living resources in aquatic ecosystems with a particular focus on coastal zones, seas and oceans.

- Sustainability in Fish and Seafood Production
- Aquaculture and Fisheries
- Ocean and Coastal Governance
- Introduction Marine and Estuarine Ecology
- Marine Life
- Practical Aquatic Ecology and Water Quality

Plant Breeding
Introduces students to the field of plant breeding with a focus on breeding for resistance and quality in major food, feed and ornamental crops.

- Plant Breeding: Basic Concepts and their Applications
- Plant Diseases and Immunity: Basic Concepts and their Applications
- Breeding for Quality and Resistance
- Modern Statistics for the Life Sciences
- Plant Cell and Tissue Culture
- Genetic Analysis, Tools, Concepts (GATC)

Sustainable Agriculture and Consumption
Touches upon all aspects of organic production and sustainability: agro-ecological, social and economic.

- Globalization and Sust. of Food Production and Consump.
- Sustainable Marketing
- Organic Agriculture and Society
- Agrobiodiversity/Organic Animal Production
- Conservation Agriculture

Systems in Plant Production
Students will become familiar with the methods, tools and techniques that are essential to develop systems thinking.

- Crop Ecology
- Analysing Sustainability of Farming Systems
- Agrobiodiversity
- Conservation Agriculture
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Tourism, Conservation and Development
Combines tourism, international development and nature conservation with socio-spatial and policy analyses.
- Introduction Leisure, Tourism and Environment
- Governance for Forest, Nature Biodiversity
- Natural Res. Governance in a Complex World
- Designing Innovative Policy Arrangements
- Development of Sustainable Tourism

Wildlife Biodiversity
Understanding of the relation between genetic variation and ecology of life histories, from individuals, populations, and species to communities.
- Life History Evolution
- Resource Ecology
- Wildlife Conservation Genetics
- Population and Quantitative Genetics
- Animal Ecology
Overview other BSc Minors

These minors are taught partly in English.
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First Semester

- Animal Sciences
- Biology of Infections Diseases of Humans and Animals
- Communication for Change
- Development and Policies in a Globalizing World
- Earth and Biosphere
- Economics of Sustainable Development
- Education (Fully DUTCH)
- Landscape Architecture and Planning
- Management of Terrestrial Ecosystems
- Nutrition and Health
- Policies, People and Nature Conservation
- Psychobiology of Eating Behaviour
- Sociology for Life Science Students

Second semester

- Animal Production and Health
- Communication, Research and Practice
- Education (Fully DUTCH)
- Food Products and Processing
- Forest and Nature Conservation
- Health and Society
- Living Earth
- Policy and Governance for the Life Sciences
- Regional Development and Planning
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