

Opasraportti

Courses in English for Exchange Students, 2016-2017: Field of Biology (2016 - 2017)

This Course Catalogue lists courses taught in English for exchange students at the Field of Biology during academic year 2016-17.

When planning learning agreement please use the information provided under the **Courses** tab in this catalogue. Read carefully the information of each course you wish to take (language of instruction, target group, course content, timing, preceding studies, additional information etc.).

All exchange students must submit their exchange application through SoleMOVE, learning agreement is attached to the on-line application.

Accepted exchange students are required to register to all courses. Course registration takes place once you have received your University of Oulu login information close to the start of your exchange period. When registering you will be able to find detailed information on teaching and schedule under **Instruction** tab.

Individual course codes include information on the level of course.

xxxxxP, xxxxxY = basic, introductory level courses

xxxxxA = for 2-3 year students, Bachelor level courses

xxxxxS = for 4-5 year students, Master level courses

Academic calendar for 2016-17

Orientation week: Aug 22-26, 2016

Period 1: Aug 29 - Oct 21, 2016

Period 2: Oct 24 – Dec 16, 2016

Period 3: Jan 9 – March 10, 2017

Period 4: March 13 – May 12, 2017

Any questions on courses at the Field of Biology should be addressed to:

Minna Vanhatalo
minna.vanhatalo(at)oulu.fi.

Further information on application process and services for incoming exchange students:

<http://www oulu.fi/english/studentexchange>

international.office(at)oulu.fi

Tutkintorakenteisiin kuulumattomat opintokokonaisuudet ja -jaksot

- 756351A: Basics in population ecology, 5 op
- 757313A: Basics in population genetics, 5 op
- 757313A-02: Basics in population genetics, exercises, 0 op
- 757313A-01: Basics in population genetics, lectures, 0 op
- 756347A: Conservation of biodiversity, 5 op
- 756348A: Ecological responses to global change and air pollution in the subarctic, 5 - 8 op
- 750349A: Examinations on optional topics in biology, 2 - 10 op
- 755321A: Field course in aquatic animals, 5 op
- 756343A: Field course in ecological botany, 5 op
- 755322A: Field course in terrestrial animals, 5 op
- 755324A: Functional animal ecology, 5 op
- 755333A: Identification of animals, 6 op
- Compulsory*
- 755333A-01: Basic identification of animals, vertebrate, 0 op
- 755333A-02: Basic identification of animals, invertebrate, 0 op
- 756342A: Identification of plant species, 3 - 4 op
- 756650S: Introduction to molecular ecology, 5 op
- 756650S-02: Introduction to molecular ecology, exercises, 0 op
- 756650S-01: Introduction to molecular ecology, lectures, 0 op
- 750629S: Kaamos symposium, 2 - 4 op
- 752316A: Macro fungi, 3 op
- 755325A: Methods in ecology I, 5 op
- 750399A: Optional examinations in environmental protection, 2 - 6 op
- 756344A: Plant ecology, 5 op
- 756627S: Plant hormones, 5 op
- 750613S: Research training, 2 - 15 op
- 750313A: Research training, 2 - 15 op
- 755632S: Restoration ecology, 5 op
- 756649S: Symbiosis, 5 op
- 750318A: Thursday seminar in biology, 2 op
- 755328A: Wildlife management and game animal ecology, 5 op
- 750377A: Winter ecology and physiology, 5 op

Opintojaksujen kuvaukset

Tutkintorakenteisiin kuulumattomien opintokokonaisuuksien ja -jaksojen kuvaukset

756351A: Basics in population ecology, 5 op

Voimassaolo: 01.08.2015 -

Opiskelumuoto: Intermediate Studies

Laji: Course

Vastuuyksikkö: Field of Biology

Arvostelu: 1 - 5, pass, fail

Opettajat: Orell, Markku Ilmari, Kvist, Laura Irmeli

Opintokohteen kielet: Finnish

Leikkaavuudet:

755336A Population ecology 10.0 op

756323A Population biology of plants 5.0 op

ECTS Credits:

5 ECTS credits / 133 hours of work.

Language of instruction:

Finnish / English.

Timing:

B.Sc. 3rd autumn.

Learning outcomes:

Basic skills in methods of population biology.

Contents:

Demography and life history strategies with emphasis on dynamics of structured populations in space and time, with an emphasis on conservation biology. Usage of matrix models to calculate basic population parameters and analyze population viability. Metapopulation dynamics and ecological and evolutionary genetics and interactions between populations and their environment are addressed. In exercises, dynamics of populations are analysed with matrix models and simulation programs.

Mode of delivery:

Face-to-face teaching.

Learning activities and teaching methods:

32 h lectures, 18 h computer exercises, seminar.

Target group:

ECO: compulsory.

Prerequisites and co-requisites:

No.

Recommended optional programme components:

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Recommended or required reading:

Silvertown & Charlesworth 2001: Introduction to Plant Population Biology (4 th edition), Blackwell Science.

The availability of the literature can be checked from [this link](#).

Assessment methods and criteria:

Exam.

Grading:

1-5 / Fail.

Read more about [assessment criteria](#) at the University of Oulu webpage.

Person responsible:

Doc. Laura Kvist

Working life cooperation:

No.

Other information:

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757313A: Basics in population genetics, 5 op

Voimassaolo: 01.08.2015 -

Opiskelumuoto: Intermediate Studies

Laji: Course

Vastuuyksikkö: Field of Biology

Arvostelu: 1 - 5, pass, fail

Opettajat: Lumi Viljakainen

Opintokohteen kielet: Finnish

Leikkaavuudet:

753314A Basics in population genetics 8.0 op

ECTS Credits:

5 cr / 133 hours of work.

Language of instruction:

English.

Timing:B.Sc. 2nd spring BSc, M.Sc. 1st spring, ECOGEN ECOz and ECOB BS. Introduction to Population genetics compulsory to B.Sc. in M.Sc. degree.**Learning outcomes:**

This course introduces genetic theories, basics of phylogenetics and usage of molecular biology methods in ecology. The aim is that students know the basic methodology, can apply them into variety of genetic and ecological questions and is familiar with basics of population genetics and phylogenetics in order to be able to analyze and interpret genetic data.

Contents:

Basics of population genetics (variation, effective population size, bottlenecks, population structure, gene flow), relationships between molecular and adaptive variation, phylogenetic methods and phylogeography. Usage of molecular methods for identification of species, sex and individuals, behavioural ecology (mating systems, cooperation, mating success) and conservation.

Mode of delivery:

Face-to-face teaching.

Learning activities and teaching methods:

Population genetics: 20 h lectures, 4 h seminars, 24 h exercises (problem solving, laboratory and computer exercises), report, essays, home exam, final exam.

Molecular ecology: 20 h lectures, 4 h seminars, 36 h exercises (laboratory and computer exercises), final exam.

Target group:

BS, ECO, ECOGEN.

Prerequisites and co-requisites:

Concepts of genetics (757109P) and Experimental course in general genetics (757110P) or equivalent knowledge ja Molekyylievolutio (757312A).

Recommended optional programme components:

Other related courses : *Population genetics*: Molecular evolution (757312A), before Quantitative genetics and plant and animal breeding (757616S). This course is a prerequisite to courses Experimental course in bioinformatics and molecular evolution (753624S), Bioinformatics (757619S), DNA analysis in population genetics (757618S).

Molecular ecology: Basics in population ecology (756351A) and Advanced course in population ecology (755626S).

Recommended or required reading:

Hedrick 2005: Genetics of populations 3. or 4. ed. Beebee, T and Rowe G.2004 or 2008. An introduction to molecular ecology. Oxford University Press.

The availability of the literature can be checked from [this link](#).

Assessment methods and criteria:

Population genetics: Home exam, final exam, seminar, essays, reports.

Molecular ecology: Final exam and seminar.

Read more about [assessment criteria](#) at the University of Oulu webpage.

Grading:

1-5 / Fail.

Person responsible:

Doc. Lumi Viljakainen and Doc. Laura Kvist.

Working life cooperation:

No.

Other information:

Note that Introduction to Molecular ecology and Introduction to population genetics courses are alternative; students cannot get credits from both.

757313A-02: Basics in population genetics, exercises, 0 op

Voimassaolo: 01.08.2015 - 31.12.2019

Opiskelumuoto: Intermediate Studies

Laji: Partial credit

Vastuuyksikkö: Field of Biology

Arvostelu: 1 - 5, pass, fail

Opintokohteen kielet: Finnish

Ei opintojaksokuvauksia.

757313A-01: Basics in population genetics, lectures, 0 op

Voimassaolo: 01.08.2015 - 31.12.2019

Opiskelumuoto: Intermediate Studies

Laji: Partial credit

Vastuuyksikkö: Field of Biology

Arvostelu: 1 - 5, pass, fail

Opintokohteen kielet: Finnish

Ei opintojaksokuvauksia.

756347A: Conservation of biodiversity, 5 op

Voimassaolo: 01.08.2015 -

Opiskelumuoto: Intermediate Studies

Laji: Course

Vastuuyksikkö: Field of Biology

Arvostelu: 1 - 5, pass, fail

Opettajat: Phillip Watts

Opintokohteen kielet: Finnish

Leikkaavuudet:

ay756347A Conservation of biodiversity (OPEN UNI) 5.0 op

752321A Conservation of Biodiversity 3.0 op

ECTS Credits:

5 ECTS credits / 133 hours of work.

Language of instruction:

English.

Timing:

B.Sc. 3 rd autumn. NNE.

Learning outcomes:

Students know the central concepts of biodiversity, threats to biodiversity, and methods of conservation of biodiversity.

Contents:

Biodiversity and its components. Major theories of the ecological control of biodiversity. Habitat fragmentation and habitat destruction and their consequences. Metapopulation theory and networks of nature reserves. Current issues in the conservation of biodiversity.

Mode of delivery:

Face-to-face teaching.

Learning activities and teaching methods:

14 h lectures, literature, exam.

Target group:

Biology students. Students who are participating in environmental conservation or tourism minor.

Prerequisites and co-requisites:

No

Recommended optional programme components:

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Recommended or required reading:

Hanski I. 2005: The Shrinking World. International Ecology Institute, Oldendorf/Luhe, Germany. The availability of the literature can be checked from [this link](#).

Assessment methods and criteria:

Exam.

Read more about [assessment criteria](#) at the University of Oulu webpage.

Grading:

1-5 / Fail.

Person responsible:

Dr. Phillip Watts.

Working life cooperation:

No.

Other information:

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756348A: Ecological responses to global change and air pollution in the subarctic, 5 - 8 op

Voimassaolo: 01.08.2015 -

Opiskelumuoto: Intermediate Studies

Laji: Course

Vastuuyksikkö: Field of Biology

Arvostelu: 1 - 5, pass, fail

Opettajat: Kari Taulavuori

Opintokohteen kielet: Finnish

Leikkaavuudet:

750343A Ecological responses to global change and air pollution in the subarctic 4.0 op

ECTS Credits:

5 (- 8) cr / 133 (- 240) hours of work.

Language of instruction:

Finnish / English.

Timing:

B. Sc. / M. Sc. / Ph.D. Field excursion is arranged if resources allow.

Learning outcomes:

Student can identify the ecological and environmental effects of climate change and air pollution in the subarctic area. In addition, the student may learn basic research methods related to topic, and how to use the facilities provided by the subarctic research stations in the research.

Contents:

Lectures deal the ecological responses of global change and air pollution. The content is focused on the environmental effects and their ecological significance in the northern areas. During excursion the student familiarizes with the special features of northern areas and explores the action and research carried out in the northern research stations.

Mode of delivery:

Face-to-face teaching.

Learning activities and teaching methods:

(1) 24 h lectures with exam, and 15 h independent studies (assay and seminar work) (4 cr); **(2)** 4-5 days summer excursion and closing seminar (3 cr); participation in excursion necessitates accepted credits in the first part (lectures, independent studies).

Target group:

Ecology students.

Prerequisites and co-requisites:

No.

Recommended optional programme components:

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Recommended or required reading:

-ACIA (2005) Arctic Climate Impact Assessment, Cambridge University Press, 1042 p. -AMAP Assessment 2006: Acidifying Pollutants, Arctic Haze, and Acidification in the Arctic. Arctic Monitoring and Assessment Programme (AMAP), Oslo, Norway. Xii + 112pp. Bell JNB & Trehow M (eds.) 2002. Air pollution and plant life. Wiley. 2nd edition. 480 pages.

The availability of the literature can be checked from [this link](#).

Assessment methods and criteria:

Lectures, essay and seminar, excursion, closing report and seminar.

Read more about [assessment criteria](#) at the University of Oulu webpage.

Grading:

1-5 / Fail

Person responsible:

Doc. Kari Taulavuori.

Working life cooperation:

Possible excursion will include tours to the northern research stations.

Other information:

Field excursion is arranged if resources allow.

750349A: Examinations on optional topics in biology, 2 - 10 op

Voimassaolo: 01.08.2015 -

Opiskelumuoto: Intermediate Studies

Laji: Course

Vastuuyksikkö: Field of Biology

Arvostelu: 1 - 5, pass, fail

Opintokohteen kielet: Finnish

Leikkaavuudet:

751354A Examinations on optional topics 2.0 op

752352A Examination in optional topics 2.0 op

753351A Examinations on optional topics 2.0 op

ECTS Credits:

2-10 ECTS credits / 53-267 hours of work.

Language of instruction:

Depends on the book.

Timing:

B.Sc. degree 2.-3. year or M.Sc. degree 1.-2. year.

Learning outcomes:

Student independently concerns him/herself to special issues in animal physiology or animal ecology.

Contents:

Examinations on books, which are not compulsory in any other course unit.

Mode of delivery:

Face-to face teaching.

Learning activities and teaching methods:

Book exan in Examinarium.

Target group:

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Prerequisites and co-requisites:

No.

Recommended optional programme components:

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Recommended or required reading:

Literature chosen in agreement with the responsible person.

Assessment methods and criteria:

Book exan in Examinarium.

Read more about [assessment criteria](#) at the University of Oulu webpage.

Grading:

1-5 / Fail or Pass / Fail.

Person responsible:

Prof. Hely Häggman, Prof. Jari Oksanen, Prof. Markku Orell or Prof. Outi Savolainen.

Working life cooperation:

-

Other information:

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755321A: Field course in aquatic animals, 5 op

Voimassaolo: 01.08.2015 -

Opiskelumuoto: Intermediate Studies

Laji: Course

Vastuuyksikkö: Field of Biology

Arvostelu: 1 - 5, pass, fail

Opettajat: Muotka, Timo Tapani, Kaisa-Leena Huttunen

Opintokohteen kielet: Finnish

Leikkaavuudet:

751307A Field course in aquatic animals 4.0 op

ECTS Credits:

5 ECTS credits / 133 hours of work.

Language of instruction:

Finnish / English.

Timing:

B.Sc. 1st summer. ECOGEN 1st summer.

Learning outcomes:

To learn basic methods in biological freshwater sampling and to identify the most common freshwater taxa.

Contents:

Basics of freshwater ecology. Demonstrations of the most frequently-used biological sampling methods. Identification of the most common freshwater fishes, invertebrates and zooplankton.

Mode of delivery:

Face-to-face teaching and independent studying.

Learning activities and teaching methods:

Summer: 50 h of field work and demonstrations at the Oulanka research station, 83 h of independent studying including a reading package.

Target group:

Compulsory (5 cr) to ECO. TEAeco: either Field course in aquatic animals 5 cr (755321A) or Field course in terrestrial animals 5 cr (755322A) is compulsory for biology major, the other field course can be included to the ecology minor. TEAbs, alternatively compulsory to TEAbs either Field course in aquatic animals 5 cr or Field course in terrestrial animals 5 cr. TEA: at least 10 cr compulsory, two field courses, one animal and other botany field course (756343A).

Prerequisites and co-requisites:

Basic identification of animals (755333A) or equivalent knowledge (if necessary, selection to the course 755321A can be based on success in course 755333A).

Recommended optional programme components:

This course is a prerequisite for the following: Winter ecology and physiology (750377A), Special course in aquatic invertebrates (754627S), Assessment and monitoring of the ecological status of water bodies (754625S), Field methods in freshwater biomonitoring (754626S).

Recommended or required reading:

Reading package, handouts and lectures given before / during the course.

Assessment methods and criteria:

On the final course day species identification exam on the species met during the course, practical exam on the sampling methods and

theoretical exam based on the literature and demonstration material.

Read more about [assessment criteria](#) at the University of Oulu webpage.

Grading:

1-5 / Fail.

Person responsible:

Prof. Timo Muotka.

Working life cooperation:

No.

Other information:

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756343A: Field course in ecological botany, 5 op

Voimassaolo: 01.08.2015 -

Opiskelumuoto: Intermediate Studies

Laji: Course

Vastuuyksikkö: Field of Biology

Arvostelu: 1 - 5, pass, fail

Opettajat: Annamari Markkola

Opintokohteen kielet: Finnish

Leikkaavuudet:

752304A Field course in ecological botany 5.0 op

ECTS Credits:

5 cr / 133 h of work.

Language of instruction:

Finnish / English.

Timing:

B.Sc. 1st summer. ECOGEN 1st summer.

Learning outcomes:

Student is able to identify most common boreal plant species in the field, to plan and conduct ecological field experiments and use basic methods in vegetation analyses.

Contents:

Vegetation in the coast of Bothnian Bay in Hailuoto and/or Oulu (3 days). Basics of boreal forest and mire vegetation classification and types at Oulanka Research Station (7 days). Vegetation research and basic methods of stock estimation. Mire vegetation development and ecological biodiversity.

Mode of delivery:

Face-to-face teaching.

Learning activities and teaching methods:

Lectures 10 h, field demonstrations and laboratory exercises, excursions 84 hours in Oulu and/or Hailuoto and Oulanka Research Station. Field exams for plant identification and mire ecology, report.

Target group:

B.Sc. Compulsory to ECO 5 cr and TEA 5 cp, TEA: at least 10 cr compulsory, two field courses, one ecological botany field course (756343A) and other animal field course (either 755321 or 755322A).

Prerequisites and co-requisites:

Identification of plant species (756354A) 5 cr or equivalent knowledge.

Recommended optional programme components:

Course has capacity for 32 or 40 students. Possible elimination of the candidates is done by study success and Plant identification (756354A) grade. This course is a prerequisite for courses Plant ecology (752600S), Mire ecology (752692S) and Field course in Arctic-Alpine ecology and vegetation (752642S).

Recommended or required reading:

Laitinen et al. 2012: Field course in ecological botany; Hanhela, P. & Halonen, P. 1995: Plant identification; Huttunen, A: 1995: Introduction to forest types; Eurola, S., Hicks, S. and Kaakinen, H. 1994: Key to Finnish mire types, pp. 12-117 in: Moore, P. D. (ed.), 1994 European mires, London Academic Press, London, 367 p. The availability of the literature can be checked from [this link](#).

Assessment methods and criteria:

Field exams, report.

Read more about [assessment criteria](#) at the University of Oulu webpage.

Grading:

1-5 / Fail.

Person responsible:

doc. Annamari Markkola.

Working life cooperation:

Essential working life skills are learned during the field course.

Other information:

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755322A: Field course in terrestrial animals, 5 op

Voimassaolo: 01.08.2015 -

Opiskelumuoto: Intermediate Studies

Laji: Course

Vastuuyksikkö: Field of Biology

Arvostelu: 1 - 5, pass, fail

Opettajat: Seppo Rytönen

Opintokohteen kielet: Finnish

Leikkaavuudet:

751306A Field course in terrestrial animals 4.0 op

ECTS Credits:

5 ECTS credits / 133 hours of work.

Language of instruction:

Finnish / English.

Timing:

B.Sc. - 1st summer. ECOGEN 1st summer.

Learning outcomes:

The aim of the course is to learn the basics of field identification and ecology of terrestrial animals in northern Finland. The student will understand that proper skills in species identification and knowledge of species' ecology are the basis of ecological research.

Contents:

The fauna in different kinds of terrestrial habitats is studied using several ecological sampling and research methods. The course is held at the Oulanka Research Station, Kuusamo, and deals with identification and ecology of invertebrates, mammals (especially small mammals), gallinaceous birds and birds of prey. The exercises take place partly in the field and partly in the laboratory. Data gained during the course is analyzed. The results are reported (in PowerPoint) and presented in the final seminar in Kuusamo.

Mode of delivery:

Face-to-face teaching.

Learning activities and teaching methods:

Part 1. (Oulu): 2 h demonstration, independent studying. Part 2. (Oulanka): 49 h demonstrations and practicals, one species and theory exam, seminar.

Target group:

Compulsory (5 cr) to ECO. TEAeco: either Field course in aquatic animals 5 cr (755321A) or Field course in terrestrial animals 5 cr (755322A) is compulsory for biology major, the other field course can be included to the ecology minor. TEAbs, alternatively compulsory to TEAbs either Field course in aquatic animals 5 cr or Field course in terrestrial animals 5 cr. TEA: at least 10 cr compulsory, two field courses, one animal and other botany field course (756343A).

Prerequisites and co-requisites:

Basic identification of animals (755333A) or equivalent knowledge.

Recommended optional programme components:

This course is a prerequisite to course Winter ecology and physiology (750377A).

Recommended or required reading:

Compulsory at Oulanka: 1) Rytönen, S. ym. 2003: 751306 Maaeläimistön tuntemus ja ekologia. - Biologian laitoksen monisteita 3/2003. Oulun yliopisto, Oulu. 2) Pentinsaari, M. ym. 2015: Eläinten lajintuntemus, selkärangattomat. Oulun yliopisto, Oulu. Insect book recommended: Chinery, M. 1988 Pohjois-Euroopan hyönteisheimojen määrittämysopas, Tammi, Helsinki, 2. painos.

The availability of the literature can be checked from [this link](#).

Assessment methods and criteria:

Theory exam, species identification exam, seminar presentation.

Read more about [assessment criteria](#) at the University of Oulu webpage.

Grading:

1-5 / Fail.

Person responsible:

Doc. Seppo Rytönen.

Working life cooperation:

No.

Other information:

Binoculars, bird identification book, suitable outfit. Preparation knife, preparation scissors and sharp cusp tweezers.

755324A: Functional animal ecology, 5 op

Voimassaolo: 01.08.2015 -

Opiskelumuoto: Intermediate Studies

Laji: Course

Vastuuyksikkö: Field of Biology

Arvostelu: 1 - 5, pass, fail

Opettajat: Seppo Rytönen

Opintokohteen kielet: Finnish

Leikkaavuudet:

751378A Functional animal ecology 6.0 op

ECTS Credits:

5 ECTS credits / 133 hours of work.

Language of instruction:

Lectures in Finnish, exercises in Finnish / English.

Timing:

B.Sc. 2nd spring or M.Sc. 1st spring. NNE.

Learning outcomes:

The aim of the course is to understand the relationship between morphology and function by the means of general ecomorphological model. The student will get both theoretical and practical basics for ecomorphological (and general scientific) research procedures: scientific hypothesizing, sampling, data analysis and reporting and interpreting the results.

Contents:

The course focuses on the relationship between phenotype and function, especially the correlation between animal morphology and behaviour. The course consists of two parts: A) Lectures in Finnish. However, articles about each subject are available for foreign students, including ecomorphological models and correlations, measurement error, allometry, fluctuating asymmetry and phylogenetic analyses. B) Exercises consisting of miniature studies, field and laboratory work, and seminar. The results of the mini studies, in form of PowerPoint presentations, are presented in the seminar. Before the exercises, students write a home essay (or take an exam).

Mode of delivery:

Face-to-face teaching.

Learning activities and teaching methods:

12 h lectures, 40 h exercises, seminar and essay (or exam).

Target group:

Recommended for ecology students.

Prerequisites and co-requisites:

Recommended Evolution, systematics and morphology of animals, practicals (750374A), Introduction to statistics 5 cr (806118P) and A second course in statistics 5 cr (806119P).

Recommended optional programme components:

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Recommended or required reading:

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Assessment methods and criteria:

Essay or exam.

Read more about [assessment criteria](#) at the University of Oulu webpage.

Grading:

1-5 / Fail.

Person responsible:

Doc. Seppo Rytönen.

Working life cooperation:

No.

Other information:

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755333A: Identification of animals, 6 op

Voimassaolo: 01.08.2016 - 31.07.2019

Opiskelumuoto: Intermediate Studies

Laji: Course

Vastuuyksikkö: Field of Biology

Arvostelu: 1 - 5, pass, fail

Opettajat: Kari Koivula

Opintokohteen kielet: Finnish

Leikkaavuudet:

755334A Identification of animals, vertebrates 4.0 op

ECTS Credits:

6 ECTS credits / 162 hours of work.

Language of instruction:

Finnish / English

Timing:

B.Sc. degree 1st autumn and spring.

Learning outcomes:

Main point of the course is to learn to indentify Finnish animal species (vertebrate) and families (invertebrate) from museum samples. Basics of species' ecology and classification of organisms.

Contents:

During the autumn semester (9 h lectures in Finnish, 16 h exercises, exam), the Finnish vertebrate fauna is studied using stuffed museum samples. In the spring semester (9 h lectures in Finnish, 16 h exercises, exam) the invertebrate taxons (mostly family- or genus-level) common in Finland are studied using museum samples.

Mode of delivery:

Face-to-face teaching.

Learning activities and teaching methods:

18 h lectures in Finnish, 32 h exercises, independent studying, 2 exams.

Target group:

Biology students: compulsory.

Prerequisites and co-requisites:

No.

Recommended optional programme components:

This course is needed for attending courses Field course in terrestrial animals (755322A) and Field course in aquatic animals (755321A).

Recommended or required reading:

Course handouts, Itämies J. ja Viro P. 1995: Eläinten lajintuntemus, selkärangattomat, 73 p.; Putaala, A., Marjakangas, A. & Rytönen, S. 2001: Eläinten lajintuntemus, selkärangaiset, 42 p.

The availability of the literature can be checked from [this link](#).

Assessment methods and criteria:

Two species exams.

Read more about [assessment criteria](#) at the University of Oulu webpage.

Grading:

1-5 / Fail.

Person responsible:

Doc. Kari Koivula.

Working life cooperation:

No.

Other information:

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Compulsory

755333A-01: Basic identification of animals, vertebrate, 0 op

Voimassaolo: 01.08.2016 - 31.07.2019

Opiskelumuoto: Intermediate Studies

Laji: Partial credit

Vastuuyksikkö: Field of Biology

Arvostelu: 1 - 5, pass, fail

Opettajat: Kari Koivula, Pudas, Tuula Kaarina

Opintokohteen kielet: Finnish

Ei opintojaksokuvauksia.

755333A-02: Basic identification of animals, invertebrate, 0 op**Voimassaolo:** 01.08.2016 - 31.07.2019**Opiskelumuoto:** Intermediate Studies**Laji:** Partial credit**Vastuuyksikkö:** Field of Biology**Arvostelu:** 1 - 5, pass, fail**Opettajat:** Marko Mutanen**Opintokohteen kielet:** Finnish

Ei opintojaksokuvauksia.

756342A: Identification of plant species, 3 - 4 op**Voimassaolo:** 01.08.2015 - 31.07.2017**Opiskelumuoto:** Intermediate Studies**Laji:** Course**Vastuuyksikkö:** Field of Biology**Arvostelu:** 1 - 5, pass, fail**Opettajat:** Annamari Markkola**Opintokohteen kielet:** Finnish**Leikkaavuudet:**

756355A Identification of plant species, brief 3.0 op

750303A Nature conservation and land use 3.0 op

ECTS Credits:

3-4 ECTS credits / 80-107 hours of work.

Language of instruction:

Finnish / English.

Timing:

B.Sc. 1st autumn. ECOGEN 1st autumn.

Learning outcomes:

Student is able to identify most common boreal plant species in herbarium specimens.

Contents:

Demonstrations (16 h) and/or independent study of ca. 350 vascular plants, mosses and lichens in the boreal vegetation zone. 3 cr. without the literature in the exam and 2 cr. with the literature in the exam. In the identification exam student has to know specimens scientific name and family in latin.

Mode of delivery:

Face-to-face teaching.

Learning activities and teaching methods:

Demonstrations (16 h) and/or independent study of ca. 350 vascular plants, mosses and lichens in the boreal vegetation zone. 4 cr without the literature in the exam and 3 cr with the literature in the exam. In the identification exam student has to know specimens scientific name and family in latin.

Target group:

4 cr compulsory to TEA and ECO; 3 cr compulsory to BS.

Prerequisites and co-requisites:

No.

Recommended optional programme components:

Course is prerequisite for the Field course in ecological botany (756343A) and for the advanced plant species identification courses.

Recommended or required reading:Laitinen et al. 2012: Field course in ecological botany; Hanhela, P. & Halonen, P. 1995: Plant identification; Huttunen, A: 1995: Introduction to forest types; Euroola, S., Hicks, S. and Kaakinen, H. 1994: Key to Finnish mire types, pp. 12-117 in: Moore, P. D. (ed.), 1994 European mires, London Academic Press, London, 367 p. The availability of the literature can be checked from [this link](#).**Assessment methods and criteria:**

Species exam. 4 cr without the literature and 3 cr with the help of the literature.

Read more about [assessment criteria](#) at the University of Oulu webpage.

Grading:

1-5 / Fail.

Person responsible:

Doc. Annamari Markkola.

Working life cooperation:

No.

Other information:

-

756650S: Introduction to molecular ecology, 5 op

Voimassaolo: 01.08.2015 -

Opiskelumuoto: Advanced Studies

Laji: Course

Vastuuyksikkö: Field of Biology

Arvostelu: 1 - 5, pass, fail

Opettajat: Tanja Pyhäjärvi, Kvist, Laura Irmeli

Opintokohteen kielet: English

Leikkaavuudet:

750645S Molecular ecology 2.0 op

ECTS Credits:

5 ECTS credits / 133 hours of work.

Language of instruction:

English.

Timing:

B.Sc. 2nd spring BSc, M.Sc. 1st spring, ECOGEN ECO and BS. Introduction to Population genetics compulsory to B.Sc. in M.Sc. degree.

Learning outcomes:

This course introduces genetic theories, basics of phylogenetics and usage of molecular biology methods in ecology. The aim is that students know the basic methodology, can apply them into variety of genetic and ecological questions and is familiar with basics of population genetics and phylogenetics in order to be able to analyze and interpret genetic data.

Contents:

Basics of population genetics (variation, effective population size, bottlenecks, population structure, gene flow), relationships between molecular and adaptive variation, phylogenetic methods and phylogeography. Usage of molecular methods for identification of species, sex and individuals, behavioural ecology (mating systems, cooperation, mating success) and conservation.

Mode of delivery:

Face-to-face teaching.

Learning activities and teaching methods:

Population genetics: 20 h lectures, 4 h seminars, 24 h exercises (problem solving, laboratory and computer exercises), report, essays, home exam, final exam.

Molecular ecology: 20 h lectures, 4 h seminars, 36 h exercises (laboratory and computer exercises), final exam.

Target group:

B.Sc.: BS optional 2nd spring; M.Sc.: 1st spring BSc compulsory. ECOGEN: BS and ECO.

Prerequisites and co-requisites:

Concepts of genetics (757109P) and Experimental course in general genetics (757110P) and Molecular evolution (757312A) or equivalent knowledge.

Recommended optional programme components:

Population genetics BS: Recommended prerequisite for course Quantitative genetics and plant and animal breeding (757616S). Compulsory prerequisite for courses Experimental course in evolutionary genomics (757621S), Advanced course in bioinformatics (757619S) and DNA analysis in population genetics (757618S).

Molecular ecology ECO: Basics in population ecology (756351A) and Advanced course in population ecology (755626S).

Recommended or required reading:

Hedrick 2005: Genetics of populations 3. or 4. ed. Beebe, T and Rowe G.2004 or 2008. An introduction to molecular ecology. Oxford University Press.

The availability of the literature can be checked from [this link](#).

Assessment methods and criteria:

Population genetics: Home exam, final exam, seminar, essays, reports.

Molecular ecology: Final exam and seminar.

Read more about [assessment criteria](#) at the University of Oulu webpage.

Grading:

1-5 / Fail.

Person responsible:

Doc. Laura Kvist and Doc. Tanja Pyhäjärvi.

Working life cooperation:

No.

Other information:

Note that Introduction to Molecular ecology and Introduction to population genetics courses are alternative; students cannot get credits from both.

756650S-02: Introduction to molecular ecology, exercises, 0 op

Voimassaolo: 01.08.2015 - 31.07.2019

Opiskelumuoto: Advanced Studies

Laji: Course

Vastuuyksikkö: Field of Biology

Arvostelu: 1 - 5, pass, fail

Opintokohteen kielet: English

Ei opintojaksokuvauksia.

756650S-01: Introduction to molecular ecology, lectures, 0 op

Voimassaolo: 01.08.2015 - 31.07.2019

Opiskelumuoto: Advanced Studies

Laji: Course

Vastuuyksikkö: Field of Biology

Arvostelu: 1 - 5, pass, fail

Opintokohteen kielet: English

Ei opintojaksokuvauksia.

750629S: Kaamos symposium, 2 - 4 op

Opiskelumuoto: Advanced Studies

Laji: Course

Vastuuyksikkö: Field of Biology

Arvostelu: 1 - 5, pass, fail

Opettajat: Muotka, Timo Tapani

Opintokohteen kielet: English

Voidaan suorittaa useasti: Kyllä

ECTS Credits:

2-4 ECTS credits / 53-107 hours of work.

Language of instruction:

English.

Timing:

M.Sc. and Ph.D. autumn.

Learning outcomes:

Students get acquainted to preparing, presenting and evaluating a scientific oral presentation.

Contents:

The Kaamos Symposium consisting of presenting current research projects is held every year at the end of autumn period. Through presenting their research work and projects and obtaining feedback from the audience (students and the staff of the department) post graduate students gain experience in holding a scientific presentation.

Mode of delivery:

Face-to-face teaching.

Learning activities and teaching methods:

Own presentation and the whole symposium 4 cr (postgraduate students). Summary of five presentations and symposium 2 cr (undergraduate students). Poster 2 cr (postgraduate students).

Target group:

Undergraduate biology students (2 cr) and postgraduate biology students (2-4 cr).

Prerequisites and co-requisites:

No.

Recommended optional programme components:

-

Recommended or required reading:

Abstract book.

Assessment methods and criteria:

Presentation or reports.

Read more about [assessment criteria](#) at the University of Oulu webpage.

Grading:

Pass / Fail.

Person responsible:

Prof. Timo Muotka.

Working life cooperation:

No.

Other information:

-

752316A: Macro fungi, 3 op

Opiskelumuoto: Intermediate Studies

Laji: Course

Vastuuyksikkö: Field of Biology

Arvostelu: 1 - 5, pass, fail

Opettajat: Annamari Markkola

Opintokohteen kielet: Finnish

Leikkaavuudet:

ay752316A Macro fungi (OPEN UNI) 3.0 op

ECTS Credits:

3 ECTS credits / 80 hours of work.

Language of instruction:

Finnish / English.

Timing:

B.Sc. 3 rd autumn. NNE.

Learning outcomes:

Student is able to identify most common macrofungal species as fresh specimens and knows basics of fungal ecology.

Contents:

Demonstrations of macrofungi in the field, basics of identification, ecology and distribution.

Mode of delivery:

Face-to-face teaching.

Learning activities and teaching methods:

14 h lectures, 25 h exercises including excursions, identification exam.

Target group:

Optional.

Prerequisites and co-requisites:

No.

Recommended optional programme components:

-

Recommended or required reading:

Course handout, Salo, P. and Nummela-Salo, U. 2002: Sienikurssi (752316). Toinen uusittu painos. Lajiesittelyt. Biologian laitoksen monisteita 2/2002, 41 p. and mushroom guides.

The availability of the literature can be checked from [this link](#).

Assessment methods and criteria:

Species identification exam.

Read more about [assessment criteria](#) at the University of Oulu webpage.

Grading:

1-5 / Fail.

Person responsible:

Doc. Annamari Markkola.

Working life cooperation:

No.

Other information:

-

755325A: Methods in ecology I, 5 op

Voimassaolo: 01.08.2015 -

Opiskelumuoto: Intermediate Studies

Laji: Course

Vastuuyksikkö: Field of Biology

Arvostelu: 1 - 5, pass, fail

Opettajat: Kari Koivula

Opintokohteen kielet: Finnish

Leikkaavuudet:

750347A Ecological methods I 6.0 op

ECTS Credits:

5 ECTS credits / 133 hours of work.

Language of instruction:

Finnish / English.

Timing:

B.Sc. 3 rd autumn, ECOGEN 1st autumn.

Learning outcomes:

Students are familiar to scientific method and can separate scientific information from other contents of culture. Students have learned to assess the uncertainty of information and can evaluate the quality of information with respect to its applied value. Students also learn the build a valid theoretical or empirical strategy to solve scientific problems.

Contents:

The aim of the course is to introduce the students in scientific modes of argumentation and research methods in modern ecology. Both the empirical and theoretical methods and their relationship in theory formation are discussed. Hypothesis testing; observational method, experimental method and comparative method are the empirical methods introduced. Autumn period ends in a seminar where scientific publications are analysed.

Mode of delivery:

Face-to-face teaching.

Learning activities and teaching methods:

Lectures, seminar, exercises and exam.

Target group:

Compulsory to ECO.

Prerequisites and co-requisites:

No.

Recommended optional programme components:

-

Recommended or required reading:

-

Assessment methods and criteria:

Exam.

Read more about [assessment criteria](#) at the University of Oulu webpage.

Grading:

1-5 / Fail.

Person responsible:

Doc. Kari Koivula, Doc. Seppo Rytönen and Prof. Markku Orell.

Working life cooperation:

No.

Other information:

-

750399A: Optional examinations in environmental protection, 2 - 6 op

Opiskelumuoto: Intermediate Studies

Laji: Course

Vastuuyksikkö: Field of Biology

Arvostelu: 1 - 5, pass, fail

Opettajat: Kari Taulavuori

Opintokohteen kielet: Finnish

Voidaan suorittaa useasti: Kyllä

ECTS Credits:

2-6 ECTS credits / 53-160 hours of work. About 100 pages / 1 ECTS credit.

Language of instruction:

Most books are in English.

Timing:

B.Sc. or M.Sc. degree.

Learning outcomes:

To understand environmental protection in global context.

Contents:

Depends on the book.

Mode of delivery:

Face-to-face teaching.

Learning activities and teaching methods:

Three times per both semesters in university exam days. Exam days are announced in WebOodi.

Target group:

Biology, geography, geology, environmental engineering , exchange students.

Prerequisites and co-requisites:

No.

Recommended optional programme components:

-

Recommended or required reading:

Gaston & Spicer (2004) Biodiversity – an introduction. Blackwell Publishing, 191p; Lockwood et al. (2007) Invasion Ecology, Blackwell Publishing, 304 p; ACIA (2005) Arctic Climate Impact Assessment, Cambridge University Press, 1042 p.; Dincer et al. (2013) Causes, Impacts and Solutions to Global Warming, Springer, 1183 p.

Assessment methods and criteria:

Exam.

Read more about [assessment criteria](#) at the University of Oulu webpage.

Grading:

1-5 / Fail.

Person responsible:

Doc. Kari Taulavuori.

Working life cooperation:

No.

Other information:

Student has to consult about the selected literature before exam.

756344A: Plant ecology, 5 op

Voimassaolo: 01.08.2015 -

Opiskelumuoto: Intermediate Studies

Laji: Course

Vastuuyksikkö: Field of Biology

Arvostelu: 1 - 5, pass, fail

Opettajat: Annamari Markkola, Kari Taulavuori

Opintokohteen kielet: Finnish

Leikkaavuudet:

752300A Plant ecology 7.0 op

ECTS Credits:

5 cr / 133 hours of work.

Language of instruction:

Lectures Finnish, Exercises Finnish / English.

Timing:

B.Sc. 2nd autumn. ECOGEN 1st autumn.

Learning outcomes:

Student will get basic knowledge how plants adapt to different environmental factors.

Contents:

The main subject of this course is the heterogeneity of environment and the capacity of plants to adapt flexibly to different light and nutrient conditions. For carbon economy the main questions are variation in photosynthetic potential, extrinsic factors which restrict the photosynthesis and the structural and physiological adaptations to different light conditions. Nutrient economy is not only dependent on the soil of the habitat but also on the capacity of plant to change the ions from the surface of soil particles. Symbiosis has a great importance on nutrient economy of boreal plants. The balance between benefits and costs defines whether the symbiosis with the nitrogen fixation bacteria or with mycorrhizal fungi is beneficial for the plant or not. There is competition between plants for soil nutrients and for light. How is it possible that plants competing for the same basic nutrients can live in the same habitat? Isn't the niche theory valid for plants?

Mode of delivery:

Face-to-face teaching.

Learning activities and teaching methods:

(1) 24 h lectures and exam; **(2)** 10 h seminars on the literature of plant ecology; **(3)** 30 h demonstrations and exercises in field and laboratory (basic methods in plant ecology and laboratory work) and 4 h final seminars. International students will compensate lectures by reading book Ridge, I. 2002: Plants, Oxford Univ. Press.

Target group:

Compulsory to ECO.

Prerequisites and co-requisites:

Basics of ecology (750124P) and Field course in ecological botany (756343A) or equivalent knowledge.

Recommended optional programme components:

-

Recommended or required reading:

Ridge, I. 2002: Plants.

The availability of the literature can be checked from [this link](#).

Assessment methods and criteria:

Lecture exam, laboratory diary and seminar presentation.

Read more about [assessment criteria](#) at the University of Oulu webpage.

Grading:

1-5 / Fail.

Person responsible:

Doc. Kari Taulavuori ja doc. Annamari Markkola (lectures), Kari Taulavuori (exercises).

Working life cooperation:

No.

Other information:

-

756627S: Plant hormones, 5 op

Opiskelumuoto: Advanced Studies

Laji: Course

Vastuuyksikkö: Field of Biology

Arvostelu: 1 - 5, pass, fail

Opettajat: Häggman, Hely Margaretha

Opintokohteen kielet: Finnish

ECTS Credits:

4 ECTS credits / 107 hours of work.

Language of instruction:

Finnish / English.

Timing:

M.Sc. 1 st or 2 nd spring, (arranged if resources allow).

Learning outcomes:

The students will assess the plant hormone action, understand hormone interactions and the significance of the hormone balance as well as the molecular mechanisms.

Contents:

Plant hormones are signalling molecules with profound effects on growth and development at trace quantities. Until quite recently plant development was considered to be regulated by auxins, gibberellins, cytokinins, ethylene and abscisic acid. New analytical and molecular methods have evidenced new plant hormone receptors and signalling pathways. During the lectures the mode of action of the hormones and the latest literature is used to gain the most recent view of the topic.

Mode of delivery:

Face-to-face teaching.

Learning activities and teaching methods:

20 h and exam.

Target group:

Suitable for BSb and ecophysicologists.

Prerequisites and co-requisites:

Basics of functional plant biology lectures and exercises (752345A, 756341A).

Recommended optional programme components:

-

Recommended or required reading:

Chapters concerning plant hormones from Taiz, L. & Zeiger, E. 2010: Plant Physiology. Sinauer Associates Inc. 5. ed. and literature given in the lectures.

The availability of the literature can be checked from [this link](#).

Assessment methods and criteria:

Exam.

Read more about [assessment criteria](#) at the University of Oulu webpage.

Grading:

1-5 / Fail.

Person responsible:

Prof. Hely Häggman.

Working life cooperation:

No.

Other information:

-

750613S: Research training, 2 - 15 op

Opiskelumuoto: Advanced Studies

Laji: Practical training

Vastuuyksikkö: Field of Biology

Arvostelu: 1 - 5, pass, fail

Opintokohteen kielet: Finnish

Voidaan suorittaa useasti: Kyllä

ECTS Credits:

1-14 ECTS credits / 27-405 hours of work.

Language of instruction:

Finnish / English.

Timing:

M.Sc. degree.

Learning outcomes:

Student applies the education given knowledge and skills in working life to gain hands-on experience.

Contents:

Work on special projects in the different biology research groups at the department or elsewhere or independent project work including field and/or laboratory work or work at the biological stations. The work is not included to other study modules in biology.

Mode of delivery:

Face-to-face teaching.

Learning activities and teaching methods:

The topic and the study plan have to be agreed on in advance (registration form). The student has to keep diary and prepare a report on the work.

Target group:

-

Prerequisites and co-requisites:

No.

Recommended optional programme components:

-

Recommended or required reading:

-

Assessment methods and criteria:

Report.

Read more about [assessment criteria](#) at the University of Oulu webpage.

Grading:

Pass / Fail.

Person responsible:

Prof. Hely Häggman, Prof. Jari Oksanen, Prof. Markku Orell or Prof. Outi Savolainen.

Working life cooperation:

Yes. Participating to biology project gives working life skills.

Other information:

-

750313A: Research training, 2 - 15 op

Opiskelumuoto: Intermediate Studies

Laji: Practical training

Vastuuyksikkö: Field of Biology

Arvostelu: 1 - 5, pass, fail

Opintokohteen kielet: Finnish

Voidaan suorittaa useasti: Kyllä

ECTS Credits:

1-15 ECTS credits / 27-405 hours of work.

Language of instruction:

Finnish / English.

Timing:

B.Sc. degree.

Learning outcomes:

Student applies the education given knowledge and skills in working life to gain hands-on experience.

Contents:

Work on special projects in the different biology research groups at the department or elsewhere or independent project work including field and/or laboratory work or work at the biological stations. The work is not included to other study modules in biology.

Mode of delivery:

Face-to-face teaching.

Learning activities and teaching methods:

The topic and the study plan have to be agreed on in advance (registration form). The student has to keep diary and prepare a report on the work.

Target group:

-

Prerequisites and co-requisites:

No.

Recommended optional programme components:

-

Recommended or required reading:

-

Assessment methods and criteria:

Report.

Read more about [assessment criteria](#) at the University of Oulu webpage.**Grading:**

Pass / Fail.

Person responsible:

Prof. Markku Orell, Prof. Jari Oksanen, Prof. Outi Savolainen and Prof. Hely Häggman.

Working life cooperation:

Yes. Participating to biology project will give working life skills.

Other information:

-

755632S: Restoration ecology, 5 op**Voimassaolo:** 01.08.2015 -**Opiskelumuoto:** Advanced Studies**Laji:** Course**Vastuuyksikkö:** Field of Biology**Arvostelu:** 1 - 5, pass, fail**Opettajat:** Annamari Markkola, Tolvanen, Anne Kristiina**Opintokohteen kielet:** Finnish**Leikkaavuudet:**

756607S Restoration ecology 2.0 op

ECTS Credits:

5 ECTS credits / 133 hours of work.

Language of instruction:

Finnish / English.

Timing:

M.Sc. degree.

Learning outcomes:

Lectures: the student understands the ecological principles of restoration and remembers the basics of restoration options in different ecosystems. Exercises and excursion: the student is able to evaluate the need for restoration and possibilities of an ecosystem to regenerate, and apply the restoration techniques in practical restoration planning.

Contents:

Land-use impacts and ecosystem malfunctions caused by humans, ecological principles of restoration, prevention and restoration of manmade damage in the ecosystems. Examples from restoration options and practical techniques in terrestrial and aquatic ecosystems, and cultural landscapes.

Mode of delivery:

Face-to-face teaching.

Learning activities and teaching methods:

24 h lectures, exercises and an excursion.

Target group:

ECO.

Prerequisites and co-requisites:

No.

Recommended optional programme components:

-

Recommended or required reading:

Andre Clewell, James Aronson 2008: Ecological Restoration, Principles, Values, and Structure of an Emerging Profession, Island Press, 230 p. and articles in the Restoration Ecology journal.

The availability of the literature can be checked from [this link](#).

Assessment methods and criteria:

-

Read more about [assessment criteria](#) at the University of Oulu webpage.

Grading:

1-5 / Fail.

Person responsible:

Prof. Anne Tolvanen.

Working life cooperation:

No.

Other information:

-

756649S: Symbiosis, 5 op

Voimassaolo: 01.08.2015 -

Opiskelumuoto: Advanced Studies

Laji: Course

Vastuuyksikkö: Field of Biology

Arvostelu: 1 - 5, pass, fail

Opettajat: Anna-Maria Pirttilä

Opintokohteen kielet: Finnish

Leikkaavuudet:

750346A Symbiosis 4.0 op

750646S Symbiosis 4.0 op

ECTS Credits:

5 ECTS credits / 133 hours of work.

Language of instruction:

Finnish / English.

Timing:

B.Sc. degree 3rd spring, M.Sc. 1. or 2nd spring, arranged if resources allow.

Learning outcomes:

The student knows the concept of symbiosis, understands the extent of diversity of symbiotic interactions both at the community and molecular level.

Contents:

Lately new forms of symbiosis have been discovered, extending the diversity of symbiotic interactions. Therefore the significance of symbiosis in biotechnology and for example in human health has increased. Various forms of symbiosis, their importance for the host and interaction at the molecular level are covered.

Mode of delivery:

Face-to-face teaching.

Learning activities and teaching methods:

30 h Lectures / laboratory work / demonstrations, seminar, essay, lecture diary.

Target group:

BS and ecophysiology students.

Prerequisites and co-requisites:

Studies in bioscience.

Recommended optional programme components:

-

Recommended or required reading:

Lecture notes.

Assessment methods and criteria:

Seminar, essay, lecture diary.

Read more about [assessment criteria](#) at the University of Oulu webpage.

Grading:

1-5 / Fail.

Person responsible:

Doc. Anna Maria Pirttilä.

Working life cooperation:

No.

Other information:

750318A: Thursday seminar in biology, 2 op

Voimassaolo: 01.08.2011 -

Opiskelumuoto: Intermediate Studies

Laji: Course

Vastuuyksikkö: Field of Biology

Arvostelu: 1 - 5, pass, fail

Opettajat: Kuittinen, Helmi Helena

Opintokohteen kielet: English

Voidaan suorittaa useasti: Kyllä

ECTS Credits:

2 ECTS credits / 53 hours of work.

Language of instruction:

English.

Timing:

B.Sc., M.Sc. or Ph.D. degree.

Learning outcomes:

Students get knowledge about the current results and theories in biology.

Contents:

Lectures in English on current topics in biology given by guest lecturers from Finland or abroad.

Mode of delivery:

Face-to-face teaching.

Learning activities and teaching methods:

Guest lectures on Thursdays 12 am-1 pm. See seminar programme: <https://noppa oulu.fi/noppa/kurssi/750616S/etusivu>

Target group:

Undergraduate and postgraduate students interested in biology.

Prerequisites and co-requisites:

No.

Recommended optional programme components:

-

Recommended or required reading:

-

Assessment methods and criteria:

10 participations and 10 one page long reports. Seminar essays can be done during multiple semesters. Read more about [assessment criteria](#) at the University of Oulu webpage.

Grading:

Pass / Fail.

Person responsible:

Doc. Helmi Kuittinen.

Working life cooperation:

No.

Other information:

-

755328A: Wildlife management and game animal ecology, 5 op

Voimassaolo: 01.08.2015 -

Opiskelumuoto: Intermediate Studies

Laji: Course

Vastuuyksikkö: Field of Biology

Arvostelu: 1 - 5, pass, fail

Opettajat: Jouni Aspi, Kari Koivula

Opintokohteen kielet: Finnish

Leikkaavuudet:

751368A Wildlife management and game animal ecology 6.0 op

ECTS Credits:

5 cr / 133 hours of work.

Language of instruction:

Finnish / English.

Timing:

B.Sc. 3rd autumn or M.Sc. 1st autumn.

Learning outcomes:

After carrying out the study module the student will be able to recognize special ecological traits of the game animals and relate them to the general ecological framework. The student will be also to appraise the basics of durable hunting of game animals. The student will be also able to appraise the basics of durable hunting of game animals and critically judge different wildlife management methods from the scientific starting point.

Contents:

The ecology of game species, their life histories, population dynamics and predator-prey relationships. Hunting ecology: man as predator, management and hunting of the game species. The impact of forestry on the game species' populations. Students are also introduced to wildlife management in practice and to the social aspect of wildlife-human relationship.

Mode of delivery:

Face-to-face teaching.

Learning activities and teaching methods:

24 h lectures, one-day excursion to a game breeding area, seminar with written reports and exam.

Target group:

-

Prerequisites and co-requisites:

No.

Recommended optional programme components:

-

Recommended or required reading:

-

Assessment methods and criteria:

Seminar with report and exam.

Grading:

1-5 / Fail.

Person responsible:

Prof. Jouni Aspi ja doc. Kari Koivula.

Working life cooperation:

Yes.

Other information:

-

750377A: Winter ecology and physiology, 5 op**Voimassaolo:** 01.08.2015 -**Opiskelumuoto:** Intermediate Studies**Laji:** Course**Vastuuyksikkö:** Field of Biology**Arvostelu:** 1 - 5, pass, fail**Opettajat:** Kari Taulavuori**Opintokohteen kielet:** Finnish**Leikkaavuudet:**

750325A Winter ecology and physiology 3.0 op

ECTS Credits:

5 ECTS credits / 133 hours of work.

Language of instruction:

English.

Timing:

B.Sc. 3 rd or M.Sc. 1 st spring. NNE.

Learning outcomes:

Student obtains basic knowledge of animal and plant acclimations and adaptations to winter, and can evaluate the effects of cold temperatures and snow on overwintering, and learns central methodology in winter ecology and physiology.

Contents:

Three independent units: 1) Winter ecology and physiology course (7 h lectures and 13 h laboratory practicals and 4 h seminar in Oulu, and 4 day long field excursion to the Oulanka Research Station (total about 50 h, 3 cr); 2) Book exam on a common exam day 2 cr: Marchand, P. J. 1996: Life in the cold. An introduction to winter ecology.

Mode of delivery:

Face-to-face teaching.

Learning activities and teaching methods:

Lectures, exercises, report and seminar presentation.

Target group:

Biology students.

Prerequisites and co-requisites:

Courses Basics of ecology (750124P), Field course in ecological botany (752304A), Cell biology (750121P), Field course in terrestrial animals (751306A), Field course in aquatic animals (751307A) and Basics of functional plant biology, lectures (752345A) or equivalent knowledge.

Recommended optional programme components:

-

Recommended or required reading:

Marchand, P. J. 1996: Life in the cold. An introduction to winter ecology. (3rd edition). University Press of New England. 304 p.

The availability of the literature can be checked from [this link](#).

Assessment methods and criteria:

Seminar presentation and book exam.

Read more about [assessment criteria](#) at the University of Oulu webpage.

Grading:

Course + seminar: Pass / Fail, book exam: 1-5 / Fail.

Person responsible:

Doc. Kari Taulavuori.

Working life cooperation:

No.

Other information:

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