



Ecology MSc

Vrije Universiteit Amsterdam - Fac. der Aard- en Levenswetenschappen - M Ecology - 2017-2018

The aim of the Master programme Ecology is to provide you with the knowledge, skills and insight required to operate as an independent professional and to be a suitable candidate for a subsequent course of study leading to a career in Ecological research. After having completed the programme, you will have developed a critical scientific approach and an awareness of the ethical and societal aspects of Ecology.

The programme has two specialisations: 'Ecology and Evolution' and 'Environmental Chemistry and Toxicology'. These specialisations are organised in close cooperation with the University of Amsterdam (UvA). This implies that some (course) components will take place at the Science Park of UvA and others at the VU campus. In all courses teachers of both universities will be participating.

Each course is given at one or the other university, so teachers move between classes. In general elective courses are given every two years (except Adaptive Dynamics and Biodiversity and Landscapes that can be taken every year).

When registered in the MSc Ecology programme of the VU you will also automatically be registered as a 'bijvakstudent' at the UvA (similarly for UvA students). You will thus be assigned a VUnetID and a UvAnetID. You should enrol for VU (course) components at: vunet.vu.nl using your VUnetID and for UvA (course) components: <http://datanose.nl/#masterenrol> with your UvAnetID.

You can find the content, study load and other details of each of the course modules in the course descriptions in this guide.

You can find all regulations applying to the classes and examinations of the Master's programme in Ecology in the [Academic and Examination Regulations](#) of the Master's Programme Ecology at VUnet.

Note: Not every course is given each year, so please consult the year schedules for further information.

More information

- All compulsory courses and electives you find in the [year schedule](#);
- A complete description of the programme you find in the [Teaching and Examination Regulations](#);
- For more information about the programme you can contact the [academic advisor](#) (VU students only);
- As a VU student you need to register for all courses via [VUnet](#). Only after you completed your enrollment for the study programme you can register for courses;
- More information on all the courses you find through the links below.

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M Ecology specialisation Ecology and Evolution

Zie Engelse versie

Vakken:

Naam	Periode	Credits	Code
Applied Water Science	Periode 2	6.0	AM_1054
Benthic Ecosystems	Periode 2	6.0	AMU_0023
Biotic Interactions	Periode 1	6.0	AMU_0019
Current Trends in Evolution	Periode 1	6.0	AMU_0003
Environmental Genomics and Adaptation	Periode 2	6.0	AM_470506
Environments Through Time	Periode 2	6.0	AMU_0022
Evolution of Species Interaction		6.0	AMU_0006
Experimental Design and Analysis	Periode 1	6.0	AM_470505
Literature Survey Ecology and Evolution	Ac. Jaar (september)	12.0	AM_1131
Masterclasses in Ecology and Evolution	Ac. Jaar (september)	3.0	AM_1016
Metropole Ecology	Periode 5	6.0	AM_1199
Microbial Ecology	Periode 1	6.0	AMU_0008
Research Project Ecology and Evolution 1	Ac. Jaar (september)	30.0	AM_1100
Research Project Ecology and Evolution II	Ac. Jaar (september)	30.0	AM_1114
Scientific Writing in English (AM_ECOL)	Periode 4	3.0	AM_1157
Spatial Processes in Ecology	Periode 1	6.0	AMU_0009

Applied Water Science

Vakcode	AM_1054 ()
Periode	Periode 2
Credits	6.0
Voertaal	Engels
Faculteit	Fac. der Aard- en Levenswetenschappen
Coördinator	dr. ir. T.H.M. Hamers
Examinator	dr. ir. T.H.M. Hamers
Docent(en)	dr. ir. T.H.M. Hamers
Lesmethode(n)	Hoorcollege, Practicum
Niveau	400

Doel vak

After the course, the student is able to:

- analyze scientific and societal issues related to human impacts on aquatic ecosystems
- combine scientific knowledge on aquatic systems with socio-economic arguments to develop a scientifically supported opinion on environmental management issues
- engage in the social debate on environmental management issues
- communicate in writing to a wide audience

Inhoud vak

Water is the prime necessity of life and the quality of drinking water directly influences public health and plays a major economic role. Yet, deterioration of water quality, overexploitation of aquatic resources, climate change and ecosystem all pose risks to human health, and potentially impact ecosystem values and services. This course builds on three pillars:

1) Human impacts. Which chemical contaminants are present and how can they be detected? What organisms are sensitive to poor water quality? What are the ecological risks and the treats to drinking water? How to improve water quality?

2) Conservation and restoration. How to protect aquatic ecosystems on an overpopulated and industrialized continent? How to spend millions of euros wisely to ensure that restoration measures will lead to ecological recovery of deteriorated aquatic ecosystems?

3) Social aspects and legislation. How are ecological risks assessed and how are they perceived and managed? Which legislative tools are at hand to halt environmental contamination and ecosystem degradation?

Onderwijsvorm

Lectures and guest lectures are given by internationally recognized experts. Excursions take place to Waternet, a joint water board and drinking water company, to a large scale low land stream restoration project and to the newly constructed ecosystems "Markerwadden". FMB Cinema combined with a keynote lecture will address fish stock depletions. Students will work in small groups on case studies including oil drilling in polar regions; endocrine disrupting compounds, marine protected areas, restoration projects, water balance and eutrophication. All case studies jointly will be published as a prestigious e-book.

- Lecture (52)
- Fieldwork/excursion (24)
- Presentation/symposium (12)
- Self-study (28)
- Working independently on e.g. a project or thesis (24)
- Supervision/feedback meeting (12)

Toetsvorm

- Case study - practical assignment (50%)
- Exam (50%)

The student has passed if each of the components has received a minimum score equal to or higher than 5.50, in a range from 1-10.

Literatuur

Scientific articles will be provided during the course

Aanbevolen voorkennis

Introduction to Freshwater & Marine Biology; Aquatic Ecology, Marine Biology and Ecotoxicology on BSc level

Doelgroep

Open to all MSc students in Biology, Ecology, Hydrology, Biomedical Sciences, Health Sciences, Earth Sciences, Chemistry or related fields. Optional course for UvA MSc Biology, L&O track.

Intekenprocedure

This course is offered at the UvA. For more information contact:

FNWI

Education Service Centre, Science Park 904,

servicedesk-esc-science@uva.nl, +31 (0)20 525 7100.

Enrolment via <https://m.sis.uva.nl/vakaanmelden> is required.

For courses taught in period 1 and period 2, enrolment via

<https://datanose.nl/#specialenrol> is required.

Overige informatie

This course is offered at the UvA

Lecturers:

Dr. Harmen van der Geest (UvA)

Dr. Michiel Kraak (UvA)

Dr. Jessica Legradi

Dr. Timo Hamers (contact person VU)

Benthic Ecosystems

Vakcode	AMU_0023 ()
Periode	Periode 2
Credits	6.0
Voertaal	Engels
Faculteit	Fac. der Aard- en Levenswetenschappen
Coördinator	dr. J.M. Koene

Biotic Interactions

Vakcode	AMU_0019 ()
Periode	Periode 1
Credits	6.0
Faculteit	Fac. der Aard- en Levenswetenschappen

Inhoud vak

This is an UvA course. For the course description, please visit

<http://studiegids.uva.nl/>

Current Trends in Evolution

Vakcode	AMU_0003 ()
Periode	Periode 1
Credits	6.0

Voertaal	Engels
Faculteit	Fac. der Aard- en Levenswetenschappen

Inhoud vak

<http://studiegids.uva.nl/xmlpages/page/2015-2016/zoek-vak/vak/74140>

Intekenprocedure

This course is offered at the UvA. For more information contact: FNWI Education Service Centre, Science Park 904, servicedesk-esc-science@uva.nl, +31 (0)20 525 7100. Enrolment via <https://m.sis.uva.nl/vakaanmelden> is required.

Environmental Genomics and Adaptation

Vakcode	AM_470506 ()
Periode	Periode 2
Credits	6.0
Voertaal	Engels
Faculteit	Fac. der Aard- en Levenswetenschappen
Coördinator	dr. ir. T.F.M. Roelofs
Examinator	dr. ir. T.F.M. Roelofs
Docent(en)	dr. ir. T.F.M. Roelofs
Lesmethode(n)	Hoorcollege, Computerpracticum, Practicum, Werkgroep, Werkcollege
Niveau	500

Doel vak

Students will be able to:

- 1 Describe different molecular genetic techniques to study gene expression and genomic variation in response to environmental stimuli.
- 2 Explain how to use these techniques in ecological and physiological research.
- 3 Analyze experimental data generated by genomics research and knowing the possibilities for follow-up research
- 4 Find and analyze genomic data in databases on internet.
- 5 Describe the functional significance of genomic variation for organisms and populations in natural environments.
- 6 Characterize the evolutionary consequences of such variation for species abundance, community diversity, and the evolution of speciation

Inhoud vak

Researchers in ecology and physiology are making extensive use of molecular techniques. Environmental genomics can be applied to advance our understanding of the way organisms functionally respond to changes within their local environment. Such responses may have consequences for species abundance, community diversity, and the evolution of speciation.

In this

course we will focus on:

Regulation of gene expression. Which genes are turned on in response to environmental challenge, and what do they do?

Differences in the molecular basis of fitness among individuals.

Is there intraspecific variation in gene expression in response to environmental change, and is this variation adaptive?

Furthermore, we will assess evolutionary consequences of genomic

variation. What are the ecosystem-, community-, and population-level consequences of the molecular transformations in the genome? Does gene family expansion and contraction drive speciation, or does the emergence of new gene bodies and protein domains add to speciation?

We will touch upon several topics covered by chapters in the book 'An Introduction to Ecological Genomics' and include molecular adaptation to drought, genetic marker development and analytical methods, evolution of metal tolerance, speciation genetics.

Practical training include a gene expression experiment, designed and executed by the students. Also, a computer exercise on transcriptomics (microarray data) will be performed. These data are extracted from peer-reviewed scientific papers. Finally, a journal club will be organized, in which students present a scientific paper on an Ecological Genomics topic.

The field of ecological genomics moves extremely quickly. Consequently, topics addressed in the accompanying book will be out of date to some extent. In order to address up-to-date and state-of-art knowledge on ecological genomics topics, specialists in this field will be invited to give guest lectures.

Onderwijsvorm

Lectures & Guest Lectures

Seminar (journal club) discussing recent literature on Environmental genomics. Presentation of a scientific paper during this seminar.

Written report summarizing the content of the presented scientific paper.

Practical training regarding gene expression analysis using Q-PCR technology.

Written report of Practical: Introduction, Material & Methods, Results and Discussion.

Computer exercise on transcriptomic data retrieved from public databases. The Limma package in R will be used predominantly. TIGR Mev software will be applied to visualize data output.

Computer exercise on gene ontology enrichment analysis

Self study

Toetsvorm

Presentation: Assessment of oral presentation of a research paper by a panel

consisting of course coordinator, junior lecturer and Post-doc.

Standardized forms with rubrics will be used to retrieve scores for different aspects of the presentation.

Report: Assessment of written reports on QPCR practical and scientific paper

Mean grade of presentation and written reports will make up 30% of the final grade; presentation can be compensated with written report and visa versa.

Exam: Written exam consisting of open questions will make up 70% of final grade. A score of at least 5.5 for the written exam is required to pass this course.

Literatuur

The field of ecological genomics moves too fast to provide an up-to-date textbook on this topic. We will refer to recent publications during lectures

In addition, I recommend the following book to understand the principles of this scientific field:

N. M. van Straalen and D. Roelofs 2011. An Introduction to Ecological Genomics, 2nd edition. Oxford University Press.

Vereiste voorkennis

BSc level course on molecular biology, such as BSc course on Evolutionary Genetics (AB_1022) or Developmental Biology (AM_470613)

Doelgroep

MSc students Biology and Ecology from VU and UvA

Intekenprocedure

Standard via VUnet

Environments Through Time

Vakcode	AMU_0022 ()
Periode	Periode 2
Credits	6.0
Voertaal	Engels
Faculteit	Fac. der Aard- en Levenswetenschappen
Coördinator	dr. J.M. Koene

Evolution of Species Interaction

Vakcode	AMU_0006 ()
Credits	6.0
Voertaal	Engels
Faculteit	Fac. der Aard- en Levenswetenschappen

Inhoud vak

<http://studiegids.uva.nl/xmlpages/page/2016-2017/zoek-vak/vak/25495>

Intekenprocedure

Information about procedures can be found at

<http://www.student.uva.nl/bs/az/item/course-registration.html>.

Experimental Design and Analysis

Vakcode	AM_470505 ()
Periode	Periode 1
Credits	6.0
Voertaal	Engels
Faculteit	Fac. der Aard- en Levenswetenschappen
Coördinator	dr. J.T. Weedon
Examinator	dr. J.T. Weedon
Docent(en)	J. Duivenvoorden, dr. J.T. Weedon
Lesmethode(n)	Hoorcollege, Computerpracticum
Niveau	500

Doel vak

The final attainment levels of this course, include that students:

- Are acquainted with possible experimental designs for ecological research and can select the most suitable design depending on experimental objectives and hypotheses
- Are acquainted with possible statistical analyses, understand the theory and the assumptions underlying the various analyses and can test the underlying assumptions
- Can select the most suitable statistical analysis depending on the design chosen and the statistical assumptions
- Can interpret the chain of hypotheses, design and analysis to validate hypotheses combining empirical data with statistical models

Inhoud vak

A proper experimental design combined with a suitable statistical analysis is essential to -biological- science, even though it is considered by many as a necessary evil. In this course, the whole chain of hypothesis and design to analysis and interpretation is covered to allow students to apply a range of statistical techniques independently.

The application

and implementation of the techniques (using the statistical programming language R) is the basis. Possible

experimental designs are discussed in relation to specific biological questions and hypotheses. The application of statistical analysis is treated in relation to these designs. Theory and especially the assumptions underlying the test are treated to the extent that this information is necessary to apply the tests properly. Both -combinations of- regression and analysis of variance techniques and multivariate analysis techniques such as unconstrained and constrained ordination are dealt with.

Onderwijsvorm

As application is central to this course, case studies, assignments and working with real biological data is the core of this course. Starting of with the research question, hypothesis and the lab/field/model situation a proper design and statistical analysis will be discussed. A specific case study is used to illustrate this chain of arguments.

Theory, assumptions and tests are all treated in the context of these case studies and are coupled directly to the case study and subsequent assignments. The course is finalised with an extensive case study, to which the theory is applied. Knowledge of some of the main principles of applied statistics is also tested in a short-answer exam. This set-up translates into 30 contact hours for lectures, 15 contact hours for practicals and 20 contact hours for feedback on the assignments .

Toetsvorm

Exam (30%)

Report on the final case study (70%)

Literatuur

There is no required textbook, however students are strongly recommended to have access to one of:

Quinn, G.P. and M.J. Keough (2002), Experimental design and data analysis for biologists Cambridge University Press

Discovering Statistics Using R (2012) A. Field, J. Miles & Z. Field SAGE Publications

The latter is particularly recommended for students without any previous experience with the R programming language.

In addition the following articles and books may be helpful for parts of the course:

Dalgaard, P. (2008) Introductory Statistics with R

Logan, M. (2010) Biostatistical Design and Analysis Using R: A Practical Guide. Wiley

Borcard, D., F. Gillet and P. Legendre (2011) Numerical ecology in R. Springer

Bolker, B.M., M.E. Brooks, C.J. Clark, S.W. Geange, J.R. Poulsen, M.H.H. Stevens and J.S. White (2009). Generalized linear mixed models: a practical guide for ecology and evolution. Trends Ecol. Evol. 24: 127-135

Gurevitch, J. and L.V. Hedges (1999) Statistical issues in ecological meta-analyses. Ecology 80: 1142-1149

This literature is complimented by lecture handouts, explanations of the assignments, answers to the assignments, and additional notes provided on Canvas.

Vereiste voorkennis

Methodology and statistics 1 and 2 or equivalent statistics courses. This implies that we require students to understand the interpretation of P-values, type I and type II errors and statistical hypotheses testing in general. In addition, students are required to have understanding on t-tests (paired and unpaired), linear regression and one-way ANOVAs.

Doelgroep

The course is compulsory for MSc Ecology students at the VU doing the Ecology and Evolution or the Environmental Chemistry and Toxicology specialization and for UvA students doing the Ecology and Evolution specialization of the master Biological Science. The course is also open for master students in Biology, Ecology or Earth Sciences and PhD students at the VU and UvA universities with a deficiency in experimental design and statistics.

Overige informatie

The course is organized by the Department of Ecological Science at the VU and the Institute for Biodiversity and Ecosystem Dynamics of the UvA. All contact hours are at VU University.

Lecturers:

dr. J.T. Weedon,
dr. J. Duivenvoorden,
dr. M. Egas

Literature Survey Ecology and Evolution

Vakcode	AM_1131 ()
Periode	Ac. Jaar (september)
Credits	12.0
Voertaal	Engels
Faculteit	Fac. der Aard- en Levenswetenschappen
Coördinator	dr. J.T. Weedon
Examinator	dr. J.T. Weedon

Doel vak

All master students in Ecology and Evolution are required to carry out a thesis based on a literature survey (12 ec). The aim is to demonstrate the ability to efficiently process material in a given field and to evaluate this critically in order to answer research questions at a more overarching level.

IMPORTANT: A extensive manual containing the forms and a description of all procedures and requirements of the literature thesis Ecology and Evolution can be found on:

<http://tinyurl.com/hvo9u4a>

Inhoud vak

The literature survey can focus on a fundamental ecological question but may also take a more applied ecological approach. The topic and research question are free of choice.

Prior to participating in any thesis or literature survey, both student and faculty staff member and external supervisor (if applicable) involved should fill out a written application and agreement form. This form (and others) can also be downloaded from:

<http://tinyurl.com/hvo9u4a>

Onderwijsvorm

Every literature survey has to be approved by the master coordinator in advance (on behalf of the examination board). Therefore you should hand in a proposal that you have discussed with the faculty staff member and/or external supervisor.

Consult the manual for the literature survey for further details concerning writing of the proposal and the thesis.

Toetsvorm

At the end of the literature survey the student gives an oral presentation of the work in the Department of Ecology. The work and presentation will be assessed by the VU supervisor in consultation with the external supervisor, if applicable.

Literature theses will be assessed according to the following categories:

- A. Execution (25%)
- B. Thesis (50%)
- C. Oral Presentation (25%)

Literatuur

Selected papers

Doelgroep

Students in MSc Ecology specialization Ecology and Evolution

Overige informatie

In order to successfully start up and complete the literature thesis it is of major importance to read carefully the manual on:

<http://tinyurl.com/hvo9u4a>

Masterclasses in Ecology and Evolution

Vakcode	AM_1016 ()
Periode	Ac. Jaar (september)
Credits	3.0
Voertaal	Engels
Faculteit	Fac. der Aard- en Levenswetenschappen
Coördinator	prof. dr. J. Ellers
Examinator	prof. dr. J. Ellers
Docent(en)	prof. dr. J. Ellers
Lesmethode(n)	Hoorcollege, Werkcollege
Niveau	400

Doel vak

To obtain a broad overview of the latest research in ecology and evolution

- To learn to critically evaluate scientific research articles
- To practice skills of scientific argumentation and discussion
- Learning to discuss these topics with leading scientists in the field

Inhoud vak

Being able to participate in discussion is an important skill for scientists. It requires the ability to combine theoretical and empirical knowledge as well as a critical view on the arguments put forward by others. The best way to improve these skills is to practice them under supervision of senior scientists. In this course students are trained to discuss the important topics in Ecology and Evolution with top scientists in the world, in the form of a masterclass (described below). In doing so, students will attend seminars from these internationally renowned scientists in the Nature of Life meetings organized by the Institute of Ecological Sciences (VU) and in the series of IBED lectures organized by the Institute for Biodiversity and Ecosystem Dynamics (UvA). Both series are organized on a monthly basis throughout the year (except the summer period). The topics for the seminars cover the whole spectrum of ecology and evolution. An overview of upcoming and previous seminars can be found at www.falw.vu.nl/nl/onderzoek/ecological-sciences/nature-of-life-meetings/index.asp and www.science.uva.nl/ibed-agenda/see.cfm. Students must attend six masterclasses during the 2-year programme. Students may attend more theme lectures on a facultative basis, subject to availability.

Onderwijsvorm

In preparation for each masterclass, several recent papers by the guest speaker will be studied and extensively discussed during a tutorial meeting with staff members of the Institute of Ecological Sciences or of the Institute for Biodiversity and Ecosystem Dynamics. Students then participate in a discussion meeting with the speaker (the actual

masterclass), and finally they attend the seminar as part of the course. Students are required to participate actively in the discussion during the tutorials, masterclass and the seminar. The total number of contact hours (including lectures and discussions) is 30, the remaining time is spent on preparation.

Toetsvorm

Factors which count for the final grade:

For each masterclass: active participation, theoretical insight, and argumentation of the students in the tutorial meeting, masterclass and seminar: 100%

Students pass after 6 satisfactorily participated masterclasses.

Literatuur

Primary literature and recent articles by the guest speakers, to be announced at least one week before each masterclass.

Vereiste voorkennis

BSc Biology from a Dutch University. Students with a BSc in Earth Sciences, Social Geography, Beta/Gamma, and international BA's with Nuffic accreditation can be admitted, but extra elements can be obligatory.

Doelgroep

Master students in Biology and Ecology (from both the Ecology and Evolution as well as the Environmental Chemistry and Toxicology specializations) at the VU and master students from the Biological Sciences specialization Ecology and Evolution at the UvA.

Overige informatie

Location: VU University Amsterdam, De Boelelaan 1085 Amsterdam and University of Amsterdam, Science Park 904 Amsterdam

Metropole Ecology

Vakcode	AM_1199 ()
Periode	Periode 5
Credits	6.0
Voertaal	Engels
Faculteit	Fac. der Aard- en Levenswetenschappen
Coördinator	dr. A.J.A. van Teeffelen
Examinator	dr. A.J.A. van Teeffelen
Lesmethode(n)	Hoorcollege, Werkcollege
Niveau	500

Doel vak

By the time the course is completed, the student should be able to:

1. Describe how the built-up environment is distinct from other environments and provide concrete examples of effects thereof on flora/fauna species composition, ecosystem processes, and people's well-being.
2. Explain the mechanisms that allow certain kinds of species to fare well in urban contexts.
3. Explain the role urban ecosystems play in people's well-being in different socio-economic and biophysical contexts.

4. Provide examples of human-wildlife conflicts in metropolitan contexts, describe the conditions under which these may arise, and formulate solutions to address these.
5. Illustrate how metropolises directly and indirectly affect land use and biodiversity in other areas.
6. Apply an interdisciplinary approach in addressing metropolitan environmental and ecological challenges and identify actions required to create biodiversity- and adaptation-friendly cities and towns for the future.

Inhoud vak

An increasing part of Earth's terrestrial surface is taken up by urban and peri-urban land use, forming large agglomerates known as metropolises such as Tokyo, Shanghai, Delhi, Mexico city, São Paulo, New York, London and Paris. These intensively-used areas are dynamic ecosystems with distinct properties, hosting particular species and communities, but also creating nuisances e.g. through invasive species or human-wildlife conflicts. At the same time, metropolitan ecosystems are pivotal in supporting human well-being, as over half of the global human population lives in cities, facing challenges related to e.g. air quality, heat, storm water, and space for leisure. Urban ecosystems can provide services to address some of these challenges.

In this course we use an interdisciplinary approach to understand specific challenges and opportunities of an urbanizing world for both biodiversity, ecosystem processes, and people. Specifically we will learn about 1) the opportunities and limitations of the urban environment for biodiversity and species' coping strategies; 2) the environmental challenges associated with urbanization and human well-being, and the role of ecosystems and their services in addressing these challenges; 3) human-wildlife conflicts in metropolitan landscapes and how these can be addressed.

Onderwijsvorm

We will use a combination of lectures, seminars, excursions, discussion sessions and group work.

- Lectures
- Seminars
- Excursions/fieldwork
- Presentation and discussion sessions
- Self-study
- Working in groups on a research project

Toetsvorm

The course grade will be composed of two separate assessments, namely

- a group assignment (50% of final grade) and
- a written exam (50% of final grade).

Literatuur

- To be announced: The course material for the literature study consists of scientific articles that can be obtained from the different scientific journals via the University Library.
- Other: Hand-outs of the lectures will be placed on the online learning platform

Aanbevolen voorkennis

Earth science, biology or ecology background

Intekenprocedure

<https://register.vu.nl/>

UVA students should also register here via 'secondary courses'

Overige informatie

The minimum number of students is 15. When the number of participants exceeds 40, priority may be given to FPES students, followed by students from other Earth Science, Ecology or Biological Science MSc tracks. Students from other programs will have to send a letter of motivation.

Microbial Ecology

Vakcode	AMU_0008 ()
Periode	Periode 1
Credits	6.0
Voertaal	Engels
Faculteit	Fac. der Aard- en Levenswetenschappen

Inhoud vak

<http://studiegids.uva.nl/xmlpages/page/2015-2016/zoek-vak/vak/14424>

Intekenprocedure

This course is offered at the UvA. For more information contact: FNWI Education Service Centre, Science Park 904, servicedesk-esc-science@uva.nl, +31 (0)20 525 7100. Enrolment via <https://m.sis.uva.nl/vakaanmelden> is required.

Research Project Ecology and Evolution 1

Vakcode	AM_1100 ()
Periode	Ac. Jaar (september)
Credits	30.0
Voertaal	Engels
Faculteit	Fac. der Aard- en Levenswetenschappen
Coördinator	dr. J.T. Weedon
Examinator	dr. J.T. Weedon
Niveau	600

Doel vak

The aims of the master's placement are:

- The student learns to independently conduct scientific research.
- The student is able to independently find scientific information and to evaluate this for the benefit of his or her own research question.
- The student is able to apply scientific methods and knowledge, to answer research questions and to generate evidencebased knowledge.
- The student is able to formulate a research question, to choose, to implement and to evaluate the (appropriate) research method, and to phrase the obtained results in a scientific report.
- The student is able to cooperate with researchers of various disciplines.
- The student is able to write a scientific report of the research on the level of peer-reviewed academic journals.
- The student is able to orally present the research results and to discuss the findings.

- The student obtains a good impression of a potential future field of career.

Inhoud vak

The two research projects in the Ecology and Evolution programme serve to get students acquainted and experienced with the practice of ecological research. Both research projects should thus reside in Ecology. If you have 12 ec in elective courses in your programme both research projects together will have to amount up to 78 ec. If you have 18 ec in elective courses the total study load is 72 ec. The shortest project should at least be 30 ec.

The first research project during your MSc Ecology and Evolution must take place at the Department of Ecological Science at the VU, or at the Institute for Bioversity and Ecosystem Dynamics at the UvA.

For research projects at the Ecology department of the VU check the website:

<http://tinyurl.com/hvo9u4a>

If you want to do your second research project outside the VU you can look for internships

at the websites of other Dutch universities or research institutes, for example: NIOO (fundamental ecological research), NIOZ (marine ecology), ALTEERRA (applied and environmental ecology), RIVM (applied and environmental ecology), SOVON (avian ecology), but also at the sites of nature conservation organisations such as Natuurmonumenten, Staatsbosbeheer, or regional authorities (Provincie and Waterschap).

However, organisations for the conservation of specific species (e.g. butterflies, dolphins, tigers, primates, etc.) will generally not be qualified enough. Research projects/internships in commercial companies are generally also not accepted, since commercial and educational interests often are quite different. Projects at universities or research institutes outside the Netherlands can also be accepted provided they are of sufficient academic quality.

In all cases: take care that you will be working on an ecological research question and that you will be able to collect enough reliable data to write a scientific report in the end. Purely monitoring or inventory projects are not of a masters' level and will not be approved.

Each project starts with writing a research proposal. Consult the Placement Manual for guidelines.

Onderwijsvorm

A Placement Manual for Research Projects in the MSc Ecology can be obtained at: <http://tinyurl.com/hvo9u4a>

This document contains the protocols, guidelines for proposals and reports and application and assessment forms, etc. needed to successfully complete a research project.

IT IS VERY IMPORTANT to read this document carefully in order to avoid unpleasant experiences during the progress of the placement. Every research project or literature study has to be approved by the master coordinator in advance.

Toetsvorm

At the end of the project a scientific report of the work has to be written in English and an oral presentation has to be given also in English. The final grade will be determined by the VU supervisor and VU second assessor in consultation with the external supervisor, if applicable. It is based on the following categories: attitude (pass/fail), execution (40%), presentation (10%) and report (50%).

Literatuur

Selected papers

Vereiste voorkennis

You are not allowed to start a research project before having obtained already 18 ec in master courses.

Doelgroep

MSc Ecology specialization Ecology and Evolution

Intekenprocedure

See placement manual at: <http://tinyurl.com/hvo9u4a>

Overige informatie

The Placement Manual for Research Projects in the MSc Ecology can be obtained at: <http://tinyurl.com/hvo9u4a>

Research Project Ecology and Evolution II

Vakcode	AM_1114 ()
Periode	Ac. Jaar (september)
Credits	30.0
Voertaal	Engels
Faculteit	Fac. der Aard- en Levenswetenschappen
Coördinator	dr. J.T. Weedon
Examinator	dr. J.T. Weedon
Niveau	600

Doel vak

The aims of the master's placement are:

- The student learns to independently conduct scientific research.
- The student is able to independently find scientific information and to evaluate this for the benefit of his or her own research question.
- The student is able to apply scientific methods and knowledge, to answer research questions and to generate evidencebased knowledge.
- The student is able to formulate a research question, to choose, to implement and to evaluate the (appropriate) research method, and to phrase the obtained results in a scientific report.
- The student is able to cooperate with researchers of various disciplines.
- The student is able to write a scientific report of the research on the level of peer-reviewed academic journals.
- The student is able to orally present the research results and to discuss the findings.
- The student obtains a good impression of a potential future field of career.

Inhoud vak

The two research projects in the Ecology and Evolution programme serve to get students acquainted and experienced with the practice of ecological research. Both research projects should thus reside in Ecology. If you have 12 ec in elective courses in your programme both research projects together will have to amount up to 78 ec. If you have 18 ec in elective courses the total study load is 72 ec. The shortest project should at least be 30 ec.

The first research project during your MSc Ecology and Evolution must take place at the Department of Ecological Science at the VU, or at the Institute for Biodiversity and Ecosystem Dynamics at the UvA.

For research projects at the Ecology department of the VU check the website:

<http://tinyurl.com/hvo9u4a>

If you want to do your second research project outside the VU you can look for internships

at the websites of other Dutch universities or research institutes, for example: NIOO (fundamental ecological research), NIOZ (marine ecology), ALTEERRA (applied and environmental ecology), RIVM (applied and environmental ecology), SOVON (avian ecology), but also at the sites of nature conservation organisations such as Natuurmonumenten, Staatsbosbeheer, or regional authorities (Provincie and Waterschap).

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Toetsvorm

At the end of the project a scientific report of the work has to be written in English an oral presentation has to be given also in English. The final grade will be determined by the VU supervisor and VU second assessor in consultation with the external supervisor, if applicable. It

is based on the following categories: attitude (pass/fail), execution (40%), presentation (10%) and report (50%).

Literatuur

Selected papers

Vereiste voorkennis

You are not allowed to start a research project before having obtained already 18 ec in master courses.

Doelgroep

MSc Ecology specialization Ecology and Evolution

Intekenprocedure

See Placement Manual at: <http://tinyurl.com/hvo9u4a>

Overige informatie

The Placement Manual for Research Projects in the MSc Ecology can be obtained at: <http://tinyurl.com/hvo9u4a>

Scientific Writing in English (AM_ECOL)

Vakcode	AM_1157 ()
Periode	Periode 4
Credits	3.0
Voertaal	Engels
Faculteit	Fac. der Aard- en Levenswetenschappen
Coördinator	M. van den Hoorn
Examinator	M. van den Hoorn
Lesmethode(n)	Werkgroep
Niveau	400

Doel vak

The aim of this course is to provide Master's students with the essential linguistic know-how for writing a scientific article in English that is well organized, idiomatically and stylistically appropriate and grammatically correct.

At the end of the course students

- know how to structure a scientific article;
- know what the information elements are in parts of their scientific article;
- know how to produce clear and well-structured texts on complex subjects;
- know how to cite sources effectively;
- know how to write well-structured and coherent paragraphs;
- know how to construct effective sentences;
- know what collocations are and how to use them appropriately;
- know how to adopt the right style (formal style, cohesive style, conciseness, hedging)
- know how to avoid the pitfalls of English grammar;
- know how to use punctuation marks correctly;
- know what their own strengths and weaknesses are in writing;
- know how to give effective peer feedback.

Final texts may contain occasional spelling, grammatical or word choice

errors, but these will not distract from the general effectiveness of the text.

Inhoud vak

The course will start with a general introduction to scientific writing in English. Taking a top-down approach, we will then analyse the structure of a scientific article in more detail. As we examine each section of an article, we will peel back the layers and discover how paragraphs are structured, what tools are available to ensure coherence within and among paragraphs, how to write effective and grammatically correct sentences and how to choose words carefully and use them effectively.

Topics addressed during the course include the following:

- Structuring a scientific article
- Considering reading strategies: who is your readership? How do they read your text? What do they expect? How does that affect your writing?
- Writing well-structured and coherent paragraphs
- Composing effective sentences (sophisticated word order, information distribution).
- Arguing convincingly – avoiding logical fallacies
- Academic tone and style: hedging – why, how, where?
- Using the passive effectively
- Understanding grammar (tenses, word order, etc.)
- Understanding punctuation
- Referring to sources: summarising, paraphrasing, quoting (how and when?)
- Avoiding plagiarism
- Vocabulary development: using appropriate vocabulary and collocations

Onderwijsvorm

Scientific Writing in English is an eight-week course and consists of 2 contact hours a week. Students are required to spend at least 6 to 8 hours of homework per week. They will work through a phased series of exercises that conclude with the requirement to write several text parts (Introduction, Methods or Results section, Discussion and Abstract). Feedback on the writing assignments is given by the course teacher and by peers.

Toetsvorm

Students will receive the three course credits when they meet the following requirements:

- Students hand in three writing assignments (Introduction, Methods, Discussion)
- Students get a pass mark for all writing assignments;
- Students provide elaborate peer feedback (Introduction, Methods, Discussion, Abstract);
- Students attend at least 7 out of 8 sessions;
- Students are well prepared for each session (i.e. do all homework assignments);
- Students participate actively in class;
- Students do not plagiarise or self-plagiarise.

Writing assignments:

1. If students have a BSc thesis in a traditional thesis form (e.g., 20+ pages) and written in English, they may use this for the writing assignments.
2. If students have a BSc thesis in a traditional form (e.g., 20+ pages) written in another language than English, they may use this for

the writing assignments.

3. If students have written a paper or report in English that's not already in article form, they may use this for the writing assignment.
4. If students are working on their MSc thesis or internship report when taking Scientific Writing in English, they may use this for the writing assignments. They will have to notify their supervisor to make sure that they won't be accused of self-plagiarism.
5. If students cannot or do not wish to use any of the above-mentioned texts for the writing assignments (1-4), they are expected to do a limited Literature Review on a topic in their field of research, using at least 5 articles.

Students are not allowed to use the following texts for the writing assignments:

1. A BSc thesis written in English that's already in article form.
2. A MSc thesis written in English that's already in article form (and that has already been marked).
3. An internship report written in English that's already in article form (and that has already been marked).
4. A paper or report written in English that's already in article form.

Literatuur

Effective Scientific Writing: An Advanced Learner's guide to Better English, 4th edition (February 2016) (A. Bolt & W. Bruins, ISBN 978 90 8659 617 1). VU bookstore: €27.95.

Doelgroep

This course is only open to students of the two-year Master's programmes of the Faculty of Earth and Life Sciences. These students are only eligible to the course if they have already conducted scientific research (e.g. for their Bachelor's thesis) or if they will be working on a research project when taking Scientific Writing in English.

Overige informatie

- To do well, students are expected to attend all lessons. Group schedules are to be found at rooster.vu.nl and on Canvas.
- A VUnet registration for this course automatically gives access to the corresponding Canvas site. Group registration only takes place via Canvas (general groups: registration by students following FALW programmes offering this course; groups assigned to specific studies: registration through programme and course coordinator).
- Make sure Scientific Writing in English does not overlap with another course.
- If you have registered for a group in Canvas, you are expected to attend all sessions (eight). If you decide to withdraw from the course, do so in time in VUnet. This will avoid a 'fail' on your grade list for not taking part in this course and allows other students to fill in a possible very wanted group spot.
- For specific Canvas matters concerning this course, please contact canvas.beta@vu.nl.
- Full time students with their main registration at VU will be given preferential treatment for placement in this course. For secondary students proof of enrollment is not a guarantee of placement.

Spatial Processes in Ecology

Vakcode	AMU_0009 ()
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Periode	Periode 1
Credits	6.0
Voertaal	Engels
Faculteit	Fac. der Aard- en Levenswetenschappen

Inhoud vak

This is an UvA course. For the course description, please visit

<http://studiegids.uva.nl/>